

## Appendix B – SIDRA Movement Summaries

### Industrial Development

#### Greenwood St / Kahikatea Dr Intersection

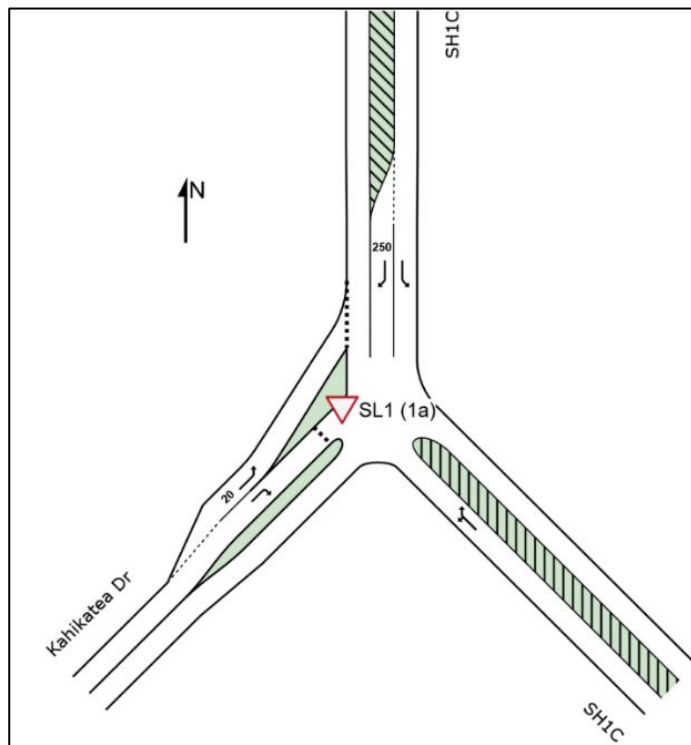


Figure: Existing Greenwood St (SH1C) / Kahikatea Dr Intersection Layout

## 2030 Baseline - AM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|-------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | 95% Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.            | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    | v/c       | sec         |                  | veh               | m      |            |                |                            | km/h        |
| SouthEast: SH1C              |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 21                           | L2   | All MCs   | 199          | 10.6 | 199           | 10.6 | 0.587     | 5.0         | LOS A            | 0.0               | 0.0    | 0.00       | 0.50           | 0.00                       | 45.8        |
| 23a                          | R1   | All MCs   | 862          | 8.4  | 862           | 8.4  | 0.587     | 4.1         | LOS A            | 0.0               | 0.0    | 0.00       | 0.50           | 0.00                       | 46.0        |
| Approach                     |      |           | 1061         | 8.8  | 1061          | 8.8  | 0.587     | 4.3         | NA               | 0.0               | 0.0    | 0.00       | 0.50           | 0.00                       | 45.9        |
| North: SH1C                  |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 7a                           | L1   | All MCs   | 1038         | 8.9  | 1038          | 8.9  | 0.571     | 4.4         | LOS A            | 0.0               | 0.0    | 0.00       | 0.51           | 0.00                       | 45.8        |
| 9a                           | R1   | All MCs   | 73           | 21.4 | 73            | 21.4 | 0.701     | 60.4        | LOS F            | 2.2               | 18.3   | 0.96       | 1.17           | 1.60                       | 26.9        |
| Approach                     |      |           | 1111         | 9.7  | 1111          | 9.7  | 0.701     | 8.0         | NA               | 2.2               | 18.3   | 0.06       | 0.56           | 0.10                       | 43.8        |
| SouthWest: Kahikatea Dr      |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 30a                          | L1   | All MCs   | 145          | 20.5 | 145           | 20.5 | 0.684     | 33.1        | LOS D            | 3.0               | 25.0   | 0.92       | 1.21           | 1.71                       | 33.7        |
| 32                           | R2   | All MCs   | 202          | 18.3 | 202           | 18.3 | 0.863     | 35.2        | LOS E            | 3.4               | 27.7   | 0.97       | 1.41           | 2.49                       | 33.1        |
| Approach                     |      |           | 347          | 19.2 | 347           | 19.2 | 0.863     | 34.3        | LOS D            | 3.4               | 27.7   | 0.95       | 1.33           | 2.16                       | 33.3        |
| All Vehicles                 |      |           | 2519         | 10.6 | 2519          | 10.6 | 0.863     | 10.1        | NA               | 3.4               | 27.7   | 0.16       | 0.64           | 0.34                       | 42.8        |

## 2030 Baseline - PM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|-------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | 95% Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.            | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    | v/c       | sec         |                  | veh               | m      |            |                |                            | km/h        |
| SouthEast: SH1C              |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 21                           | L2   | All MCs   | 326          | 5.6  | 326           | 5.6  | 0.770     | 5.3         | LOS A            | 0.0               | 0.0    | 0.00       | 0.50           | 0.00                       | 45.4        |
| 23a                          | R1   | All MCs   | 1101         | 4.7  | 1101          | 4.7  | 0.770     | 4.5         | LOS A            | 0.0               | 0.0    | 0.00       | 0.50           | 0.00                       | 45.5        |
| Approach                     |      |           | 1427         | 4.9  | 1427          | 4.9  | 0.770     | 4.7         | NA               | 0.0               | 0.0    | 0.00       | 0.50           | 0.00                       | 45.5        |
| North: SH1C                  |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 7a                           | L1   | All MCs   | 978          | 3.3  | 978           | 3.3  | 0.518     | 4.2         | LOS A            | 0.0               | 0.0    | 0.00       | 0.51           | 0.00                       | 46.0        |
| 9a                           | R1   | All MCs   | 98           | 15.5 | 98            | 15.5 | 0.754     | 49.6        | LOS E            | 2.2               | 17.1   | 0.98       | 1.19           | 1.71                       | 29.3        |
| Approach                     |      |           | 1076         | 4.4  | 1076          | 4.4  | 0.754     | 8.4         | NA               | 2.2               | 17.1   | 0.09       | 0.58           | 0.16                       | 43.7        |

|                         |    |         |      |     |      |     |       |      |       |     |      |      |      |      |      |
|-------------------------|----|---------|------|-----|------|-----|-------|------|-------|-----|------|------|------|------|------|
| SouthWest: Kahikatea Dr |    |         |      |     |      |     |       |      |       |     |      |      |      |      |      |
| 30a                     | L1 | All MCs | 207  | 9.8 | 207  | 9.8 | 0.686 | 24.2 | LOS C | 3.0 | 23.1 | 0.93 | 1.20 | 1.70 | 36.8 |
| 32                      | R2 | All MCs | 123  | 7.3 | 123  | 7.3 | 0.366 | 15.0 | LOS C | 0.9 | 6.9  | 0.88 | 0.99 | 1.07 | 40.6 |
| Approach                |    |         | 330  | 8.9 | 330  | 8.9 | 0.686 | 20.8 | LOS C | 3.0 | 23.1 | 0.91 | 1.12 | 1.47 | 38.1 |
| All Vehicles            |    |         | 2834 | 5.2 | 2834 | 5.2 | 0.770 | 8.0  | NA    | 3.0 | 23.1 | 0.14 | 0.60 | 0.23 | 43.8 |

### 2030 Baseline + 1 ha developable land (Industrial) - AM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|-------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | 95% Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.            | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    | v/c       | sec         |                  | veh               | m      |            |                |                            | km/h        |
| SouthEast: SH1C              |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 21                           | L2   | All MCs   | 208          | 11.2 | 208           | 11.2 | 0.592     | 5.0         | LOS A            | 0.0               | 0.0    | 0.00       | 0.50           | 0.00                       | 45.8        |
| 23a                          | R1   | All MCs   | 862          | 8.4  | 862           | 8.4  | 0.592     | 4.1         | LOS A            | 0.0               | 0.0    | 0.00       | 0.50           | 0.00                       | 45.9        |
| Approach                     |      |           | 1070         | 9.0  | 1070          | 9.0  | 0.592     | 4.3         | NA               | 0.0               | 0.0    | 0.00       | 0.50           | 0.00                       | 45.9        |
| North: SH1C                  |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 7a                           | L1   | All MCs   | 1038         | 8.9  | 1038          | 8.9  | 0.571     | 4.4         | LOS A            | 0.0               | 0.0    | 0.00       | 0.51           | 0.00                       | 45.8        |
| 9a                           | R1   | All MCs   | 75           | 20.8 | 75            | 20.8 | 0.751     | 66.6        | LOS F            | 2.5               | 20.3   | 0.97       | 1.21           | 1.74                       | 25.7        |
| Approach                     |      |           | 1114         | 9.7  | 1114          | 9.7  | 0.751     | 8.6         | NA               | 2.5               | 20.3   | 0.07       | 0.56           | 0.12                       | 43.5        |
| SouthWest: Kahikatea Dr      |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 30a                          | L1   | All MCs   | 145          | 20.3 | 145           | 20.3 | 0.682     | 33.0        | LOS D            | 3.0               | 24.8   | 0.92       | 1.21           | 1.70                       | 33.8        |
| 32                           | R2   | All MCs   | 206          | 18.3 | 206           | 18.3 | 0.887     | 38.3        | LOS E            | 3.8               | 30.5   | 0.98       | 1.48           | 2.74                       | 32.2        |
| Approach                     |      |           | 351          | 19.2 | 351           | 19.2 | 0.887     | 36.1        | LOS E            | 3.8               | 30.5   | 0.96       | 1.37           | 2.31                       | 32.8        |
| All Vehicles                 |      |           | 2535         | 10.7 | 2535          | 10.7 | 0.887     | 10.6        | NA               | 3.8               | 30.5   | 0.16       | 0.65           | 0.37                       | 42.5        |

### 2030 Baseline + 1 ha developable land (Industrial) - PM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|-------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | 95% Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.            | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    | v/c       | sec         |                  | veh               | m      |            |                |                            | km/h        |
| SouthEast: SH1C              |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 21                           | L2   | All MCs   | 330          | 5.6  | 330           | 5.6  | 0.771     | 5.3         | LOS A            | 0.0               | 0.0    | 0.00       | 0.50           | 0.00                       | 45.4        |

|                         |    |         |      |      |      |      |       |      |       |     |      |      |      |      |      |
|-------------------------|----|---------|------|------|------|------|-------|------|-------|-----|------|------|------|------|------|
| 23a                     | R1 | All MCs | 1101 | 4.7  | 1101 | 4.7  | 0.771 | 4.5  | LOS A | 0.0 | 0.0  | 0.00 | 0.50 | 0.00 | 45.5 |
| Approach                |    |         | 1431 | 4.9  | 1431 | 4.9  | 0.771 | 4.7  | NA    | 0.0 | 0.0  | 0.00 | 0.50 | 0.00 | 45.5 |
| North: SH1C             |    |         |      |      |      |      |       |      |       |     |      |      |      |      |      |
| 7a                      | L1 | All MCs | 978  | 3.3  | 978  | 3.3  | 0.518 | 4.2  | LOS A | 0.0 | 0.0  | 0.00 | 0.51 | 0.00 | 46.0 |
| 9a                      | R1 | All MCs | 99   | 15.1 | 99   | 15.1 | 0.768 | 51.0 | LOS F | 2.2 | 17.6 | 0.98 | 1.21 | 1.75 | 29.0 |
| Approach                |    |         | 1077 | 4.3  | 1077 | 4.3  | 0.768 | 8.5  | NA    | 2.2 | 17.6 | 0.09 | 0.58 | 0.16 | 43.6 |
| SouthWest: Kahikatea Dr |    |         |      |      |      |      |       |      |       |     |      |      |      |      |      |
| 30a                     | L1 | All MCs | 207  | 9.6  | 207  | 9.6  | 0.683 | 24.0 | LOS C | 3.0 | 22.9 | 0.92 | 1.20 | 1.69 | 36.9 |
| 32                      | R2 | All MCs | 131  | 7.9  | 131  | 7.9  | 0.396 | 15.5 | LOS C | 1.0 | 7.6  | 0.88 | 1.00 | 1.10 | 40.4 |
| Approach                |    |         | 338  | 9.0  | 338  | 9.0  | 0.683 | 20.7 | LOS C | 3.0 | 22.9 | 0.91 | 1.12 | 1.46 | 38.2 |
| All Vehicles            |    |         | 2846 | 5.2  | 2846 | 5.2  | 0.771 | 8.1  | NA    | 3.0 | 22.9 | 0.14 | 0.60 | 0.24 | 43.8 |

## Option A: If HSL Stage 1A is constructed and open

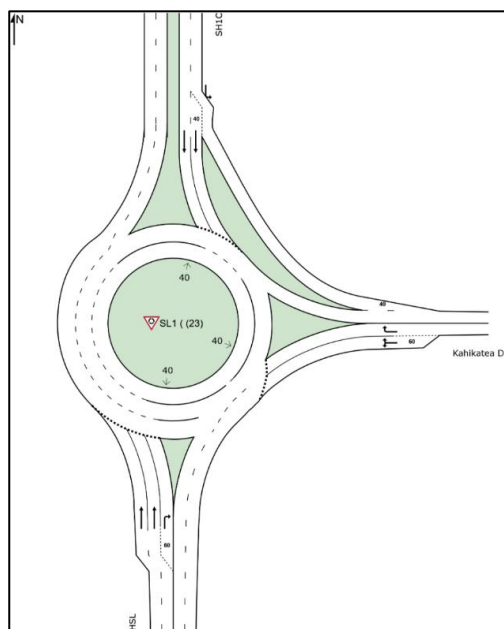


Figure: Future Planned Greenwood St (SH1C) / Kahikatea Dr Roundabout Indicative Layout – Proposed Concept

## ITA Scenario 2 – AM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|---------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | Aver. Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.              | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    | v/c       | sec         |                  | veh                 | m      |            |                |                            | km/h        |
| South: HSL                   |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 2                            | T1   | All MCs   | 61           | 9.0  | 61            | 9.0  | 0.040     | 7.7         | LOS A            | 0.1                 | 0.4    | 0.58       | 0.66           | 0.58                       | 59.7        |
| 3                            | R2   | All MCs   | 57           | 9.0  | 57            | 9.0  | 0.056     | 17.1        | LOS B            | 0.1                 | 0.7    | 0.58       | 0.75           | 0.58                       | 44.4        |
| Approach                     |      |           | 118          | 9.0  | 118           | 9.0  | 0.056     | 12.2        | LOS B            | 0.1                 | 0.7    | 0.58       | 0.70           | 0.58                       | 51.1        |
| East: Kahikatea Dr           |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 4                            | L2   | All MCs   | 144          | 9.0  | 144           | 9.0  | 0.540     | 3.3         | LOS A            | 1.3                 | 9.6    | 0.51       | 0.61           | 0.51                       | 41.3        |
| 6                            | R2   | All MCs   | 1173         | 8.4  | 1173          | 8.4  | 0.540     | 9.1         | LOS A            | 1.3                 | 9.9    | 0.52       | 0.63           | 0.53                       | 48.3        |
| Approach                     |      |           | 1317         | 8.5  | 1317          | 8.5  | 0.540     | 8.4         | LOS A            | 1.3                 | 9.9    | 0.52       | 0.63           | 0.53                       | 47.8        |
| North: SH1C                  |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 7                            | L2   | All MCs   | 1378         | 8.9  | 1378          | 8.9  | 0.781     | 4.9         | LOS A            | 0.0                 | 0.0    | 0.00       | 0.45           | 0.00                       | 63.3        |
| 8                            | T1   | All MCs   | 303          | 9.0  | 303           | 9.0  | 0.093     | 5.0         | LOS A            | 0.2                 | 1.6    | 0.18       | 0.38           | 0.18                       | 61.1        |
| Approach                     |      |           | 1681         | 8.9  | 1681          | 8.9  | 0.781     | 4.9         | LOS A            | 0.2                 | 1.6    | 0.03       | 0.44           | 0.03                       | 63.0        |
| All Vehicles                 |      |           | 3116         | 8.7  | 3116          | 8.7  | 0.781     | 6.7         | LOS A            | 1.3                 | 9.9    | 0.26       | 0.53           | 0.26                       | 54.8        |

## ITA Scenario 2 – PM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|---------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | Aver. Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.              | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    | v/c       | sec         |                  | veh                 | m      |            |                |                            | km/h        |
| South: HSL                   |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 2                            | T1   | All MCs   | 320          | 5.0  | 320           | 5.0  | 0.244     | 9.2         | LOS A            | 0.4                 | 3.0    | 0.70       | 0.81           | 0.70                       | 59.8        |
| 3                            | R2   | All MCs   | 165          | 5.0  | 165           | 5.0  | 0.184     | 16.2        | LOS B            | 0.4                 | 2.7    | 0.72       | 0.83           | 0.72                       | 50.3        |
| Approach                     |      |           | 485          | 5.0  | 485           | 5.0  | 0.244     | 11.6        | LOS B            | 0.4                 | 3.0    | 0.71       | 0.81           | 0.71                       | 56.1        |
| East: Kahikatea Dr           |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 4                            | L2   | All MCs   | 39           | 5.0  | 39            | 5.0  | 0.578     | 2.0         | LOS A            | 1.7                 | 12.4   | 0.40       | 0.53           | 0.40                       | 38.5        |
| 6                            | R2   | All MCs   | 1582         | 5.0  | 1582          | 5.0  | 0.578     | 7.0         | LOS A            | 1.7                 | 12.4   | 0.41       | 0.53           | 0.41                       | 46.9        |
| Approach                     |      |           | 1621         | 5.0  | 1621          | 5.0  | 0.578     | 6.9         | LOS A            | 1.7                 | 12.4   | 0.41       | 0.53           | 0.41                       | 46.7        |

|              |    |         |      |     |      |     |       |     |       |     |      |      |      |      |      |
|--------------|----|---------|------|-----|------|-----|-------|-----|-------|-----|------|------|------|------|------|
| North: SH1C  |    |         |      |     |      |     |       |     |       |     |      |      |      |      |      |
| 7            | L2 | All MCs | 1042 | 5.0 | 1042 | 5.0 | 0.575 | 4.6 | LOS A | 0.0 | 0.0  | 0.00 | 0.45 | 0.00 | 65.0 |
| 8            | T1 | All MCs | 137  | 5.0 | 137  | 5.0 | 0.045 | 5.3 | LOS A | 0.1 | 0.8  | 0.32 | 0.42 | 0.32 | 59.3 |
| Approach     |    |         | 1179 | 5.0 | 1179 | 5.0 | 0.575 | 4.7 | LOS A | 0.1 | 0.8  | 0.04 | 0.45 | 0.04 | 64.6 |
| All Vehicles |    |         | 3285 | 5.0 | 3285 | 5.0 | 0.578 | 6.8 | LOS A | 1.7 | 12.4 | 0.32 | 0.54 | 0.32 | 53.0 |

### ITA Scenario 3 – AM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|---------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | Aver. Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.              | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    | v/c       | sec         |                  | veh                 | m      |            |                |                            | km/h        |
| South: HSL                   |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 2                            | T1   | All MCs   | 677          | 9.0  | 677           | 9.0  | 0.380     | 7.6         | LOS A            | 0.8                 | 5.9    | 0.68       | 0.75           | 0.71                       | 59.0        |
| 3                            | R2   | All MCs   | 203          | 9.0  | 203           | 9.0  | 0.269     | 15.0        | LOS B            | 0.5                 | 3.5    | 0.64       | 0.83           | 0.64                       | 44.2        |
| Approach                     |      |           | 880          | 9.0  | 880           | 9.0  | 0.380     | 9.3         | LOS A            | 0.8                 | 5.9    | 0.67       | 0.77           | 0.69                       | 54.7        |
| East: Kahikatea Dr           |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 4                            | L2   | All MCs   | 104          | 9.0  | 104           | 9.0  | 0.619     | 6.2         | LOS A            | 1.8                 | 13.5   | 0.76       | 0.89           | 0.96                       | 39.2        |
| 6                            | R2   | All MCs   | 1001         | 8.4  | 1001          | 8.4  | 0.619     | 12.3        | LOS B            | 1.8                 | 13.5   | 0.77       | 0.91           | 0.99                       | 46.7        |
| Approach                     |      |           | 1105         | 8.5  | 1105          | 8.5  | 0.619     | 11.7        | LOS B            | 1.8                 | 13.5   | 0.76       | 0.91           | 0.98                       | 46.2        |
| North: SH1C                  |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 7                            | L2   | All MCs   | 825          | 8.9  | 825           | 8.9  | 0.468     | 4.6         | LOS A            | 0.0                 | 0.0    | 0.00       | 0.45           | 0.00                       | 64.1        |
| 8                            | T1   | All MCs   | 849          | 9.0  | 849           | 9.0  | 0.293     | 5.7         | LOS A            | 0.8                 | 6.1    | 0.43       | 0.46           | 0.43                       | 58.0        |
| Approach                     |      |           | 1675         | 9.0  | 1675          | 9.0  | 0.468     | 5.1         | LOS A            | 0.8                 | 6.1    | 0.22       | 0.46           | 0.22                       | 61.7        |
| All Vehicles                 |      |           | 3660         | 8.8  | 3660          | 8.8  | 0.619     | 8.1         | LOS A            | 1.8                 | 13.5   | 0.49       | 0.67           | 0.56                       | 53.8        |

### ITA Scenario 3 – PM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|---------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | Aver. Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.              | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    | v/c       | sec         |                  | veh                 | m      |            |                |                            | km/h        |
| South: HSL                   |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 2                            | T1   | All MCs   | 1006         | 5.0  | 1006          | 5.0  | 0.636     | 9.4         | LOS A            | 1.8                 | 13.3   | 0.84       | 0.90           | 1.02                       | 57.7        |

|                    |    |         |      |     |      |     |       |      |       |     |      |      |      |      |      |
|--------------------|----|---------|------|-----|------|-----|-------|------|-------|-----|------|------|------|------|------|
| 3                  | R2 | All MCs | 136  | 5.0 | 136  | 5.0 | 0.208 | 14.7 | LOS B | 0.4 | 2.7  | 0.69 | 0.85 | 0.69 | 50.4 |
| Approach           |    |         | 1142 | 5.0 | 1142 | 5.0 | 0.636 | 10.1 | LOS B | 1.8 | 13.3 | 0.82 | 0.90 | 0.98 | 56.7 |
| East: Kahikatea Dr |    |         |      |     |      |     |       |      |       |     |      |      |      |      |      |
| 4                  | L2 | All MCs | 188  | 5.0 | 188  | 5.0 | 0.849 | 12.1 | LOS B | 4.0 | 29.2 | 0.92 | 1.30 | 1.74 | 33.5 |
| 6                  | R2 | All MCs | 1155 | 5.0 | 1155 | 5.0 | 0.849 | 18.7 | LOS B | 4.0 | 29.2 | 0.92 | 1.31 | 1.78 | 41.9 |
| Approach           |    |         | 1343 | 5.0 | 1343 | 5.0 | 0.849 | 17.7 | LOS B | 4.0 | 29.2 | 0.92 | 1.31 | 1.78 | 41.1 |
| North: SH1C        |    |         |      |     |      |     |       |      |       |     |      |      |      |      |      |
| 7                  | L2 | All MCs | 709  | 5.0 | 709  | 5.0 | 0.392 | 4.5  | LOS A | 0.0 | 0.0  | 0.00 | 0.46 | 0.00 | 65.2 |
| 8                  | T1 | All MCs | 1227 | 5.0 | 1227 | 5.0 | 0.394 | 5.4  | LOS A | 1.2 | 8.9  | 0.39 | 0.43 | 0.39 | 58.5 |
| Approach           |    |         | 1937 | 5.0 | 1937 | 5.0 | 0.394 | 5.1  | LOS A | 1.2 | 8.9  | 0.25 | 0.44 | 0.25 | 61.8 |
| All Vehicles       |    |         | 4422 | 5.0 | 4422 | 5.0 | 0.849 | 10.2 | LOS B | 4.0 | 29.2 | 0.60 | 0.82 | 0.90 | 51.5 |

#### ITA Scenario 4 – AM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|---------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | Aver. Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.              | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    | v/c       | sec         |                  | veh                 | m      |            |                |                            | km/h        |
| South: HSL                   |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 2                            | T1   | All MCs   | 749          | 9.0  | 749           | 9.0  | 0.493     | 8.8         | LOS A            | 1.2                 | 9.2    | 0.79       | 0.85           | 0.90                       | 58.0        |
| 3                            | R2   | All MCs   | 157          | 9.0  | 157           | 9.0  | 0.245     | 16.8        | LOS B            | 0.4                 | 3.3    | 0.71       | 0.86           | 0.71                       | 44.1        |
| Approach                     |      |           | 906          | 9.0  | 906           | 9.0  | 0.493     | 10.2        | LOS B            | 1.2                 | 9.2    | 0.78       | 0.85           | 0.86                       | 54.9        |
| East: Kahikatea Dr           |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 4                            | L2   | All MCs   | 81           | 9.0  | 81            | 9.0  | 0.765     | 9.2         | LOS A            | 2.9                 | 21.5   | 0.87       | 1.08           | 1.34                       | 37.2        |
| 6                            | R2   | All MCs   | 1166         | 8.4  | 1166          | 8.4  | 0.765     | 15.7        | LOS B            | 2.9                 | 21.5   | 0.87       | 1.10           | 1.36                       | 44.9        |
| Approach                     |      |           | 1247         | 8.4  | 1247          | 8.4  | 0.765     | 15.3        | LOS B            | 2.9                 | 21.5   | 0.87       | 1.10           | 1.36                       | 44.6        |
| North: SH1C                  |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 7                            | L2   | All MCs   | 1188         | 8.9  | 1188          | 8.9  | 0.674     | 4.8         | LOS A            | 0.0                 | 0.0    | 0.00       | 0.45           | 0.00                       | 63.7        |
| 8                            | T1   | All MCs   | 1058         | 9.0  | 1058          | 9.0  | 0.354     | 5.5         | LOS A            | 1.0                 | 7.9    | 0.41       | 0.44           | 0.41                       | 58.3        |
| Approach                     |      |           | 2246         | 8.9  | 2246          | 8.9  | 0.674     | 5.1         | LOS A            | 1.0                 | 7.9    | 0.19       | 0.45           | 0.19                       | 61.8        |
| All Vehicles                 |      |           | 4400         | 8.8  | 4400          | 8.8  | 0.765     | 9.0         | LOS A            | 2.9                 | 21.5   | 0.50       | 0.71           | 0.66                       | 53.6        |

## ITA Scenario 4 – PM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|---------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | Aver. Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.              | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    | v/c       | sec         |                  | veh                 | m      |            |                |                            | km/h        |
| South: HSL                   |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 2                            | T1   | All MCs   | 1132         | 5.0  | 1132          | 5.0  | 0.688     | 10.0        | LOS A            | 2.2                 | 16.0   | 0.86       | 0.92           | 1.10                       | 57.1        |
| 3                            | R2   | All MCs   | 75           | 5.0  | 75            | 5.0  | 0.112     | 14.7        | LOS B            | 0.2                 | 1.4    | 0.65       | 0.82           | 0.65                       | 50.5        |
| Approach                     |      |           | 1206         | 5.0  | 1206          | 5.0  | 0.688     | 10.3        | LOS B            | 2.2                 | 16.0   | 0.84       | 0.92           | 1.07                       | 56.7        |
| East: Kahikatea Dr           |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 4                            | L2   | All MCs   | 20           | 5.0  | 20            | 5.0  | 0.747     | 10.3        | LOS B            | 2.8                 | 20.1   | 0.88       | 1.16           | 1.46                       | 34.1        |
| 6                            | R2   | All MCs   | 1089         | 5.0  | 1089          | 5.0  | 0.747     | 16.5        | LOS B            | 2.8                 | 20.1   | 0.88       | 1.18           | 1.48                       | 42.7        |
| Approach                     |      |           | 1109         | 5.0  | 1109          | 5.0  | 0.747     | 16.4        | LOS B            | 2.8                 | 20.1   | 0.88       | 1.18           | 1.48                       | 42.6        |
| North: SH1C                  |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 7                            | L2   | All MCs   | 774          | 5.0  | 774           | 5.0  | 0.427     | 4.5         | LOS A            | 0.0                 | 0.0    | 0.00       | 0.46           | 0.00                       | 65.2        |
| 8                            | T1   | All MCs   | 1462         | 5.0  | 1462          | 5.0  | 0.448     | 5.2         | LOS A            | 1.5                 | 10.9   | 0.31       | 0.40           | 0.31                       | 59.5        |
| Approach                     |      |           | 2236         | 5.0  | 2236          | 5.0  | 0.448     | 4.9         | LOS A            | 1.5                 | 10.9   | 0.20       | 0.42           | 0.20                       | 62.2        |
| All Vehicles                 |      |           | 4552         | 5.0  | 4552          | 5.0  | 0.747     | 9.1         | LOS A            | 2.8                 | 20.1   | 0.54       | 0.73           | 0.74                       | 53.4        |

## ITA Scenario 5 – AM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|---------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | Aver. Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.              | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    | v/c       | sec         |                  | veh                 | m      |            |                |                            | km/h        |
| South: HSL                   |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 2                            | T1   | All MCs   | 1145         | 9.0  | 1145          | 9.0  | 0.684     | 9.5         | LOS A            | 2.1                 | 16.1   | 0.84       | 0.83           | 1.05                       | 56.6        |
| 3                            | R2   | All MCs   | 454          | 9.0  | 454           | 9.0  | 0.627     | 18.0        | LOS B            | 1.6                 | 12.3   | 0.81       | 0.93           | 0.99                       | 43.2        |
| Approach                     |      |           | 1599         | 9.0  | 1599          | 9.0  | 0.684     | 11.9        | LOS B            | 2.1                 | 16.1   | 0.83       | 0.86           | 1.03                       | 51.9        |
| East: Kahikatea Dr           |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 4                            | L2   | All MCs   | 296          | 9.0  | 296           | 9.0  | 0.902     | 16.5        | LOS B            | 5.0                 | 37.5   | 0.99       | 1.38           | 2.03                       | 33.5        |
| 6                            | R2   | All MCs   | 963          | 8.4  | 963           | 8.4  | 0.902     | 24.1        | LOS C            | 5.0                 | 37.5   | 0.98       | 1.39           | 2.06                       | 41.3        |
| Approach                     |      |           | 1259         | 8.5  | 1259          | 8.5  | 0.902     | 22.3        | LOS C            | 5.0                 | 37.5   | 0.98       | 1.39           | 2.05                       | 40.0        |

|              |    |         |      |     |      |     |       |      |       |     |      |      |      |      |      |
|--------------|----|---------|------|-----|------|-----|-------|------|-------|-----|------|------|------|------|------|
| North: SH1C  |    |         |      |     |      |     |       |      |       |     |      |      |      |      |      |
| 7            | L2 | All MCs | 999  | 8.9 | 999  | 8.9 | 0.566 | 4.9  | LOS A | 0.0 | 0.0  | 0.00 | 0.45 | 0.00 | 63.9 |
| 8            | T1 | All MCs | 1104 | 9.0 | 1104 | 9.0 | 0.471 | 7.1  | LOS A | 1.6 | 12.4 | 0.75 | 0.59 | 0.75 | 54.4 |
| Approach     |    |         | 2103 | 9.0 | 2103 | 9.0 | 0.566 | 6.1  | LOS A | 1.6 | 12.4 | 0.39 | 0.52 | 0.39 | 60.0 |
| All Vehicles |    |         | 4961 | 8.9 | 4961 | 8.9 | 0.902 | 12.1 | LOS B | 5.0 | 37.5 | 0.68 | 0.85 | 1.02 | 50.4 |

### **ITA Scenario 5 – PM Peak**

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|---------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | Aver. Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.              | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    | v/c       | sec         |                  | veh                 | m      |            |                |                            | km/h        |
| South: HSL                   |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 2                            | T1   | All MCs   | 1075         | 5.0  | 1075          | 5.0  | 0.669     | 9.8         | LOS A            | 2.0                 | 14.6   | 0.84       | 0.86           | 1.07                       | 57.4        |
| 3                            | R2   | All MCs   | 207          | 5.0  | 207           | 5.0  | 0.306     | 15.1        | LOS B            | 0.6                 | 4.1    | 0.71       | 0.84           | 0.71                       | 50.4        |
| Approach                     |      |           | 1282         | 5.0  | 1282          | 5.0  | 0.669     | 10.6        | LOS B            | 2.0                 | 14.6   | 0.82       | 0.85           | 1.01                       | 56.1        |
| East: Kahikatea Dr           |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 4                            | L2   | All MCs   | 193          | 5.0  | 193           | 5.0  | 0.744     | 6.8         | LOS A            | 2.7                 | 20.0   | 0.83       | 0.99           | 1.17                       | 36.1        |
| 6                            | R2   | All MCs   | 1185         | 5.0  | 1185          | 5.0  | 0.744     | 12.6        | LOS B            | 2.7                 | 20.0   | 0.83       | 1.02           | 1.20                       | 44.6        |
| Approach                     |      |           | 1378         | 5.0  | 1378          | 5.0  | 0.744     | 11.8        | LOS B            | 2.7                 | 20.0   | 0.83       | 1.01           | 1.20                       | 43.8        |
| North: SH1C                  |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 7                            | L2   | All MCs   | 811          | 5.0  | 811           | 5.0  | 0.447     | 4.5         | LOS A            | 0.0                 | 0.0    | 0.00       | 0.46           | 0.00                       | 65.1        |
| 8                            | T1   | All MCs   | 846          | 5.0  | 846           | 5.0  | 0.286     | 5.6         | LOS A            | 0.8                 | 5.9    | 0.43       | 0.46           | 0.43                       | 58.0        |
| Approach                     |      |           | 1657         | 5.0  | 1657          | 5.0  | 0.447     | 5.1         | LOS A            | 0.8                 | 5.9    | 0.22       | 0.46           | 0.22                       | 62.3        |
| All Vehicles                 |      |           | 4317         | 5.0  | 4317          | 5.0  | 0.744     | 8.9         | LOS A            | 2.7                 | 20.0   | 0.59       | 0.75           | 0.77                       | 52.7        |

### **NZTA HSL Scenario 31 – Sensitivity Test – 2055 AM Peak**

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|---------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | Aver. Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.              | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    | v/c       | sec         |                  | veh                 | m      |            |                |                            | km/h        |
| South: HSL                   |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 2                            | T1   | All MCs   | 1417         | 9.0  | 1417          | 9.0  | 0.820     | 11.2        | LOS B            | 3.1                 | 23.4   | 0.90       | 0.99           | 1.28                       | 55.1        |

|                    |    |         |      |     |      |     |       |      |       |     |      |      |      |      |      |
|--------------------|----|---------|------|-----|------|-----|-------|------|-------|-----|------|------|------|------|------|
| 3                  | R2 | All MCs | 425  | 9.0 | 425  | 9.0 | 0.581 | 16.8 | LOS B | 1.4 | 10.3 | 0.77 | 0.92 | 0.91 | 43.4 |
| Approach           |    |         | 1842 | 9.0 | 1842 | 9.0 | 0.820 | 12.5 | LOS B | 3.1 | 23.4 | 0.87 | 0.97 | 1.20 | 51.8 |
| East: Kahikatea Dr |    |         |      |     |      |     |       |      |       |     |      |      |      |      |      |
| 4                  | L2 | All MCs | 160  | 9.0 | 160  | 9.0 | 0.800 | 10.7 | LOS B | 3.2 | 24.1 | 0.94 | 1.13 | 1.47 | 36.5 |
| 6                  | R2 | All MCs | 963  | 8.4 | 963  | 8.4 | 0.800 | 17.5 | LOS B | 3.2 | 24.1 | 0.93 | 1.15 | 1.50 | 44.2 |
| Approach           |    |         | 1123 | 8.5 | 1123 | 8.5 | 0.800 | 16.5 | LOS B | 3.2 | 24.1 | 0.93 | 1.15 | 1.49 | 43.5 |
| North: SH1C        |    |         |      |     |      |     |       |      |       |     |      |      |      |      |      |
| 7                  | L2 | All MCs | 880  | 8.9 | 880  | 8.9 | 0.499 | 4.8  | LOS A | 0.0 | 0.0  | 0.00 | 0.45 | 0.00 | 64.0 |
| 8                  | T1 | All MCs | 1115 | 9.0 | 1115 | 9.0 | 0.462 | 7.0  | LOS A | 1.6 | 11.8 | 0.72 | 0.57 | 0.72 | 54.8 |
| Approach           |    |         | 1995 | 9.0 | 1995 | 9.0 | 0.499 | 6.0  | LOS A | 1.6 | 11.8 | 0.40 | 0.52 | 0.40 | 59.9 |
| All Vehicles       |    |         | 4960 | 8.9 | 4960 | 8.9 | 0.820 | 10.8 | LOS B | 3.2 | 24.1 | 0.69 | 0.83 | 0.94 | 51.7 |

### **NZTA HSL Scenario 31 – Sensitivity Test – 2055 PM Peak**

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|---------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | Aver. Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.              | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    | v/c       | sec         |                  | veh                 | m      |            |                |                            | km/h        |
| South: HSL                   |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 2                            | T1   | All MCs   | 1453         | 5.0  | 1453          | 5.0  | 0.789     | 10.1        | LOS B            | 2.9                 | 21.1   | 0.87       | 0.91           | 1.17                       | 56.6        |
| 3                            | R2   | All MCs   | 215          | 5.0  | 215           | 5.0  | 0.299     | 14.2        | LOS B            | 0.5                 | 3.9    | 0.65       | 0.81           | 0.65                       | 50.6        |
| Approach                     |      |           | 1667         | 5.0  | 1667          | 5.0  | 0.789     | 10.6        | LOS B            | 2.9                 | 21.1   | 0.85       | 0.90           | 1.11                       | 55.7        |
| East: Kahikatea Dr           |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 4                            | L2   | All MCs   | 247          | 5.0  | 247           | 5.0  | 0.946     | 30.2        | LOS C            | 6.7                 | 49.2   | 1.00       | 1.85           | 3.01                       | 26.0        |
| 6                            | R2   | All MCs   | 880          | 5.0  | 880           | 5.0  | 0.946     | 38.4        | LOS D            | 6.7                 | 49.2   | 0.99       | 1.82           | 2.97                       | 34.7        |
| Approach                     |      |           | 1127         | 5.0  | 1127          | 5.0  | 0.946     | 36.6        | LOS D            | 6.7                 | 49.2   | 0.99       | 1.83           | 2.98                       | 33.2        |
| North: SH1C                  |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 7                            | L2   | All MCs   | 588          | 5.0  | 588           | 5.0  | 0.367     | 4.7         | LOS A            | 0.8                 | 5.8    | 0.33       | 0.49           | 0.33                       | 57.3        |
| 8                            | T1   | All MCs   | 1622         | 5.0  | 1622          | 5.0  | 0.550     | 5.9         | LOS A            | 2.0                 | 14.4   | 0.56       | 0.49           | 0.56                       | 56.5        |
| Approach                     |      |           | 2211         | 5.0  | 2211          | 5.0  | 0.550     | 5.6         | LOS A            | 2.0                 | 14.4   | 0.50       | 0.49           | 0.50                       | 56.8        |
| All Vehicles                 |      |           | 5005         | 5.0  | 5005          | 5.0  | 0.946     | 14.3        | LOS B            | 6.7                 | 49.2   | 0.73       | 0.93           | 1.26                       | 47.9        |

## Interim Option B: Four-arm roundabout and interim access road

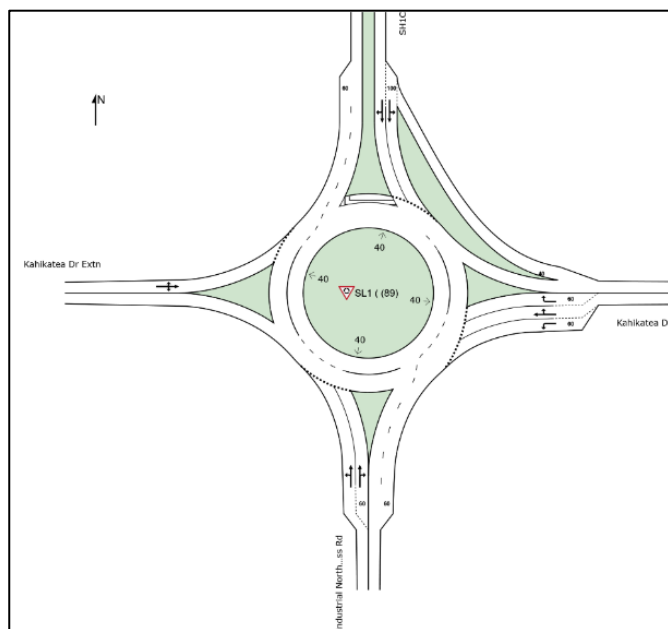


Figure: Interim Option B - Greenwood St (SH1C) / Kahikatea Dr Four-arm Roundabout Indicative Layout

### 2035 baseline + 40 ha Industrial Dev – AM Peak

| Vehicle Movement Performance      |      |           |                  |           |                  |           |           |             |                  |                   |             |            |                |                            |             |
|-----------------------------------|------|-----------|------------------|-----------|------------------|-----------|-----------|-------------|------------------|-------------------|-------------|------------|----------------|----------------------------|-------------|
| Mov ID                            | Turn | Mov Class | Demand Flows     |           | Arrival Flows    |           | Deg. Satn | Aver. Delay | Level of Service | 95% Back Of Queue |             | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                                   |      |           | [ Total<br>veh/h | HV ]<br>% | [ Total<br>veh/h | HV ]<br>% |           |             |                  | [ Veh.<br>veh     | Dist ]<br>m |            |                |                            |             |
| South: Industrial North Access Rd |      |           |                  |           |                  |           |           |             |                  |                   |             |            |                |                            |             |
| 1                                 | L2   | All MCs   | 6                | 20.0      | 6                | 20.0      | 0.072     | 7.4         | LOS A            | 0.3               | 2.6         | 0.76       | 0.81           | 0.76                       | 50.3        |
| 2                                 | T1   | All MCs   | 25               | 20.0      | 25               | 20.0      | 0.072     | 11.8        | LOS B            | 0.3               | 2.6         | 0.76       | 0.81           | 0.76                       | 55.0        |
| 3                                 | R2   | All MCs   | 86               | 20.0      | 86               | 20.0      | 0.137     | 26.9        | LOS C            | 0.7               | 5.8         | 0.78       | 0.85           | 0.78                       | 43.8        |
| Approach                          |      |           | 118              | 20.0      | 118              | 20.0      | 0.137     | 22.6        | LOS C            | 0.7               | 5.8         | 0.78       | 0.84           | 0.78                       | 46.1        |
| East: Kahikatea Dr                |      |           |                  |           |                  |           |           |             |                  |                   |             |            |                |                            |             |
| 4                                 | L2   | All MCs   | 189              | 10.0      | 189              | 10.0      | 0.180     | 4.1         | LOS A            | 1.0               | 7.4         | 0.54       | 0.51           | 0.54                       | 51.7        |

|                         |    |         |      |      |      |      |       |      |       |     |      |      |      |      |      |
|-------------------------|----|---------|------|------|------|------|-------|------|-------|-----|------|------|------|------|------|
| 5                       | T1 | All MCs | 176  | 10.6 | 176  | 10.6 | 0.453 | 3.5  | LOS A | 3.0 | 22.8 | 0.65 | 0.59 | 0.65 | 45.0 |
| 6                       | R2 | All MCs | 1172 | 8.4  | 1172 | 8.4  | 0.604 | 10.4 | LOS B | 5.5 | 41.6 | 0.70 | 0.67 | 0.73 | 47.6 |
| Approach                |    |         | 1537 | 8.8  | 1537 | 8.8  | 0.604 | 8.8  | LOS A | 5.5 | 41.6 | 0.67 | 0.64 | 0.69 | 47.8 |
| North: SH1C             |    |         |      |      |      |      |       |      |       |     |      |      |      |      |      |
| 7                       | L2 | All MCs | 1438 | 8.9  | 1438 | 8.9  | 0.815 | 5.4  | LOS A | 0.0 | 0.0  | 0.00 | 0.45 | 0.00 | 62.9 |
| 8                       | T1 | All MCs | 263  | 20.0 | 263  | 20.0 | 0.271 | 7.0  | LOS A | 2.0 | 16.6 | 0.63 | 0.57 | 0.63 | 55.1 |
| 9                       | R2 | All MCs | 73   | 21.4 | 73   | 21.4 | 0.271 | 9.4  | LOS A | 2.0 | 16.6 | 0.63 | 0.57 | 0.63 | 49.9 |
| Approach                |    |         | 1774 | 11.1 | 1774 | 11.1 | 0.815 | 5.8  | LOS A | 2.0 | 16.6 | 0.12 | 0.47 | 0.12 | 60.9 |
| West: Kahikatea Dr Extn |    |         |      |      |      |      |       |      |       |     |      |      |      |      |      |
| 10                      | L2 | All MCs | 85   | 20.5 | 85   | 20.5 | 0.725 | 17.7 | LOS B | 5.9 | 47.8 | 0.93 | 1.13 | 1.49 | 40.5 |
| 11                      | T1 | All MCs | 197  | 18.3 | 197  | 18.3 | 0.725 | 26.6 | LOS C | 5.9 | 47.8 | 0.93 | 1.13 | 1.49 | 40.6 |
| 12                      | R2 | All MCs | 68   | 20.0 | 68   | 20.0 | 0.725 | 22.1 | LOS C | 5.9 | 47.8 | 0.93 | 1.13 | 1.49 | 40.1 |
| Approach                |    |         | 351  | 19.2 | 351  | 19.2 | 0.725 | 23.5 | LOS C | 5.9 | 47.8 | 0.93 | 1.13 | 1.49 | 40.5 |
| All Vehicles            |    |         | 3779 | 11.2 | 3779 | 11.2 | 0.815 | 9.2  | LOS A | 5.9 | 47.8 | 0.44 | 0.61 | 0.50 | 52.0 |

### **2035 baseline + 40 ha Industrial Dev – PM Peak**

| Vehicle Movement Performance      |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
|-----------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|-------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                            | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | 95% Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                                   |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.            | Dist ] |            |                |                            |             |
|                                   |      |           | veh/h        | %    | veh/h         | %    | v/c       | sec         |                  | veh               | m      |            |                |                            | km/h        |
| South: Industrial North Access Rd |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 1                                 | L2   | All MCs   | 98           | 10.0 | 98            | 10.0 | 0.337     | 10.8        | LOS B            | 1.8               | 13.5   | 0.87       | 0.91           | 0.95                       | 44.6        |
| 2                                 | T1   | All MCs   | 176          | 10.0 | 176           | 10.0 | 0.604     | 16.8        | LOS B            | 4.6               | 35.1   | 0.94       | 1.00           | 1.26                       | 51.1        |
| 3                                 | R2   | All MCs   | 193          | 10.0 | 193           | 10.0 | 0.604     | 25.1        | LOS C            | 4.6               | 35.1   | 0.95       | 1.03           | 1.34                       | 47.2        |
| Approach                          |      |           | 466          | 10.0 | 466           | 10.0 | 0.604     | 19.0        | LOS B            | 4.6               | 35.1   | 0.93       | 0.99           | 1.23                       | 48.1        |
| East: Kahikatea Dr                |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 4                                 | L2   | All MCs   | 45           | 5.0  | 45            | 5.0  | 0.039     | 2.6         | LOS A            | 0.2               | 1.4    | 0.42       | 0.39           | 0.42                       | 51.4        |
| 5                                 | T1   | All MCs   | 286          | 5.6  | 286           | 5.6  | 0.532     | 3.0         | LOS A            | 3.8               | 28.0   | 0.61       | 0.52           | 0.61                       | 44.2        |
| 6                                 | R2   | All MCs   | 1452         | 4.7  | 1452          | 4.7  | 0.710     | 9.6         | LOS A            | 7.7               | 55.8   | 0.68       | 0.65           | 0.72                       | 46.4        |
| Approach                          |      |           | 1783         | 4.9  | 1783          | 4.9  | 0.710     | 8.4         | LOS A            | 7.7               | 55.8   | 0.66       | 0.62           | 0.69                       | 46.2        |
| North: SH1C                       |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 7                                 | L2   | All MCs   | 1114         | 3.3  | 1114          | 3.3  | 0.607     | 4.7         | LOS A            | 0.0               | 0.0    | 0.00       | 0.46           | 0.00                       | 65.3        |
| 8                                 | T1   | All MCs   | 109          | 15.0 | 109           | 15.0 | 0.213     | 6.5         | LOS A            | 1.5               | 11.8   | 0.55       | 0.58           | 0.55                       | 52.9        |
| 9                                 | R2   | All MCs   | 176          | 15.5 | 176           | 15.5 | 0.213     | 8.9         | LOS A            | 1.5               | 11.8   | 0.55       | 0.58           | 0.55                       | 46.7        |

|                         |    |         |      |      |      |      |       |      |       |     |      |      |      |      |      |
|-------------------------|----|---------|------|------|------|------|-------|------|-------|-----|------|------|------|------|------|
| Approach                |    |         | 1399 | 5.7  | 1399 | 5.7  | 0.607 | 5.4  | LOS A | 1.5 | 11.8 | 0.11 | 0.48 | 0.11 | 61.0 |
| West: Kahikatea Dr Extn |    |         |      |      |      |      |       |      |       |     |      |      |      |      |      |
| 10                      | L2 | All MCs | 86   | 9.8  | 86   | 9.8  | 0.675 | 36.7 | LOS D | 5.6 | 42.5 | 0.99 | 1.21 | 1.69 | 34.2 |
| 11                      | T1 | All MCs | 98   | 7.3  | 98   | 7.3  | 0.675 | 34.4 | LOS C | 5.6 | 42.5 | 0.99 | 1.21 | 1.69 | 34.3 |
| 12                      | R2 | All MCs | 26   | 15.0 | 26   | 15.0 | 0.675 | 39.4 | LOS D | 5.6 | 42.5 | 0.99 | 1.21 | 1.69 | 33.9 |
| Approach                |    |         | 211  | 9.3  | 211  | 9.3  | 0.675 | 36.0 | LOS D | 5.6 | 42.5 | 0.99 | 1.21 | 1.69 | 34.2 |
| All Vehicles            |    |         | 3859 | 6.0  | 3859 | 6.0  | 0.710 | 10.1 | LOS B | 7.7 | 55.8 | 0.51 | 0.65 | 0.60 | 49.8 |

## Interim Option C: Three-arm roundabout and staged access via Wickham Street

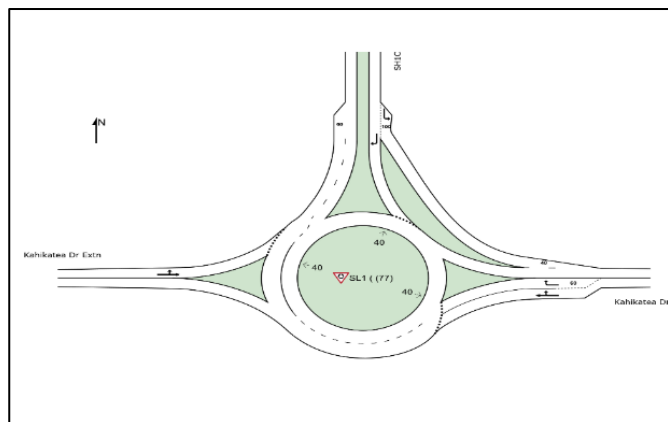


Figure: Interim Option C - Greenwood St (SH1C) / Kahikatea Dr Three-arm Roundabout Indicative Layout

### 2035 baseline + 23 ha Industrial Dev – AM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|---------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | Aver. Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.              | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    |           |             |                  | v/c                 | sec    |            |                |                            | veh         |
| East: Kahikatea Dr           |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 5                            | T1   | All MCs   | 286          | 10.6 | 286           | 10.6 | 0.456     | 2.9         | LOS A            | 1.4                 | 10.5   | 0.58       | 0.48           | 0.58                       | 42.6        |
| 6                            | R2   | All MCs   | 1172         | 8.4  | 1172          | 8.4  | 0.608     | 9.4         | LOS A            | 2.3                 | 17.4   | 0.62       | 0.58           | 0.62                       | 48.1        |
| Approach                     |      |           | 1458         | 8.8  | 1458          | 8.8  | 0.608     | 8.2         | LOS A            | 2.3                 | 17.4   | 0.61       | 0.56           | 0.61                       | 47.4        |

|                         |    |         |      |      |      |      |       |      |       |     |      |      |      |      |      |
|-------------------------|----|---------|------|------|------|------|-------|------|-------|-----|------|------|------|------|------|
| North: SH1C             |    |         |      |      |      |      |       |      |       |     |      |      |      |      |      |
| 7                       | L2 | All MCs | 1438 | 8.9  | 1438 | 8.9  | 0.815 | 5.3  | LOS A | 0.0 | 0.0  | 0.00 | 0.45 | 0.00 | 62.9 |
| 9                       | R2 | All MCs | 226  | 21.4 | 226  | 21.4 | 0.171 | 8.7  | LOS A | 0.5 | 4.1  | 0.52 | 0.56 | 0.52 | 40.4 |
| Approach                |    |         | 1664 | 10.6 | 1664 | 10.6 | 0.815 | 5.8  | LOS A | 0.5 | 4.1  | 0.07 | 0.47 | 0.07 | 60.1 |
| West: Kahikatea Dr Extn |    |         |      |      |      |      |       |      |       |     |      |      |      |      |      |
| 10                      | L2 | All MCs | 102  | 20.5 | 102  | 20.5 | 0.674 | 15.4 | LOS B | 2.1 | 17.2 | 0.91 | 1.05 | 1.35 | 42.1 |
| 11                      | T1 | All MCs | 248  | 18.3 | 248  | 18.3 | 0.674 | 22.3 | LOS C | 2.1 | 17.2 | 0.91 | 1.05 | 1.35 | 42.3 |
| Approach                |    |         | 351  | 18.9 | 351  | 18.9 | 0.674 | 20.3 | LOS C | 2.1 | 17.2 | 0.91 | 1.05 | 1.35 | 42.2 |
| All Vehicles            |    |         | 3473 | 10.7 | 3473 | 10.7 | 0.815 | 8.2  | LOS A | 2.3 | 17.4 | 0.38 | 0.56 | 0.43 | 51.9 |

### **2035 baseline + 23 ha Industrial Dev – PM Peak**

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|---------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | Aver. Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.              | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    | v/c       | sec         |                  | veh                 | m      |            |                |                            | km/h        |
| East: Kahikatea Dr           |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 5                            | T1   | All MCs   | 314          | 5.6  | 314           | 5.6  | 0.539     | 3.0         | LOS A            | 1.8                 | 13.0   | 0.63       | 0.50           | 0.63                       | 40.7        |
| 6                            | R2   | All MCs   | 1452         | 4.7  | 1452          | 4.7  | 0.720     | 9.2         | LOS A            | 3.3                 | 24.1   | 0.69       | 0.60           | 0.71                       | 46.5        |
| Approach                     |      |           | 1765         | 4.9  | 1765          | 4.9  | 0.720     | 8.1         | LOS A            | 3.3                 | 24.1   | 0.68       | 0.59           | 0.69                       | 45.8        |
| North: SH1C                  |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 7                            | L2   | All MCs   | 1114         | 3.3  | 1114          | 3.3  | 0.607     | 4.6         | LOS A            | 0.0                 | 0.0    | 0.00       | 0.46           | 0.00                       | 65.3        |
| 9                            | R2   | All MCs   | 239          | 15.5 | 239           | 15.5 | 0.168     | 8.4         | LOS A            | 0.5                 | 3.9    | 0.48       | 0.55           | 0.48                       | 40.6        |
| Approach                     |      |           | 1353         | 5.5  | 1353          | 5.5  | 0.607     | 5.3         | LOS A            | 0.5                 | 3.9    | 0.08       | 0.48           | 0.08                       | 61.2        |
| West: Kahikatea Dr Extn      |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 10                           | L2   | All MCs   | 189          | 9.8  | 189           | 9.8  | 0.896     | 38.2        | LOS D            | 4.6                 | 34.8   | 1.00       | 1.53           | 2.42                       | 33.6        |
| 11                           | T1   | All MCs   | 208          | 7.3  | 208           | 7.3  | 0.896     | 36.5        | LOS D            | 4.6                 | 34.8   | 1.00       | 1.53           | 2.42                       | 33.7        |
| Approach                     |      |           | 398          | 8.5  | 398           | 8.5  | 0.896     | 37.3        | LOS D            | 4.6                 | 34.8   | 1.00       | 1.53           | 2.42                       | 33.7        |
| All Vehicles                 |      |           | 3516         | 5.5  | 3516          | 5.5  | 0.896     | 10.3        | LOS B            | 4.6                 | 34.8   | 0.49       | 0.65           | 0.65                       | 48.3        |

## HSL / SL1 Roundabout Connection

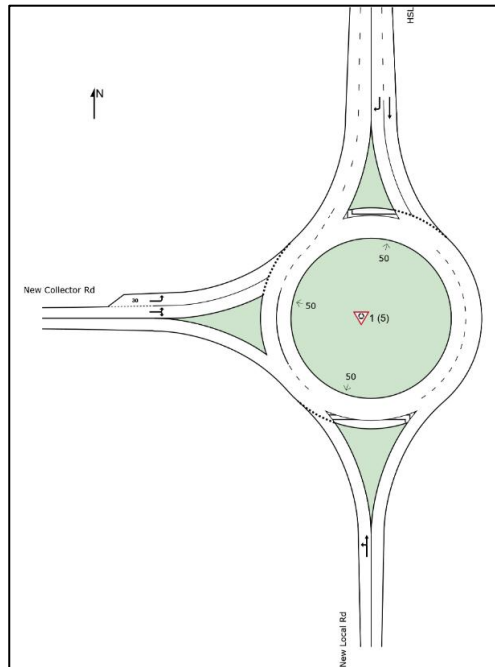


Figure: Proposed SL1 Roundabout Connection Scenario 2

### ITA Scenario 2 – AM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|---------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | Aver. Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.              | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    | v/c       | sec         |                  | veh                 | m      |            |                |                            | km/h        |
| South: New Local Rd          |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 1                            | L2   | All MCs   | 1            | 20.0 | 1             | 20.0 | 0.039     | 2.5         | LOS A            | 0.1                 | 0.6    | 0.37       | 0.24           | 0.37                       | 47.8        |
| 2                            | T1   | All MCs   | 46           | 20.0 | 46            | 20.0 | 0.039     | 1.5         | LOS A            | 0.1                 | 0.6    | 0.37       | 0.24           | 0.37                       | 46.3        |
| Approach                     |      |           | 47           | 20.0 | 47            | 20.0 | 0.039     | 1.5         | LOS A            | 0.1                 | 0.6    | 0.37       | 0.24           | 0.37                       | 46.4        |
| North: HSL                   |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 8                            | T1   | All MCs   | 204          | 15.0 | 204           | 15.0 | 0.135     | 0.3         | LOS A            | 0.3                 | 2.3    | 0.02       | 0.04           | 0.02                       | 49.7        |

|                        |    |         |     |      |     |      |       |      |       |     |     |      |      |      |      |
|------------------------|----|---------|-----|------|-----|------|-------|------|-------|-----|-----|------|------|------|------|
| 9                      | R2 | All MCs | 244 | 15.0 | 244 | 15.0 | 0.132 | 13.0 | LOS B | 0.3 | 2.2 | 0.02 | 0.68 | 0.02 | 46.7 |
| Approach               |    |         | 448 | 15.0 | 448 | 15.0 | 0.135 | 7.3  | LOS A | 0.3 | 2.3 | 0.02 | 0.39 | 0.02 | 48.0 |
| West: New Collector Rd |    |         |     |      |     |      |       |      |       |     |     |      |      |      |      |
| 10                     | L2 | All MCs | 73  | 20.0 | 73  | 20.0 | 0.027 | 0.3  | LOS A | 0.0 | 0.4 | 0.14 | 0.07 | 0.14 | 39.4 |
| 12                     | R2 | All MCs | 1   | 20.0 | 1   | 20.0 | 0.027 | 7.6  | LOS A | 0.0 | 0.4 | 0.15 | 0.08 | 0.15 | 43.3 |
| Approach               |    |         | 74  | 20.0 | 74  | 20.0 | 0.027 | 0.4  | LOS A | 0.0 | 0.4 | 0.14 | 0.07 | 0.14 | 39.5 |
| All Vehicles           |    |         | 569 | 16.1 | 569 | 16.1 | 0.135 | 5.9  | LOS A | 0.3 | 2.3 | 0.06 | 0.33 | 0.06 | 47.2 |

## ITA Scenario 2 – PM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|---------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | Aver. Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.              | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    | v/c       | sec         |                  | veh                 | m      |            |                |                            | km/h        |
| South: New Local Rd          |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 1                            | L2   | All MCs   | 1            | 9.0  | 1             | 9.0  | 0.144     | 1.8         | LOS A            | 0.3                 | 2.2    | 0.24       | 0.14           | 0.24                       | 48.4        |
| 2                            | T1   | All MCs   | 213          | 9.0  | 213           | 9.0  | 0.144     | 0.8         | LOS A            | 0.3                 | 2.2    | 0.24       | 0.14           | 0.24                       | 47.4        |
| Approach                     |      |           | 214          | 9.0  | 214           | 9.0  | 0.144     | 0.8         | LOS A            | 0.3                 | 2.2    | 0.24       | 0.14           | 0.24                       | 47.4        |
| North: HSL                   |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 8                            | T1   | All MCs   | 81           | 10.0 | 81            | 10.0 | 0.053     | 0.4         | LOS A            | 0.1                 | 0.8    | 0.06       | 0.05           | 0.06                       | 49.5        |
| 9                            | R2   | All MCs   | 95           | 10.0 | 95            | 10.0 | 0.051     | 13.0        | LOS B            | 0.1                 | 0.8    | 0.05       | 0.66           | 0.05                       | 46.6        |
| Approach                     |      |           | 176          | 10.0 | 176           | 10.0 | 0.053     | 7.2         | LOS A            | 0.1                 | 0.8    | 0.06       | 0.38           | 0.06                       | 47.8        |
| West: New Collector Rd       |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 10                           | L2   | All MCs   | 273          | 9.0  | 273           | 9.0  | 0.109     | 0.8         | LOS A            | 0.2                 | 1.5    | 0.32       | 0.20           | 0.32                       | 38.7        |
| 12                           | R2   | All MCs   | 8            | 9.0  | 8             | 9.0  | 0.109     | 8.2         | LOS A            | 0.2                 | 1.5    | 0.33       | 0.23           | 0.33                       | 43.0        |
| Approach                     |      |           | 281          | 9.0  | 281           | 9.0  | 0.109     | 1.0         | LOS A            | 0.2                 | 1.5    | 0.32       | 0.20           | 0.32                       | 38.9        |
| All Vehicles                 |      |           | 671          | 9.3  | 671           | 9.3  | 0.144     | 2.6         | LOS A            | 0.3                 | 2.2    | 0.23       | 0.23           | 0.23                       | 44.4        |

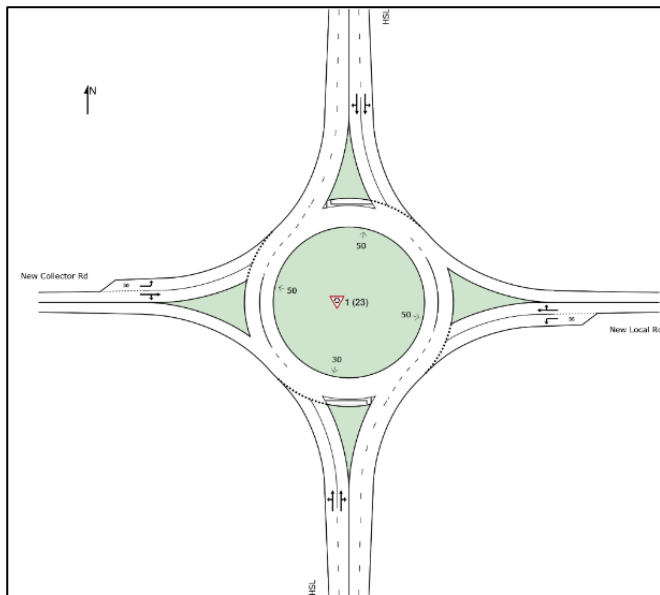


Figure: Proposed SL1 Roundabout Connection Scenarios 3 – 5

### ITA Scenario 3 – AM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|---------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | Aver. Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.              | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    | v/c       | sec         |                  | veh                 | m      |            |                |                            | km/h        |
| South: HSL                   |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 1                            | L2   | All MCs   | 109          | 15.0 | 109           | 15.0 | 0.355     | 8.3         | LOS A            | 1.0                 | 7.2    | 0.42       | 0.54           | 0.42                       | 50.7        |
| 2                            | T1   | All MCs   | 795          | 8.0  | 795           | 8.0  | 0.355     | 8.9         | LOS A            | 1.0                 | 7.2    | 0.43       | 0.55           | 0.43                       | 66.9        |
| 3                            | R2   | All MCs   | 45           | 15.0 | 45            | 15.0 | 0.355     | 16.2        | LOS B            | 0.9                 | 7.0    | 0.44       | 0.56           | 0.44                       | 55.8        |
| Approach                     |      |           | 949          | 9.1  | 949           | 9.1  | 0.355     | 9.2         | LOS A            | 1.0                 | 7.2    | 0.43       | 0.55           | 0.43                       | 62.3        |
| East: New Local Rd           |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 4                            | L2   | All MCs   | 11           | 20.0 | 11            | 20.0 | 0.016     | 3.1         | LOS A            | 0.0                 | 0.2    | 0.55       | 0.41           | 0.55                       | 53.1        |
| 5                            | T1   | All MCs   | 1            | 15.0 | 1             | 15.0 | 0.038     | 1.8         | LOS A            | 0.1                 | 0.5    | 0.53       | 0.60           | 0.53                       | 36.3        |
| 6                            | R2   | All MCs   | 37           | 20.0 | 37            | 20.0 | 0.038     | 6.6         | LOS A            | 0.1                 | 0.5    | 0.53       | 0.60           | 0.53                       | 31.4        |
| Approach                     |      |           | 48           | 19.9 | 48            | 19.9 | 0.038     | 5.7         | LOS A            | 0.1                 | 0.5    | 0.53       | 0.56           | 0.53                       | 37.7        |
| North: HSL                   |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |

|                        |    |         |      |      |      |      |       |      |       |     |     |      |      |      |      |
|------------------------|----|---------|------|------|------|------|-------|------|-------|-----|-----|------|------|------|------|
| 7                      | L2 | All MCs | 161  | 15.0 | 161  | 15.0 | 0.311 | 5.0  | LOS A | 0.8 | 6.3 | 0.29 | 0.40 | 0.29 | 53.4 |
| 8                      | T1 | All MCs | 655  | 9.0  | 655  | 9.0  | 0.311 | 4.7  | LOS A | 0.8 | 6.3 | 0.30 | 0.44 | 0.30 | 66.5 |
| 9                      | R2 | All MCs | 139  | 15.0 | 139  | 15.0 | 0.311 | 12.6 | LOS B | 0.8 | 6.2 | 0.32 | 0.49 | 0.32 | 47.5 |
| Approach               |    |         | 955  | 10.9 | 955  | 10.9 | 0.311 | 5.9  | LOS A | 0.8 | 6.3 | 0.30 | 0.44 | 0.30 | 60.9 |
| West: New Collector Rd |    |         |      |      |      |      |       |      |       |     |     |      |      |      |      |
| 10                     | L2 | All MCs | 49   | 20.0 | 49   | 20.0 | 0.067 | 2.8  | LOS A | 0.1 | 0.9 | 0.58 | 0.49 | 0.58 | 37.6 |
| 11                     | T1 | All MCs | 1    | 15.0 | 1    | 15.0 | 0.053 | 1.8  | LOS A | 0.1 | 0.7 | 0.55 | 0.61 | 0.55 | 36.4 |
| 12                     | R2 | All MCs | 51   | 20.0 | 51   | 20.0 | 0.053 | 6.3  | LOS A | 0.1 | 0.7 | 0.55 | 0.61 | 0.55 | 45.1 |
| Approach               |    |         | 101  | 19.9 | 101  | 19.9 | 0.067 | 4.5  | LOS A | 0.1 | 0.9 | 0.56 | 0.55 | 0.56 | 42.3 |
| All Vehicles           |    |         | 2054 | 10.7 | 2054 | 10.7 | 0.355 | 7.4  | LOS A | 1.0 | 7.2 | 0.38 | 0.50 | 0.38 | 59.6 |

### ITA Scenario 3 – PM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|---------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | Aver. Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.              | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    | v/c       | sec         |                  | veh                 | m      |            |                |                            | km/h        |
| South: RoadName              |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 1                            | L2   | All MCs   | 38           | 10.0 | 38            | 10.0 | 0.319     | 8.1         | LOS A            | 0.9                 | 6.5    | 0.45       | 0.54           | 0.45                       | 50.5        |
| 2                            | T1   | All MCs   | 799          | 4.0  | 799           | 4.0  | 0.319     | 8.8         | LOS A            | 0.9                 | 6.5    | 0.46       | 0.54           | 0.46                       | 66.5        |
| 3                            | R2   | All MCs   | 14           | 10.0 | 14            | 10.0 | 0.319     | 16.1        | LOS B            | 0.9                 | 6.3    | 0.47       | 0.55           | 0.47                       | 55.9        |
| Approach                     |      |           | 851          | 4.4  | 851           | 4.4  | 0.319     | 8.9         | LOS A            | 0.9                 | 6.5    | 0.46       | 0.54           | 0.46                       | 64.6        |
| East: New Local Rd           |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 4                            | L2   | All MCs   | 55           | 9.0  | 55            | 9.0  | 0.086     | 3.9         | LOS A            | 0.1                 | 1.1    | 0.68       | 0.61           | 0.68                       | 53.6        |
| 5                            | T1   | All MCs   | 1            | 10.0 | 1             | 10.0 | 0.178     | 2.9         | LOS A            | 0.3                 | 2.6    | 0.70       | 0.76           | 0.70                       | 35.8        |
| 6                            | R2   | All MCs   | 159          | 9.0  | 159           | 9.0  | 0.178     | 7.6         | LOS A            | 0.3                 | 2.6    | 0.70       | 0.76           | 0.70                       | 30.5        |
| Approach                     |      |           | 215          | 9.0  | 215           | 9.0  | 0.178     | 6.6         | LOS A            | 0.3                 | 2.6    | 0.69       | 0.72           | 0.69                       | 37.9        |
| North: HSL                   |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 7                            | L2   | All MCs   | 67           | 10.0 | 67            | 10.0 | 0.456     | 5.6         | LOS A            | 1.5                 | 11.1   | 0.39       | 0.43           | 0.39                       | 53.9        |
| 8                            | T1   | All MCs   | 1311         | 4.0  | 1311          | 4.0  | 0.456     | 5.5         | LOS A            | 1.5                 | 11.1   | 0.40       | 0.44           | 0.40                       | 68.1        |
| 9                            | R2   | All MCs   | 37           | 10.0 | 37            | 10.0 | 0.456     | 13.4        | LOS B            | 1.5                 | 10.8   | 0.42       | 0.45           | 0.42                       | 48.5        |
| Approach                     |      |           | 1415         | 4.4  | 1415          | 4.4  | 0.456     | 5.7         | LOS A            | 1.5                 | 11.1   | 0.40       | 0.44           | 0.40                       | 66.8        |
| West: New Collector Rd       |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 10                           | L2   | All MCs   | 184          | 9.0  | 184           | 9.0  | 0.181     | 2.2         | LOS A            | 0.3                 | 2.5    | 0.61       | 0.52           | 0.61                       | 37.4        |
| 11                           | T1   | All MCs   | 1            | 10.0 | 1             | 10.0 | 0.142     | 3.0         | LOS A            | 0.2                 | 1.8    | 0.62       | 0.71           | 0.62                       | 36.2        |
| 12                           | R2   | All MCs   | 105          | 9.0  | 105           | 9.0  | 0.142     | 7.3         | LOS A            | 0.2                 | 1.8    | 0.62       | 0.71           | 0.62                       | 45.6        |

|              |      |     |      |     |       |     |       |     |      |      |      |      |      |
|--------------|------|-----|------|-----|-------|-----|-------|-----|------|------|------|------|------|
| Approach     | 291  | 9.0 | 291  | 9.0 | 0.181 | 4.1 | LOS A | 0.3 | 2.5  | 0.61 | 0.59 | 0.61 | 41.5 |
| All Vehicles | 2771 | 5.2 | 2771 | 5.2 | 0.456 | 6.6 | LOS A | 1.5 | 11.1 | 0.47 | 0.51 | 0.47 | 61.0 |

#### ITA Scenario 4 – AM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|---------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | Aver. Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.              | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    |           |             |                  | veh                 | m      |            |                |                            |             |
| South: HSL                   |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 1                            | L2   | All MCs   | 119          | 15.0 | 119           | 15.0 | 0.371     | 8.2         | LOS A            | 1.0                 | 7.6    | 0.41       | 0.54           | 0.41                       | 50.7        |
| 2                            | T1   | All MCs   | 835          | 8.0  | 835           | 8.0  | 0.371     | 8.9         | LOS A            | 1.0                 | 7.6    | 0.43       | 0.55           | 0.43                       | 66.9        |
| 3                            | R2   | All MCs   | 44           | 15.0 | 44            | 15.0 | 0.371     | 16.2        | LOS B            | 1.0                 | 7.4    | 0.44       | 0.56           | 0.44                       | 55.8        |
| Approach                     |      |           | 998          | 9.1  | 998           | 9.1  | 0.371     | 9.1         | LOS A            | 1.0                 | 7.6    | 0.43       | 0.55           | 0.43                       | 62.2        |
| East: New Local Rd           |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 4                            | L2   | All MCs   | 11           | 20.0 | 11            | 20.0 | 0.016     | 3.3         | LOS A            | 0.0                 | 0.2    | 0.58       | 0.44           | 0.58                       | 52.8        |
| 5                            | T1   | All MCs   | 1            | 15.0 | 1             | 15.0 | 0.039     | 2.0         | LOS A            | 0.1                 | 0.5    | 0.56       | 0.62           | 0.56                       | 36.2        |
| 6                            | R2   | All MCs   | 37           | 20.0 | 37            | 20.0 | 0.039     | 6.9         | LOS A            | 0.1                 | 0.5    | 0.56       | 0.62           | 0.56                       | 31.2        |
| Approach                     |      |           | 48           | 19.9 | 48            | 19.9 | 0.039     | 6.0         | LOS A            | 0.1                 | 0.5    | 0.57       | 0.58           | 0.57                       | 37.5        |
| North: HSL                   |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 7                            | L2   | All MCs   | 157          | 15.0 | 157           | 15.0 | 0.363     | 4.9         | LOS A            | 1.0                 | 7.7    | 0.27       | 0.39           | 0.27                       | 53.6        |
| 8                            | T1   | All MCs   | 849          | 9.0  | 849           | 9.0  | 0.363     | 4.7         | LOS A            | 1.0                 | 7.7    | 0.28       | 0.42           | 0.28                       | 66.8        |
| 9                            | R2   | All MCs   | 134          | 15.0 | 134           | 15.0 | 0.363     | 12.5        | LOS B            | 1.0                 | 7.6    | 0.29       | 0.46           | 0.29                       | 47.8        |
| Approach                     |      |           | 1140         | 10.5 | 1140          | 10.5 | 0.363     | 5.6         | LOS A            | 1.0                 | 7.7    | 0.28       | 0.42           | 0.28                       | 62.2        |
| West: New Collector Rd       |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 10                           | L2   | All MCs   | 35           | 20.0 | 35            | 20.0 | 0.036     | 2.0         | LOS A            | 0.1                 | 0.5    | 0.56       | 0.43           | 0.56                       | 37.6        |
| 11                           | T1   | All MCs   | 1            | 15.0 | 1             | 15.0 | 0.046     | 2.6         | LOS A            | 0.1                 | 0.6    | 0.58       | 0.64           | 0.58                       | 36.3        |
| 12                           | R2   | All MCs   | 33           | 20.0 | 33            | 20.0 | 0.046     | 7.2         | LOS A            | 0.1                 | 0.6    | 0.58       | 0.64           | 0.58                       | 45.1        |
| Approach                     |      |           | 68           | 19.9 | 68            | 19.9 | 0.046     | 4.5         | LOS A            | 0.1                 | 0.6    | 0.57       | 0.53           | 0.57                       | 42.2        |
| All Vehicles                 |      |           | 2255         | 10.4 | 2255          | 10.4 | 0.371     | 7.2         | LOS A            | 1.0                 | 7.7    | 0.36       | 0.48           | 0.36                       | 60.9        |



## ITA Scenario 4 – PM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|---------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | Aver. Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.              | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    | v/c       | sec         |                  | veh                 | m      |            |                |                            | km/h        |
| South: RoadName              |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 1                            | L2   | All MCs   | 80           | 10.0 | 80            | 10.0 | 0.371     | 8.2         | LOS A            | 1.1                 | 8.1    | 0.47       | 0.54           | 0.47                       | 50.5        |
| 2                            | T1   | All MCs   | 894          | 4.0  | 894           | 4.0  | 0.371     | 8.9         | LOS A            | 1.1                 | 8.1    | 0.48       | 0.55           | 0.48                       | 66.3        |
| 3                            | R2   | All MCs   | 16           | 10.0 | 16            | 10.0 | 0.371     | 16.2        | LOS B            | 1.1                 | 7.7    | 0.50       | 0.55           | 0.50                       | 55.7        |
| Approach                     |      |           | 989          | 4.6  | 989           | 4.6  | 0.371     | 8.9         | LOS A            | 1.1                 | 8.1    | 0.48       | 0.55           | 0.48                       | 63.2        |
| East: New Local Rd           |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 4                            | L2   | All MCs   | 60           | 9.0  | 60            | 9.0  | 0.103     | 4.6         | LOS A            | 0.2                 | 1.4    | 0.73       | 0.66           | 0.73                       | 52.8        |
| 5                            | T1   | All MCs   | 1            | 10.0 | 1             | 10.0 | 0.189     | 3.4         | LOS A            | 0.4                 | 2.9    | 0.75       | 0.79           | 0.75                       | 35.7        |
| 6                            | R2   | All MCs   | 155          | 9.0  | 155           | 9.0  | 0.189     | 8.1         | LOS A            | 0.4                 | 2.9    | 0.75       | 0.79           | 0.75                       | 30.2        |
| Approach                     |      |           | 216          | 9.0  | 216           | 9.0  | 0.189     | 7.1         | LOS A            | 0.4                 | 2.9    | 0.74       | 0.75           | 0.74                       | 38.2        |
| North: HSL                   |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 7                            | L2   | All MCs   | 81           | 10.0 | 81            | 10.0 | 0.528     | 5.7         | LOS A            | 1.9                 | 14.2   | 0.43       | 0.44           | 0.43                       | 53.6        |
| 8                            | T1   | All MCs   | 1513         | 4.0  | 1513          | 4.0  | 0.528     | 5.6         | LOS A            | 1.9                 | 14.2   | 0.45       | 0.45           | 0.45                       | 67.8        |
| 9                            | R2   | All MCs   | 39           | 10.0 | 39            | 10.0 | 0.528     | 13.6        | LOS B            | 1.9                 | 13.7   | 0.47       | 0.46           | 0.47                       | 48.3        |
| Approach                     |      |           | 1633         | 4.4  | 1633          | 4.4  | 0.528     | 5.8         | LOS A            | 1.9                 | 14.2   | 0.45       | 0.45           | 0.45                       | 66.5        |
| West: New Collector Rd       |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 10                           | L2   | All MCs   | 159          | 9.0  | 159           | 9.0  | 0.163     | 2.4         | LOS A            | 0.3                 | 2.3    | 0.64       | 0.54           | 0.64                       | 37.3        |
| 11                           | T1   | All MCs   | 1            | 10.0 | 1             | 10.0 | 0.152     | 3.2         | LOS A            | 0.3                 | 2.0    | 0.64       | 0.73           | 0.64                       | 36.1        |
| 12                           | R2   | All MCs   | 107          | 9.0  | 107           | 9.0  | 0.152     | 7.6         | LOS A            | 0.3                 | 2.0    | 0.64       | 0.73           | 0.64                       | 45.5        |
| Approach                     |      |           | 267          | 9.0  | 267           | 9.0  | 0.163     | 4.5         | LOS A            | 0.3                 | 2.3    | 0.64       | 0.62           | 0.64                       | 41.7        |
| All Vehicles                 |      |           | 3105         | 5.2  | 3105          | 5.2  | 0.528     | 6.8         | LOS A            | 1.9                 | 14.2   | 0.50       | 0.52           | 0.50                       | 61.3        |

## ITA Scenario 5 – AM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|---------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | Aver. Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.              | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    | v/c       | sec         |                  | veh                 | m      |            |                |                            | km/h        |
| South: HSL                   |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 1                            | L2   | All MCs   | 160          | 15.0 | 160           | 15.0 | 0.687     | 11.2        | LOS B            | 3.3                 | 24.7   | 0.82       | 0.70           | 0.92                       | 48.2        |
| 2                            | T1   | All MCs   | 1258         | 8.0  | 1258          | 8.0  | 0.687     | 12.3        | LOS B            | 3.3                 | 24.7   | 0.83       | 0.72           | 0.96                       | 58.5        |
| 3                            | R2   | All MCs   | 124          | 15.0 | 124           | 15.0 | 0.687     | 20.4        | LOS C            | 3.2                 | 24.1   | 0.85       | 0.74           | 1.00                       | 50.8        |
| Approach                     |      |           | 1542         | 9.3  | 1542          | 9.3  | 0.687     | 12.8        | LOS B            | 3.3                 | 24.7   | 0.83       | 0.72           | 0.96                       | 55.6        |
| East: New Local Rd           |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 4                            | L2   | All MCs   | 20           | 20.0 | 20            | 20.0 | 0.041     | 4.7         | LOS A            | 0.1                 | 0.6    | 0.75       | 0.68           | 0.75                       | 51.4        |
| 5                            | T1   | All MCs   | 6            | 15.0 | 6             | 15.0 | 0.133     | 3.5         | LOS A            | 0.3                 | 2.3    | 0.78       | 0.76           | 0.78                       | 35.8        |
| 6                            | R2   | All MCs   | 84           | 20.0 | 84            | 20.0 | 0.133     | 8.4         | LOS A            | 0.3                 | 2.3    | 0.78       | 0.76           | 0.78                       | 30.4        |
| Approach                     |      |           | 111          | 19.7 | 111           | 19.7 | 0.133     | 7.4         | LOS A            | 0.3                 | 2.3    | 0.78       | 0.75           | 0.78                       | 35.8        |
| North: HSL                   |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 7                            | L2   | All MCs   | 309          | 15.0 | 309           | 15.0 | 0.598     | 7.4         | LOS A            | 2.4                 | 18.5   | 0.78       | 0.64           | 0.83                       | 49.8        |
| 8                            | T1   | All MCs   | 839          | 9.0  | 839           | 9.0  | 0.598     | 7.6         | LOS A            | 2.4                 | 18.5   | 0.79       | 0.68           | 0.86                       | 62.1        |
| 9                            | R2   | All MCs   | 252          | 15.0 | 252           | 15.0 | 0.598     | 16.4        | LOS B            | 2.3                 | 18.0   | 0.81       | 0.73           | 0.91                       | 44.9        |
| Approach                     |      |           | 1400         | 11.4 | 1400          | 11.4 | 0.598     | 9.2         | LOS A            | 2.4                 | 18.5   | 0.80       | 0.68           | 0.86                       | 55.7        |
| West: New Collector Rd       |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 10                           | L2   | All MCs   | 256          | 20.0 | 256           | 20.0 | 0.607     | 9.4         | LOS A            | 1.5                 | 11.9   | 0.88       | 1.00           | 1.16                       | 33.4        |
| 11                           | T1   | All MCs   | 48           | 0.0  | 48            | 0.0  | 0.434     | 4.1         | LOS A            | 1.1                 | 8.6    | 0.87       | 0.86           | 0.97                       | 35.6        |
| 12                           | R2   | All MCs   | 235          | 20.0 | 235           | 20.0 | 0.434     | 9.1         | LOS A            | 1.1                 | 8.6    | 0.87       | 0.86           | 0.97                       | 44.3        |
| Approach                     |      |           | 539          | 18.2 | 539           | 18.2 | 0.607     | 8.8         | LOS A            | 1.5                 | 11.9   | 0.87       | 0.93           | 1.06                       | 39.4        |
| All Vehicles                 |      |           | 3592         | 11.8 | 3592          | 11.8 | 0.687     | 10.6        | LOS B            | 3.3                 | 24.7   | 0.82       | 0.74           | 0.93                       | 51.9        |

## ITA Scenario 5 – PM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|---------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | Aver. Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.              | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    | v/c       | sec         |                  | veh                 | m      |            |                |                            | km/h        |
| South: RoadName              |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 1                            | L2   | All MCs   | 209          | 10.0 | 209           | 10.0 | 0.521     | 9.7         | LOS A            | 1.8                 | 13.3   | 0.77       | 0.66           | 0.77                       | 49.3        |
| 2                            | T1   | All MCs   | 849          | 4.0  | 849           | 4.0  | 0.521     | 10.8        | LOS B            | 1.8                 | 13.3   | 0.78       | 0.68           | 0.80                       | 61.8        |
| 3                            | R2   | All MCs   | 46           | 10.0 | 46            | 10.0 | 0.521     | 18.5        | LOS B            | 1.8                 | 12.9   | 0.78       | 0.69           | 0.82                       | 52.9        |
| Approach                     |      |           | 1105         | 5.4  | 1105          | 5.4  | 0.521     | 10.9        | LOS B            | 1.8                 | 13.3   | 0.78       | 0.68           | 0.79                       | 57.0        |
| East: New Local Rd           |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 4                            | L2   | All MCs   | 136          | 9.0  | 136           | 9.0  | 0.252     | 5.1         | LOS A            | 0.5                 | 3.8    | 0.79       | 0.74           | 0.79                       | 52.3        |
| 5                            | T1   | All MCs   | 75           | 10.0 | 75            | 10.0 | 0.482     | 5.3         | LOS A            | 1.3                 | 10.1   | 0.87       | 0.90           | 1.02                       | 35.3        |
| 6                            | R2   | All MCs   | 291          | 9.0  | 291           | 9.0  | 0.482     | 10.0        | LOS B            | 1.3                 | 10.1   | 0.87       | 0.90           | 1.02                       | 29.4        |
| Approach                     |      |           | 501          | 9.1  | 501           | 9.1  | 0.482     | 8.0         | LOS A            | 1.3                 | 10.1   | 0.85       | 0.86           | 0.96                       | 37.6        |
| North: HSL                   |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 7                            | L2   | All MCs   | 102          | 10.0 | 102           | 10.0 | 0.483     | 7.6         | LOS A            | 1.8                 | 12.9   | 0.83       | 0.62           | 0.83                       | 50.8        |
| 8                            | T1   | All MCs   | 882          | 4.0  | 882           | 4.0  | 0.483     | 7.9         | LOS A            | 1.8                 | 12.9   | 0.83       | 0.65           | 0.84                       | 64.4        |
| 9                            | R2   | All MCs   | 56           | 10.0 | 56            | 10.0 | 0.483     | 16.5        | LOS B            | 1.6                 | 11.8   | 0.83       | 0.70           | 0.86                       | 46.4        |
| Approach                     |      |           | 1040         | 4.9  | 1040          | 4.9  | 0.483     | 8.4         | LOS A            | 1.8                 | 12.9   | 0.83       | 0.65           | 0.84                       | 61.9        |
| West: New Collector Rd       |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 10                           | L2   | All MCs   | 143          | 9.0  | 143           | 9.0  | 0.246     | 4.5         | LOS A            | 0.5                 | 3.7    | 0.75       | 0.69           | 0.75                       | 36.6        |
| 11                           | T1   | All MCs   | 42           | 10.0 | 42            | 10.0 | 0.586     | 5.6         | LOS A            | 1.8                 | 13.7   | 0.87       | 0.94           | 1.11                       | 35.0        |
| 12                           | R2   | All MCs   | 441          | 9.0  | 441           | 9.0  | 0.586     | 10.0        | LOS A            | 1.8                 | 13.7   | 0.87       | 0.94           | 1.11                       | 44.2        |
| Approach                     |      |           | 626          | 9.1  | 626           | 9.1  | 0.586     | 8.4         | LOS A            | 1.8                 | 13.7   | 0.85       | 0.89           | 1.02                       | 42.4        |
| All Vehicles                 |      |           | 3273         | 6.5  | 3273          | 6.5  | 0.586     | 9.2         | LOS A            | 1.8                 | 13.7   | 0.82       | 0.74           | 0.88                       | 52.2        |

## Kahikatea Dr / Higgins Rd Intersection

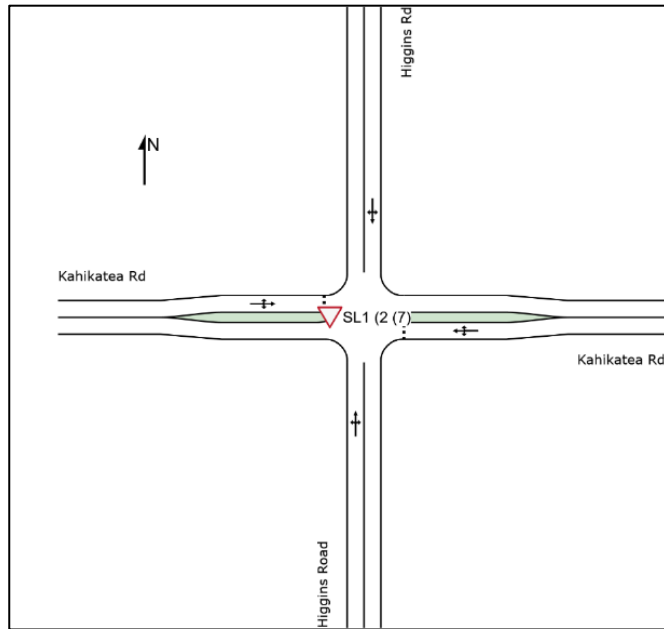


Figure: Existing Kahikatea Dr / Higgins Rd Intersection Layout

### 2035 Baseline - AM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|-------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | 95% Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.            | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    |           |             |                  | veh               | m      |            |                |                            |             |
| South: Higgins Road          |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 1                            | L2   | All MCs   | 10           | 33.3 | 10            | 33.3 | 0.020     | 5.2         | LOS A            | 0.1               | 0.6    | 0.22       | 0.40           | 0.22                       | 45.7        |
| 2                            | T1   | All MCs   | 10           | 16.7 | 10            | 16.7 | 0.020     | 0.4         | LOS A            | 0.1               | 0.6    | 0.22       | 0.40           | 0.22                       | 47.3        |
| 3                            | R2   | All MCs   | 14           | 0.0  | 14            | 0.0  | 0.020     | 5.0         | LOS A            | 0.1               | 0.6    | 0.22       | 0.40           | 0.22                       | 46.1        |
| Approach                     |      |           | 33           | 14.4 | 33            | 14.4 | 0.020     | 3.7         | NA               | 0.1               | 0.6    | 0.22       | 0.40           | 0.22                       | 46.3        |
| East: Kahikatea Rd           |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 4                            | L2   | All MCs   | 9            | 0.0  | 9             | 0.0  | 0.298     | 4.6         | LOS A            | 1.3               | 10.2   | 0.35       | 0.52           | 0.35                       | 44.9        |

|                    |    |         |     |      |     |      |       |      |       |     |      |      |      |      |      |
|--------------------|----|---------|-----|------|-----|------|-------|------|-------|-----|------|------|------|------|------|
| 5                  | T1 | All MCs | 146 | 16.6 | 146 | 16.6 | 0.298 | 4.3  | LOS A | 1.3 | 10.2 | 0.35 | 0.52 | 0.35 | 45.1 |
| 6                  | R2 | All MCs | 77  | 21.4 | 77  | 21.4 | 0.298 | 10.8 | LOS B | 1.3 | 10.2 | 0.35 | 0.52 | 0.35 | 44.5 |
| Approach           |    |         | 233 | 17.5 | 233 | 17.5 | 0.298 | 6.5  | LOS A | 1.3 | 10.2 | 0.35 | 0.52 | 0.35 | 44.9 |
| North: Higgins Rd  |    |         |     |      |     |      |       |      |       |     |      |      |      |      |      |
| 7                  | L2 | All MCs | 139 | 15.7 | 139 | 15.7 | 0.114 | 4.7  | LOS A | 0.3 | 2.2  | 0.04 | 0.49 | 0.04 | 45.8 |
| 8                  | T1 | All MCs | 10  | 23.8 | 10  | 23.8 | 0.114 | 0.0  | LOS A | 0.3 | 2.2  | 0.04 | 0.49 | 0.04 | 47.1 |
| 9                  | R2 | All MCs | 40  | 15.8 | 40  | 15.8 | 0.114 | 4.7  | LOS A | 0.3 | 2.2  | 0.04 | 0.49 | 0.04 | 45.6 |
| Approach           |    |         | 190 | 16.2 | 190 | 16.2 | 0.114 | 4.5  | NA    | 0.3 | 2.2  | 0.04 | 0.49 | 0.04 | 45.8 |
| West: Kahikatea Rd |    |         |     |      |     |      |       |      |       |     |      |      |      |      |      |
| 10                 | L2 | All MCs | 73  | 3.4  | 73  | 3.4  | 0.334 | 4.6  | LOS A | 1.7 | 11.8 | 0.19 | 0.46 | 0.19 | 45.9 |
| 11                 | T1 | All MCs | 294 | 2.1  | 294 | 2.1  | 0.334 | 4.6  | LOS A | 1.7 | 11.8 | 0.19 | 0.46 | 0.19 | 46.2 |
| 12                 | R2 | All MCs | 7   | 0.0  | 7   | 0.0  | 0.334 | 6.5  | LOS A | 1.7 | 11.8 | 0.19 | 0.46 | 0.19 | 45.8 |
| Approach           |    |         | 374 | 2.3  | 374 | 2.3  | 0.334 | 4.7  | LOS A | 1.7 | 11.8 | 0.19 | 0.46 | 0.19 | 46.1 |
| All Vehicles       |    |         | 830 | 10.2 | 830 | 10.2 | 0.334 | 5.1  | NA    | 1.7 | 11.8 | 0.20 | 0.48 | 0.20 | 45.7 |

### 2035 Baseline - PM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|-------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | 95% Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.            | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    | v/c       | sec         |                  | veh               | m      |            |                |                            | km/h        |
| South: Higgins Road          |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 1                            | L2   | All MCs   | 10           | 0.0  | 10            | 0.0  | 0.026     | 4.9         | LOS A            | 0.1               | 0.8    | 0.19       | 0.33           | 0.19                       | 46.7        |
| 2                            | T1   | All MCs   | 19           | 0.0  | 19            | 0.0  | 0.026     | 0.3         | LOS A            | 0.1               | 0.8    | 0.19       | 0.33           | 0.19                       | 47.8        |
| 3                            | R2   | All MCs   | 15           | 15.4 | 15            | 15.4 | 0.026     | 5.1         | LOS A            | 0.1               | 0.8    | 0.19       | 0.33           | 0.19                       | 46.3        |
| Approach                     |      |           | 44           | 5.3  | 44            | 5.3  | 0.026     | 3.0         | NA               | 0.1               | 0.8    | 0.19       | 0.33           | 0.19                       | 47.0        |
| East: Kahikatea Rd           |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 4                            | L2   | All MCs   | 9            | 0.0  | 9             | 0.0  | 0.678     | 7.1         | LOS A            | 8.0               | 57.0   | 0.65       | 0.88           | 1.07                       | 43.5        |
| 5                            | T1   | All MCs   | 487          | 1.6  | 487           | 1.6  | 0.678     | 8.2         | LOS A            | 8.0               | 57.0   | 0.65       | 0.88           | 1.07                       | 43.7        |
| 6                            | R2   | All MCs   | 120          | 7.6  | 120           | 7.6  | 0.678     | 13.2        | LOS B            | 8.0               | 57.0   | 0.65       | 0.88           | 1.07                       | 43.2        |
| Approach                     |      |           | 617          | 2.7  | 617           | 2.7  | 0.678     | 9.1         | LOS A            | 8.0               | 57.0   | 0.65       | 0.88           | 1.07                       | 43.6        |
| North: Higgins Rd            |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 7                            | L2   | All MCs   | 90           | 16.4 | 90            | 16.4 | 0.160     | 4.8         | LOS A            | 0.8               | 5.8    | 0.10       | 0.47           | 0.10                       | 45.8        |
| 8                            | T1   | All MCs   | 26           | 0.0  | 26            | 0.0  | 0.160     | 0.1         | LOS A            | 0.8               | 5.8    | 0.10       | 0.47           | 0.10                       | 47.1        |
| 9                            | R2   | All MCs   | 165          | 1.9  | 165           | 1.9  | 0.160     | 4.7         | LOS A            | 0.8               | 5.8    | 0.10       | 0.47           | 0.10                       | 45.8        |



|                    |    |         |      |     |      |     |       |      |       |     |      |      |      |      |      |
|--------------------|----|---------|------|-----|------|-----|-------|------|-------|-----|------|------|------|------|------|
| Approach           |    |         | 282  | 6.4 | 282  | 6.4 | 0.160 | 4.3  | NA    | 0.8 | 5.8  | 0.10 | 0.47 | 0.10 | 45.9 |
| West: Kahikatea Rd |    |         |      |     |      |     |       |      |       |     |      |      |      |      |      |
| 10                 | L2 | All MCs | 58   | 6.5 | 58   | 6.5 | 0.168 | 4.7  | LOS A | 0.7 | 5.1  | 0.18 | 0.47 | 0.18 | 45.6 |
| 11                 | T1 | All MCs | 109  | 7.1 | 109  | 7.1 | 0.168 | 5.1  | LOS A | 0.7 | 5.1  | 0.18 | 0.47 | 0.18 | 45.9 |
| 12                 | R2 | All MCs | 5    | 0.0 | 5    | 0.0 | 0.168 | 11.1 | LOS B | 0.7 | 5.1  | 0.18 | 0.47 | 0.18 | 45.5 |
| Approach           |    |         | 173  | 6.7 | 173  | 6.7 | 0.168 | 5.1  | LOS A | 0.7 | 5.1  | 0.18 | 0.47 | 0.18 | 45.8 |
| All Vehicles       |    |         | 1115 | 4.4 | 1115 | 4.4 | 0.678 | 7.1  | NA    | 8.0 | 57.0 | 0.42 | 0.69 | 0.65 | 44.6 |

## ITA Scenario 2 – AM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|-------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | 95% Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.            | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    | v/c       | sec         |                  | veh               | m      |            |                |                            | km/h        |
| South: Higgins Road          |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 1                            | L2   | All MCs   | 10           | 33.3 | 10            | 33.3 | 0.019     | 4.9         | LOS A            | 0.0               | 0.1    | 0.05       | 0.21           | 0.05                       | 47.1        |
| 2                            | T1   | All MCs   | 19           | 16.7 | 19            | 16.7 | 0.019     | 0.0         | LOS A            | 0.0               | 0.1    | 0.05       | 0.21           | 0.05                       | 48.8        |
| 3                            | R2   | All MCs   | 2            | 0.0  | 2             | 0.0  | 0.019     | 4.9         | LOS A            | 0.0               | 0.1    | 0.05       | 0.21           | 0.05                       | 47.5        |
| Approach                     |      |           | 31           | 20.6 | 31            | 20.6 | 0.019     | 1.9         | NA               | 0.0               | 0.1    | 0.05       | 0.21           | 0.05                       | 48.2        |
| East: Kahikatea Rd           |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 4                            | L2   | All MCs   | 9            | 0.0  | 9             | 0.0  | 0.065     | 4.6         | LOS A            | 0.2               | 1.7    | 0.20       | 0.49           | 0.20                       | 44.4        |
| 5                            | T1   | All MCs   | 6            | 16.6 | 6             | 16.6 | 0.065     | 4.3         | LOS A            | 0.2               | 1.7    | 0.20       | 0.49           | 0.20                       | 44.5        |
| 6                            | R2   | All MCs   | 28           | 21.4 | 28            | 21.4 | 0.065     | 9.0         | LOS A            | 0.2               | 1.7    | 0.20       | 0.49           | 0.20                       | 44.0        |
| Approach                     |      |           | 43           | 16.2 | 43            | 16.2 | 0.065     | 7.4         | LOS A            | 0.2               | 1.7    | 0.20       | 0.49           | 0.20                       | 44.2        |
| North: Higgins Rd            |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 7                            | L2   | All MCs   | 102          | 15.7 | 102           | 15.7 | 0.129     | 4.8         | LOS A            | 0.6               | 4.4    | 0.10       | 0.49           | 0.10                       | 45.6        |
| 8                            | T1   | All MCs   | 10           | 23.8 | 10            | 23.8 | 0.129     | 0.1         | LOS A            | 0.6               | 4.4    | 0.10       | 0.49           | 0.10                       | 46.9        |
| 9                            | R2   | All MCs   | 100          | 15.8 | 100           | 15.8 | 0.129     | 4.8         | LOS A            | 0.6               | 4.4    | 0.10       | 0.49           | 0.10                       | 45.5        |
| Approach                     |      |           | 212          | 16.1 | 212           | 16.1 | 0.129     | 4.6         | NA               | 0.6               | 4.4    | 0.10       | 0.49           | 0.10                       | 45.6        |
| West: Kahikatea Rd           |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 10                           | L2   | All MCs   | 278          | 3.4  | 278           | 3.4  | 0.207     | 4.7         | LOS A            | 1.0               | 7.1    | 0.10       | 0.50           | 0.10                       | 45.7        |
| 11                           | T1   | All MCs   | 22           | 20.0 | 22            | 20.0 | 0.207     | 5.0         | LOS A            | 1.0               | 7.1    | 0.10       | 0.50           | 0.10                       | 45.9        |
| 12                           | R2   | All MCs   | 7            | 0.0  | 7             | 0.0  | 0.207     | 5.5         | LOS A            | 1.0               | 7.1    | 0.10       | 0.50           | 0.10                       | 45.7        |
| Approach                     |      |           | 307          | 4.5  | 307           | 4.5  | 0.207     | 4.7         | LOS A            | 1.0               | 7.1    | 0.10       | 0.50           | 0.10                       | 45.8        |

|              |     |      |     |      |       |     |    |     |     |      |      |      |      |
|--------------|-----|------|-----|------|-------|-----|----|-----|-----|------|------|------|------|
| All Vehicles | 594 | 10.4 | 594 | 10.4 | 0.207 | 4.7 | NA | 1.0 | 7.1 | 0.10 | 0.48 | 0.10 | 45.7 |
|--------------|-----|------|-----|------|-------|-----|----|-----|-----|------|------|------|------|

## ITA Scenario 2 – PM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|-------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | 95% Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.            | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    |           |             |                  | veh               | m      |            |                |                            |             |
| South: Higgins Road          |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 1                            | L2   | All MCs   | 10           | 0.0  | 10            | 0.0  | 0.024     | 4.6         | LOS A            | 0.0               | 0.1    | 0.02       | 0.14           | 0.02                       | 48.0        |
| 2                            | T1   | All MCs   | 34           | 0.0  | 34            | 0.0  | 0.024     | 0.0         | LOS A            | 0.0               | 0.1    | 0.02       | 0.14           | 0.02                       | 49.2        |
| 3                            | R2   | All MCs   | 2            | 15.4 | 2             | 15.4 | 0.024     | 4.8         | LOS A            | 0.0               | 0.1    | 0.02       | 0.14           | 0.02                       | 47.6        |
| Approach                     |      |           | 46           | 0.5  | 46            | 0.5  | 0.024     | 1.2         | NA               | 0.0               | 0.1    | 0.02       | 0.14           | 0.02                       | 48.9        |
| East: Kahikatea Rd           |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 4                            | L2   | All MCs   | 9            | 0.0  | 9             | 0.0  | 0.221     | 4.6         | LOS A            | 0.8               | 6.4    | 0.46       | 0.61           | 0.46                       | 44.0        |
| 5                            | T1   | All MCs   | 30           | 15.0 | 30            | 15.0 | 0.221     | 6.1         | LOS A            | 0.8               | 6.4    | 0.46       | 0.61           | 0.46                       | 44.1        |
| 6                            | R2   | All MCs   | 98           | 15.0 | 98            | 15.0 | 0.221     | 9.3         | LOS A            | 0.8               | 6.4    | 0.46       | 0.61           | 0.46                       | 43.6        |
| Approach                     |      |           | 137          | 14.0 | 137           | 14.0 | 0.221     | 8.3         | LOS A            | 0.8               | 6.4    | 0.46       | 0.61           | 0.46                       | 43.7        |
| North: Higgins Rd            |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 7                            | L2   | All MCs   | 48           | 16.4 | 48            | 16.4 | 0.225     | 4.9         | LOS A            | 1.2               | 8.9    | 0.15       | 0.48           | 0.15                       | 45.6        |
| 8                            | T1   | All MCs   | 26           | 0.0  | 26            | 0.0  | 0.225     | 0.2         | LOS A            | 1.2               | 8.9    | 0.15       | 0.48           | 0.15                       | 46.9        |
| 9                            | R2   | All MCs   | 317          | 1.9  | 317           | 1.9  | 0.225     | 4.7         | LOS A            | 1.2               | 8.9    | 0.15       | 0.48           | 0.15                       | 45.7        |
| Approach                     |      |           | 391          | 3.5  | 391           | 3.5  | 0.225     | 4.5         | NA               | 1.2               | 8.9    | 0.15       | 0.48           | 0.15                       | 45.7        |
| West: Kahikatea Rd           |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 10                           | L2   | All MCs   | 84           | 6.5  | 84            | 6.5  | 0.073     | 4.7         | LOS A            | 0.3               | 2.2    | 0.12       | 0.49           | 0.12                       | 45.7        |
| 11                           | T1   | All MCs   | 9            | 10.0 | 9             | 10.0 | 0.073     | 5.8         | LOS A            | 0.3               | 2.2    | 0.12       | 0.49           | 0.12                       | 45.9        |
| 12                           | R2   | All MCs   | 5            | 0.0  | 5             | 0.0  | 0.073     | 7.2         | LOS A            | 0.3               | 2.2    | 0.12       | 0.49           | 0.12                       | 45.6        |
| Approach                     |      |           | 98           | 6.5  | 98            | 6.5  | 0.073     | 5.0         | LOS A            | 0.3               | 2.2    | 0.12       | 0.49           | 0.12                       | 45.7        |
| All Vehicles                 |      |           | 672          | 5.9  | 672           | 5.9  | 0.225     | 5.1         | NA               | 1.2               | 8.9    | 0.20       | 0.49           | 0.20                       | 45.5        |

### ITA Scenario 3 – AM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|-------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | 95% Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.            | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    | v/c       | sec         |                  | veh               | m      |            |                |                            | km/h        |
| South: Higgins Road          |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 1                            | L2   | All MCs   | 10           | 33.3 | 10            | 33.3 | 0.019     | 4.9         | LOS A            | 0.0               | 0.1    | 0.05       | 0.21           | 0.05                       | 47.1        |
| 2                            | T1   | All MCs   | 19           | 16.7 | 19            | 16.7 | 0.019     | 0.0         | LOS A            | 0.0               | 0.1    | 0.05       | 0.21           | 0.05                       | 48.8        |
| 3                            | R2   | All MCs   | 2            | 0.0  | 2             | 0.0  | 0.019     | 4.9         | LOS A            | 0.0               | 0.1    | 0.05       | 0.21           | 0.05                       | 47.5        |
| Approach                     |      |           | 31           | 20.6 | 31            | 20.6 | 0.019     | 1.9         | NA               | 0.0               | 0.1    | 0.05       | 0.21           | 0.05                       | 48.2        |
| East: Kahikatea Rd           |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 4                            | L2   | All MCs   | 9            | 0.0  | 9             | 0.0  | 0.071     | 4.6         | LOS A            | 0.2               | 1.9    | 0.22       | 0.49           | 0.22                       | 44.1        |
| 5                            | T1   | All MCs   | 6            | 16.6 | 6             | 16.6 | 0.071     | 4.8         | LOS A            | 0.2               | 1.9    | 0.22       | 0.49           | 0.22                       | 44.2        |
| 6                            | R2   | All MCs   | 28           | 21.4 | 28            | 21.4 | 0.071     | 9.8         | LOS A            | 0.2               | 1.9    | 0.22       | 0.49           | 0.22                       | 43.7        |
| Approach                     |      |           | 43           | 16.2 | 43            | 16.2 | 0.071     | 8.0         | LOS A            | 0.2               | 1.9    | 0.22       | 0.49           | 0.22                       | 43.8        |
| North: Higgins Rd            |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 7                            | L2   | All MCs   | 103          | 15.7 | 103           | 15.7 | 0.176     | 4.8         | LOS A            | 0.9               | 7.0    | 0.12       | 0.49           | 0.12                       | 45.6        |
| 8                            | T1   | All MCs   | 10           | 23.8 | 10            | 23.8 | 0.176     | 0.1         | LOS A            | 0.9               | 7.0    | 0.12       | 0.49           | 0.12                       | 46.9        |
| 9                            | R2   | All MCs   | 175          | 15.8 | 175           | 15.8 | 0.176     | 4.8         | LOS A            | 0.9               | 7.0    | 0.12       | 0.49           | 0.12                       | 45.4        |
| Approach                     |      |           | 288          | 16.1 | 288           | 16.1 | 0.176     | 4.7         | NA               | 0.9               | 7.0    | 0.12       | 0.49           | 0.12                       | 45.5        |
| West: Kahikatea Rd           |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 10                           | L2   | All MCs   | 265          | 3.4  | 265           | 3.4  | 0.201     | 4.7         | LOS A            | 0.9               | 6.8    | 0.10       | 0.50           | 0.10                       | 45.7        |
| 11                           | T1   | All MCs   | 21           | 20.0 | 21            | 20.0 | 0.201     | 5.7         | LOS A            | 0.9               | 6.8    | 0.10       | 0.50           | 0.10                       | 45.9        |
| 12                           | R2   | All MCs   | 7            | 0.0  | 7             | 0.0  | 0.201     | 6.1         | LOS A            | 0.9               | 6.8    | 0.10       | 0.50           | 0.10                       | 45.7        |
| Approach                     |      |           | 293          | 4.5  | 293           | 4.5  | 0.201     | 4.8         | LOS A            | 0.9               | 6.8    | 0.10       | 0.50           | 0.10                       | 45.8        |
| All Vehicles                 |      |           | 656          | 11.1 | 656           | 11.1 | 0.201     | 4.8         | NA               | 0.9               | 7.0    | 0.11       | 0.48           | 0.11                       | 45.6        |

### ITA Scenario 3 – PM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|-------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | 95% Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.            | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    | v/c       | sec         |                  | veh               | m      |            |                |                            | km/h        |
| South: Higgins Road          |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 1                            | L2   | All MCs   | 10           | 0.0  | 10            | 0.0  | 0.024     | 4.6         | LOS A            | 0.0               | 0.1    | 0.02       | 0.14           | 0.02                       | 48.0        |
| 2                            | T1   | All MCs   | 34           | 0.0  | 34            | 0.0  | 0.024     | 0.0         | LOS A            | 0.0               | 0.1    | 0.02       | 0.14           | 0.02                       | 49.2        |
| 3                            | R2   | All MCs   | 2            | 15.4 | 2             | 15.4 | 0.024     | 4.8         | LOS A            | 0.0               | 0.1    | 0.02       | 0.14           | 0.02                       | 47.6        |
| Approach                     |      |           | 46           | 0.5  | 46            | 0.5  | 0.024     | 1.2         | NA               | 0.0               | 0.1    | 0.02       | 0.14           | 0.02                       | 48.9        |
| East: Kahikatea Rd           |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 4                            | L2   | All MCs   | 9            | 0.0  | 9             | 0.0  | 0.313     | 5.3         | LOS A            | 1.4               | 10.6   | 0.61       | 0.70           | 0.71                       | 41.8        |
| 5                            | T1   | All MCs   | 26           | 15.0 | 26            | 15.0 | 0.313     | 8.8         | LOS A            | 1.4               | 10.6   | 0.61       | 0.70           | 0.71                       | 41.9        |
| 6                            | R2   | All MCs   | 104          | 15.0 | 104           | 15.0 | 0.313     | 14.1        | LOS B            | 1.4               | 10.6   | 0.61       | 0.70           | 0.71                       | 41.5        |
| Approach                     |      |           | 139          | 14.0 | 139           | 14.0 | 0.313     | 12.5        | LOS B            | 1.4               | 10.6   | 0.61       | 0.70           | 0.71                       | 41.6        |
| North: Higgins Rd            |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 7                            | L2   | All MCs   | 50           | 16.4 | 50            | 16.4 | 0.318     | 4.9         | LOS A            | 1.9               | 13.9   | 0.16       | 0.49           | 0.16                       | 45.5        |
| 8                            | T1   | All MCs   | 26           | 0.0  | 26            | 0.0  | 0.318     | 0.2         | LOS A            | 1.9               | 13.9   | 0.16       | 0.49           | 0.16                       | 46.8        |
| 9                            | R2   | All MCs   | 473          | 1.9  | 473           | 1.9  | 0.318     | 4.8         | LOS A            | 1.9               | 13.9   | 0.16       | 0.49           | 0.16                       | 45.6        |
| Approach                     |      |           | 550          | 3.1  | 550           | 3.1  | 0.318     | 4.6         | NA               | 1.9               | 13.9   | 0.16       | 0.49           | 0.16                       | 45.6        |
| West: Kahikatea Rd           |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 10                           | L2   | All MCs   | 143          | 6.5  | 143           | 6.5  | 0.116     | 4.7         | LOS A            | 0.5               | 3.6    | 0.12       | 0.50           | 0.12                       | 45.6        |
| 11                           | T1   | All MCs   | 9            | 10.0 | 9             | 10.0 | 0.116     | 7.6         | LOS A            | 0.5               | 3.6    | 0.12       | 0.50           | 0.12                       | 45.9        |
| 12                           | R2   | All MCs   | 5            | 0.0  | 5             | 0.0  | 0.116     | 8.9         | LOS A            | 0.5               | 3.6    | 0.12       | 0.50           | 0.12                       | 45.6        |
| Approach                     |      |           | 157          | 6.5  | 157           | 6.5  | 0.116     | 5.0         | LOS A            | 0.5               | 3.6    | 0.12       | 0.50           | 0.12                       | 45.6        |
| All Vehicles                 |      |           | 891          | 5.3  | 891           | 5.3  | 0.318     | 5.7         | NA               | 1.9               | 13.9   | 0.22       | 0.50           | 0.23                       | 45.1        |

## ITA Scenario 4 – AM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|-------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | 95% Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.            | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    | v/c       | sec         |                  | veh               | m      |            |                |                            | km/h        |
| South: Higgins Road          |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 1                            | L2   | All MCs   | 10           | 33.3 | 10            | 33.3 | 0.019     | 4.9         | LOS A            | 0.0               | 0.2    | 0.05       | 0.22           | 0.05                       | 47.1        |
| 2                            | T1   | All MCs   | 19           | 16.7 | 19            | 16.7 | 0.019     | 0.0         | LOS A            | 0.0               | 0.2    | 0.05       | 0.22           | 0.05                       | 48.8        |
| 3                            | R2   | All MCs   | 2            | 0.0  | 2             | 0.0  | 0.019     | 4.9         | LOS A            | 0.0               | 0.2    | 0.05       | 0.22           | 0.05                       | 47.5        |
| Approach                     |      |           | 31           | 20.6 | 31            | 20.6 | 0.019     | 1.9         | NA               | 0.0               | 0.2    | 0.05       | 0.22           | 0.05                       | 48.2        |
| East: Kahikatea Rd           |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 4                            | L2   | All MCs   | 9            | 0.0  | 9             | 0.0  | 0.084     | 4.6         | LOS A            | 0.3               | 2.2    | 0.25       | 0.49           | 0.25                       | 43.6        |
| 5                            | T1   | All MCs   | 6            | 16.6 | 6             | 16.6 | 0.084     | 4.9         | LOS A            | 0.3               | 2.2    | 0.25       | 0.49           | 0.25                       | 43.7        |
| 6                            | R2   | All MCs   | 31           | 21.4 | 31            | 21.4 | 0.084     | 11.0        | LOS B            | 0.3               | 2.2    | 0.25       | 0.49           | 0.25                       | 43.2        |
| Approach                     |      |           | 46           | 16.5 | 46            | 16.5 | 0.084     | 9.0         | LOS A            | 0.3               | 2.2    | 0.25       | 0.49           | 0.25                       | 43.3        |
| North: Higgins Rd            |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 7                            | L2   | All MCs   | 113          | 15.7 | 113           | 15.7 | 0.184     | 4.8         | LOS A            | 0.9               | 7.3    | 0.12       | 0.49           | 0.12                       | 45.6        |
| 8                            | T1   | All MCs   | 10           | 23.8 | 10            | 23.8 | 0.184     | 0.1         | LOS A            | 0.9               | 7.3    | 0.12       | 0.49           | 0.12                       | 46.9        |
| 9                            | R2   | All MCs   | 178          | 15.8 | 178           | 15.8 | 0.184     | 4.8         | LOS A            | 0.9               | 7.3    | 0.12       | 0.49           | 0.12                       | 45.4        |
| Approach                     |      |           | 301          | 16.0 | 301           | 16.0 | 0.184     | 4.7         | NA               | 0.9               | 7.3    | 0.12       | 0.49           | 0.12                       | 45.5        |
| West: Kahikatea Rd           |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 10                           | L2   | All MCs   | 325          | 3.4  | 325           | 3.4  | 0.243     | 4.7         | LOS A            | 1.2               | 8.6    | 0.10       | 0.50           | 0.10                       | 45.7        |
| 11                           | T1   | All MCs   | 24           | 20.0 | 24            | 20.0 | 0.243     | 5.9         | LOS A            | 1.2               | 8.6    | 0.10       | 0.50           | 0.10                       | 45.9        |
| 12                           | R2   | All MCs   | 7            | 0.0  | 7             | 0.0  | 0.243     | 6.2         | LOS A            | 1.2               | 8.6    | 0.10       | 0.50           | 0.10                       | 45.7        |
| Approach                     |      |           | 356          | 4.4  | 356           | 4.4  | 0.243     | 4.8         | LOS A            | 1.2               | 8.6    | 0.10       | 0.50           | 0.10                       | 45.7        |
| All Vehicles                 |      |           | 734          | 10.6 | 734           | 10.6 | 0.243     | 4.9         | NA               | 1.2               | 8.6    | 0.11       | 0.48           | 0.11                       | 45.6        |

## ITA Scenario 4 – PM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|-------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | 95% Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.            | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    | v/c       | sec         |                  | veh               | m      |            |                |                            | km/h        |
| South: Higgins Road          |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 1                            | L2   | All MCs   | 10           | 0.0  | 10            | 0.0  | 0.024     | 4.6         | LOS A            | 0.0               | 0.1    | 0.02       | 0.14           | 0.02                       | 48.0        |
| 2                            | T1   | All MCs   | 34           | 0.0  | 34            | 0.0  | 0.024     | 0.0         | LOS A            | 0.0               | 0.1    | 0.02       | 0.14           | 0.02                       | 49.2        |
| 3                            | R2   | All MCs   | 2            | 15.4 | 2             | 15.4 | 0.024     | 4.8         | LOS A            | 0.0               | 0.1    | 0.02       | 0.14           | 0.02                       | 47.6        |
| Approach                     |      |           | 46           | 0.5  | 46            | 0.5  | 0.024     | 1.2         | NA               | 0.0               | 0.1    | 0.02       | 0.14           | 0.02                       | 48.9        |
| East: Kahikatea Rd           |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 4                            | L2   | All MCs   | 9            | 0.0  | 9             | 0.0  | 0.341     | 5.6         | LOS A            | 1.6               | 12.4   | 0.62       | 0.73           | 0.77                       | 41.6        |
| 5                            | T1   | All MCs   | 29           | 15.0 | 29            | 15.0 | 0.341     | 9.2         | LOS A            | 1.6               | 12.4   | 0.62       | 0.73           | 0.77                       | 41.7        |
| 6                            | R2   | All MCs   | 113          | 15.0 | 113           | 15.0 | 0.341     | 14.7        | LOS B            | 1.6               | 12.4   | 0.62       | 0.73           | 0.77                       | 41.3        |
| Approach                     |      |           | 150          | 14.1 | 150           | 14.1 | 0.341     | 13.1        | LOS B            | 1.6               | 12.4   | 0.62       | 0.73           | 0.77                       | 41.3        |
| North: Higgins Rd            |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 7                            | L2   | All MCs   | 55           | 16.4 | 55            | 16.4 | 0.320     | 4.9         | LOS A            | 1.9               | 14.0   | 0.16       | 0.49           | 0.16                       | 45.5        |
| 8                            | T1   | All MCs   | 26           | 0.0  | 26            | 0.0  | 0.320     | 0.2         | LOS A            | 1.9               | 14.0   | 0.16       | 0.49           | 0.16                       | 46.8        |
| 9                            | R2   | All MCs   | 472          | 1.9  | 472           | 1.9  | 0.320     | 4.8         | LOS A            | 1.9               | 14.0   | 0.16       | 0.49           | 0.16                       | 45.6        |
| Approach                     |      |           | 554          | 3.3  | 554           | 3.3  | 0.320     | 4.6         | NA               | 1.9               | 14.0   | 0.16       | 0.49           | 0.16                       | 45.6        |
| West: Kahikatea Rd           |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 10                           | L2   | All MCs   | 146          | 6.5  | 146           | 6.5  | 0.118     | 4.7         | LOS A            | 0.5               | 3.7    | 0.12       | 0.50           | 0.12                       | 45.6        |
| 11                           | T1   | All MCs   | 9            | 10.0 | 9             | 10.0 | 0.118     | 7.7         | LOS A            | 0.5               | 3.7    | 0.12       | 0.50           | 0.12                       | 45.9        |
| 12                           | R2   | All MCs   | 5            | 0.0  | 5             | 0.0  | 0.118     | 9.0         | LOS A            | 0.5               | 3.7    | 0.12       | 0.50           | 0.12                       | 45.6        |
| Approach                     |      |           | 159          | 6.5  | 159           | 6.5  | 0.118     | 5.0         | LOS A            | 0.5               | 3.7    | 0.12       | 0.50           | 0.12                       | 45.6        |
| All Vehicles                 |      |           | 909          | 5.5  | 909           | 5.5  | 0.341     | 5.9         | NA               | 1.9               | 14.0   | 0.23       | 0.51           | 0.25                       | 45.0        |

## ITA Scenario 5 – AM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|-------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | 95% Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.            | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    | v/c       | sec         |                  | veh               | m      |            |                |                            | km/h        |
| South: Higgins Road          |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 1                            | L2   | All MCs   | 19           | 10.0 | 19            | 10.0 | 0.067     | 5.1         | LOS A            | 0.2               | 1.8    | 0.25       | 0.38           | 0.25                       | 46.4        |
| 2                            | T1   | All MCs   | 46           | 10.0 | 46            | 10.0 | 0.067     | 0.5         | LOS A            | 0.2               | 1.8    | 0.25       | 0.38           | 0.25                       | 47.7        |
| 3                            | R2   | All MCs   | 40           | 10.0 | 40            | 10.0 | 0.067     | 5.6         | LOS A            | 0.2               | 1.8    | 0.25       | 0.38           | 0.25                       | 46.3        |
| Approach                     |      |           | 105          | 10.0 | 105           | 10.0 | 0.067     | 3.3         | NA               | 0.2               | 1.8    | 0.25       | 0.38           | 0.25                       | 46.9        |
| East: Kahikatea Rd           |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 4                            | L2   | All MCs   | 18           | 20.0 | 18            | 20.0 | 0.067     | 5.3         | LOS A            | 0.2               | 1.9    | 0.39       | 0.58           | 0.39                       | 44.5        |
| 5                            | T1   | All MCs   | 7            | 16.6 | 7             | 16.6 | 0.067     | 5.3         | LOS A            | 0.2               | 1.9    | 0.39       | 0.58           | 0.39                       | 44.9        |
| 6                            | R2   | All MCs   | 26           | 21.4 | 26            | 21.4 | 0.067     | 8.3         | LOS A            | 0.2               | 1.9    | 0.39       | 0.58           | 0.39                       | 44.4        |
| Approach                     |      |           | 51           | 20.2 | 51            | 20.2 | 0.067     | 6.8         | LOS A            | 0.2               | 1.9    | 0.39       | 0.58           | 0.39                       | 44.5        |
| North: Higgins Rd            |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 7                            | L2   | All MCs   | 98           | 15.7 | 98            | 15.7 | 0.170     | 4.8         | LOS A            | 0.3               | 2.8    | 0.07       | 0.29           | 0.07                       | 46.8        |
| 8                            | T1   | All MCs   | 132          | 23.8 | 132           | 23.8 | 0.170     | 0.1         | LOS A            | 0.3               | 2.8    | 0.07       | 0.29           | 0.07                       | 48.1        |
| 9                            | R2   | All MCs   | 51           | 15.8 | 51            | 15.8 | 0.170     | 5.0         | LOS A            | 0.3               | 2.8    | 0.07       | 0.29           | 0.07                       | 46.6        |
| Approach                     |      |           | 282          | 19.5 | 282           | 19.5 | 0.170     | 2.6         | NA               | 0.3               | 2.8    | 0.07       | 0.29           | 0.07                       | 47.4        |
| West: Kahikatea Rd           |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 10                           | L2   | All MCs   | 76           | 3.4  | 76            | 3.4  | 0.335     | 4.8         | LOS A            | 1.5               | 11.8   | 0.35       | 0.54           | 0.35                       | 44.7        |
| 11                           | T1   | All MCs   | 29           | 2.1  | 29            | 2.1  | 0.335     | 5.9         | LOS A            | 1.5               | 11.8   | 0.35       | 0.54           | 0.35                       | 45.0        |
| 12                           | R2   | All MCs   | 174          | 20.0 | 174           | 20.0 | 0.335     | 8.0         | LOS A            | 1.5               | 11.8   | 0.35       | 0.54           | 0.35                       | 44.3        |
| Approach                     |      |           | 279          | 13.6 | 279           | 13.6 | 0.335     | 6.9         | LOS A            | 1.5               | 11.8   | 0.35       | 0.54           | 0.35                       | 44.5        |
| All Vehicles                 |      |           | 717          | 15.9 | 717           | 15.9 | 0.335     | 4.7         | NA               | 1.5               | 11.8   | 0.23       | 0.42           | 0.23                       | 45.9        |

## ITA Scenario 5 – PM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|-------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | 95% Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.            | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    | v/c       | sec         |                  | veh               | m      |            |                |                            | km/h        |
| South: Higgins Road          |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 1                            | L2   | All MCs   | 52           | 15.0 | 52            | 15.0 | 0.145     | 4.9         | LOS A            | 0.1               | 1.1    | 0.07       | 0.19           | 0.07                       | 47.5        |
| 2                            | T1   | All MCs   | 180          | 15.0 | 180           | 15.0 | 0.145     | 0.3         | LOS A            | 0.1               | 1.1    | 0.07       | 0.19           | 0.07                       | 49.0        |
| 3                            | R2   | All MCs   | 11           | 15.4 | 11            | 15.4 | 0.145     | 7.9         | LOS A            | 0.1               | 1.1    | 0.07       | 0.19           | 0.07                       | 47.4        |
| Approach                     |      |           | 243          | 15.0 | 243           | 15.0 | 0.145     | 1.6         | NA               | 0.1               | 1.1    | 0.07       | 0.19           | 0.07                       | 48.6        |
| East: Kahikatea Rd           |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 4                            | L2   | All MCs   | 55           | 10.0 | 55            | 10.0 | 0.521     | 10.6        | LOS B            | 2.3               | 17.3   | 0.81       | 1.07           | 1.27                       | 39.1        |
| 5                            | T1   | All MCs   | 38           | 1.6  | 38            | 1.6  | 0.521     | 17.8        | LOS C            | 2.3               | 17.3   | 0.81       | 1.07           | 1.27                       | 39.4        |
| 6                            | R2   | All MCs   | 84           | 7.6  | 84            | 7.6  | 0.521     | 23.8        | LOS C            | 2.3               | 17.3   | 0.81       | 1.07           | 1.27                       | 39.0        |
| Approach                     |      |           | 178          | 7.0  | 178           | 7.0  | 0.521     | 18.4        | LOS C            | 2.3               | 17.3   | 0.81       | 1.07           | 1.27                       | 39.1        |
| North: Higgins Rd            |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 7                            | L2   | All MCs   | 48           | 16.4 | 48            | 16.4 | 0.469     | 5.3         | LOS A            | 2.2               | 16.7   | 0.28       | 0.35           | 0.30                       | 46.6        |
| 8                            | T1   | All MCs   | 487          | 10.0 | 487           | 10.0 | 0.469     | 0.6         | LOS A            | 2.2               | 16.7   | 0.28       | 0.35           | 0.30                       | 48.0        |
| 9                            | R2   | All MCs   | 248          | 1.9  | 248           | 1.9  | 0.469     | 6.0         | LOS A            | 2.2               | 16.7   | 0.28       | 0.35           | 0.30                       | 46.7        |
| Approach                     |      |           | 783          | 7.8  | 783           | 7.8  | 0.469     | 2.6         | NA               | 2.2               | 16.7   | 0.28       | 0.35           | 0.30                       | 47.5        |
| West: Kahikatea Rd           |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 10                           | L2   | All MCs   | 23           | 6.5  | 23            | 6.5  | 0.451     | 8.3         | LOS A            | 1.8               | 13.8   | 0.79       | 1.01           | 1.16                       | 37.6        |
| 11                           | T1   | All MCs   | 10           | 7.1  | 10            | 7.1  | 0.451     | 19.1        | LOS C            | 1.8               | 13.8   | 0.79       | 1.01           | 1.16                       | 37.9        |
| 12                           | R2   | All MCs   | 85           | 10.0 | 85            | 10.0 | 0.451     | 25.9        | LOS D            | 1.8               | 13.8   | 0.79       | 1.01           | 1.16                       | 37.5        |
| Approach                     |      |           | 118          | 9.1  | 118           | 9.1  | 0.451     | 22.0        | LOS C            | 1.8               | 13.8   | 0.79       | 1.01           | 1.16                       | 37.6        |
| All Vehicles                 |      |           | 1321         | 9.2  | 1321          | 9.2  | 0.521     | 6.3         | NA               | 2.3               | 17.3   | 0.36       | 0.48           | 0.46                       | 45.3        |

## Residential Development

### Ohaupo Rd / Collins Rd Intersection

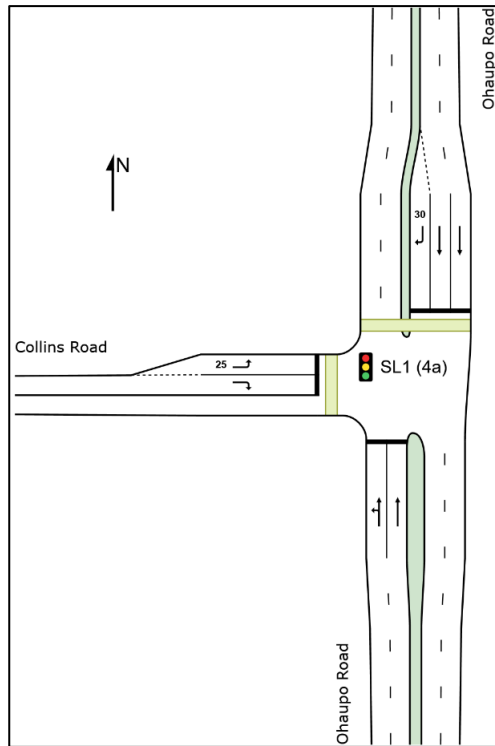


Figure: Existing Ohaupo Rd / Collins Rd Signalised Intersection Layout

## 2030 Baseline - AM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|-------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | 95% Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.            | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    | v/c       | sec         |                  | veh               | m      |            |                |                            | km/h        |
| South: Ohaupo Road           |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 1                            | L2   | All MCs   | 169          | 2.8  | 169           | 2.8  | 0.879     | 30.3        | LOS C            | 18.0              | 130.1  | 1.00       | 1.13           | 1.35                       | 32.7        |
| 2                            | T1   | All MCs   | 1108         | 4.0  | 1108          | 4.0  | * 0.879   | 25.7        | LOS C            | 18.2              | 131.8  | 1.00       | 1.13           | 1.34                       | 22.1        |
| Approach                     |      |           | 1277         | 3.8  | 1277          | 3.8  | 0.879     | 26.3        | LOS C            | 18.2              | 131.8  | 1.00       | 1.13           | 1.34                       | 24.4        |
| North: Ohaupo Road           |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 8                            | T1   | All MCs   | 674          | 9.3  | 674           | 9.3  | 0.176     | 7.0         | LOS A            | 4.2               | 31.9   | 0.56       | 0.47           | 0.56                       | 37.8        |
| 9                            | R2   | All MCs   | 330          | 2.5  | 330           | 2.5  | * 0.827   | 31.7        | LOS C            | 8.8               | 62.6   | 1.00       | 0.99           | 1.31                       | 29.0        |
| Approach                     |      |           | 1004         | 7.1  | 1004          | 7.1  | 0.827     | 15.1        | LOS B            | 8.8               | 62.6   | 0.71       | 0.64           | 0.81                       | 32.4        |
| West: Collins Road           |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 10                           | L2   | All MCs   | 311          | 2.8  | 311           | 2.8  | 0.636     | 16.0        | LOS B            | 6.1               | 43.5   | 0.80       | 0.82           | 0.84                       | 35.9        |
| 12                           | R2   | All MCs   | 214          | 1.9  | 214           | 1.9  | * 0.879   | 37.2        | LOS D            | 6.9               | 49.0   | 1.00       | 1.16           | 1.68                       | 29.2        |
| Approach                     |      |           | 524          | 2.4  | 524           | 2.4  | 0.879     | 24.7        | LOS C            | 6.9               | 49.0   | 0.88       | 0.96           | 1.18                       | 32.5        |
| All Vehicles                 |      |           | 2806         | 4.7  | 2806          | 4.7  | 0.879     | 22.0        | LOS C            | 18.2              | 131.8  | 0.87       | 0.92           | 1.12                       | 28.9        |

## 2030 Baseline - PM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|-------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | 95% Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.            | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    | v/c       | sec         |                  | veh               | m      |            |                |                            | km/h        |
| South: Ohaupo Road           |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 1                            | L2   | All MCs   | 118          | 3.1  | 118           | 3.1  | 0.834     | 26.9        | LOS C            | 11.5              | 82.5   | 1.00       | 1.03           | 1.29                       | 34.2        |
| 2                            | T1   | All MCs   | 870          | 3.6  | 870           | 3.6  | * 0.834   | 22.2        | LOS C            | 11.6              | 83.5   | 1.00       | 1.03           | 1.29                       | 23.9        |
| Approach                     |      |           | 988          | 3.5  | 988           | 3.5  | 0.834     | 22.8        | LOS C            | 11.6              | 83.5   | 1.00       | 1.03           | 1.29                       | 26.0        |
| North: Ohaupo Road           |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 8                            | T1   | All MCs   | 1329         | 1.8  | 1329          | 1.8  | 0.390     | 9.0         | LOS A            | 9.6               | 68.0   | 0.71       | 0.61           | 0.71                       | 35.6        |
| 9                            | R2   | All MCs   | 347          | 4.1  | 347           | 4.1  | * 0.683   | 26.1        | LOS C            | 7.4               | 53.7   | 1.00       | 0.85           | 1.09                       | 31.5        |
| Approach                     |      |           | 1676         | 2.3  | 1676          | 2.3  | 0.683     | 12.5        | LOS B            | 9.6               | 68.0   | 0.77       | 0.66           | 0.79                       | 33.4        |

|                    |    |         |      |     |      |     |         |      |       |      |      |      |      |      |      |
|--------------------|----|---------|------|-----|------|-----|---------|------|-------|------|------|------|------|------|------|
| West: Collins Road |    |         |      |     |      |     |         |      |       |      |      |      |      |      |      |
| 10                 | L2 | All MCs | 225  | 1.5 | 225  | 1.5 | 0.634   | 14.0 | LOS B | 3.9  | 27.5 | 0.74 | 0.83 | 0.85 | 37.0 |
| 12                 | R2 | All MCs | 159  | 0.7 | 159  | 0.7 | * 0.905 | 41.1 | LOS D | 5.2  | 36.9 | 1.00 | 1.24 | 2.05 | 28.1 |
| Approach           |    |         | 384  | 1.2 | 384  | 1.2 | 0.905   | 25.2 | LOS C | 5.2  | 36.9 | 0.85 | 1.00 | 1.35 | 32.3 |
| All Vehicles       |    |         | 3048 | 2.5 | 3048 | 2.5 | 0.905   | 17.5 | LOS B | 11.6 | 83.5 | 0.85 | 0.82 | 1.02 | 30.7 |

### ITA Scenario 1A - AM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|-------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | 95% Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.            | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    | v/c       | sec         |                  | veh               | m      |            |                |                            | km/h        |
| South: Ohaupo Road           |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 1                            | L2   | All MCs   | 171          | 3.0  | 171           | 3.0  | 0.869     | 30.1        | LOS C            | 18.6              | 134.1  | 1.00       | 1.09           | 1.30                       | 32.8        |
| 2                            | T1   | All MCs   | 1127         | 4.0  | 1127          | 4.0  | * 0.869   | 25.4        | LOS C            | 18.8              | 135.8  | 1.00       | 1.09           | 1.30                       | 22.3        |
| Approach                     |      |           | 1298         | 3.9  | 1298          | 3.9  | 0.869     | 26.1        | LOS C            | 18.8              | 135.8  | 1.00       | 1.09           | 1.30                       | 24.5        |
| North: Ohaupo Road           |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 8                            | T1   | All MCs   | 681          | 9.3  | 681           | 9.3  | 0.175     | 7.5         | LOS A            | 4.4               | 33.2   | 0.56       | 0.47           | 0.56                       | 37.7        |
| 9                            | R2   | All MCs   | 330          | 2.5  | 330           | 2.5  | * 0.875   | 35.8        | LOS D            | 9.6               | 68.4   | 1.00       | 1.06           | 1.45                       | 27.9        |
| Approach                     |      |           | 1011         | 7.0  | 1011          | 7.0  | 0.875     | 16.7        | LOS B            | 9.6               | 68.4   | 0.70       | 0.66           | 0.85                       | 31.2        |
| West: Collins Road           |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 10                           | L2   | All MCs   | 311          | 2.7  | 311           | 2.7  | 0.633     | 16.3        | LOS B            | 6.2               | 44.7   | 0.79       | 0.82           | 0.83                       | 35.7        |
| 12                           | R2   | All MCs   | 215          | 1.9  | 215           | 1.9  | * 0.869   | 37.0        | LOS D            | 7.0               | 50.0   | 1.00       | 1.14           | 1.62                       | 29.3        |
| Approach                     |      |           | 526          | 2.4  | 526           | 2.4  | 0.869     | 24.7        | LOS C            | 7.0               | 50.0   | 0.88       | 0.95           | 1.15                       | 32.5        |
| All Vehicles                 |      |           | 2835         | 4.7  | 2835          | 4.7  | 0.875     | 22.5        | LOS C            | 18.8              | 135.8  | 0.87       | 0.91           | 1.11                       | 28.6        |

### ITA Scenario 1A - PM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|-------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | 95% Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.            | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    | v/c       | sec         |                  | veh               | m      |            |                |                            | km/h        |
| South: Ohaupo Road           |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 1                            | L2   | All MCs   | 118          | 3.5  | 118           | 3.5  | 0.840     | 27.1        | LOS C            | 11.6              | 83.7   | 1.00       | 1.04           | 1.31                       | 34.1        |

|                    |    |         |      |     |      |     |         |      |       |      |      |      |      |      |      |
|--------------------|----|---------|------|-----|------|-----|---------|------|-------|------|------|------|------|------|------|
| 2                  | T1 | All MCs | 877  | 3.6 | 877  | 3.6 | * 0.840 | 22.5 | LOS C | 11.7 | 84.6 | 1.00 | 1.04 | 1.30 | 23.8 |
| Approach           |    |         | 994  | 3.6 | 994  | 3.6 | 0.840   | 23.0 | LOS C | 11.7 | 84.6 | 1.00 | 1.04 | 1.30 | 25.8 |
| North: Ohaupo Road |    |         |      |     |      |     |         |      |       |      |      |      |      |      |      |
| 8                  | T1 | All MCs | 1350 | 1.8 | 1350 | 1.8 | 0.397   | 9.1  | LOS A | 9.8  | 69.6 | 0.71 | 0.61 | 0.71 | 35.6 |
| 9                  | R2 | All MCs | 347  | 4.0 | 347  | 4.0 | * 0.682 | 26.2 | LOS C | 7.4  | 53.7 | 1.00 | 0.85 | 1.09 | 31.5 |
| Approach           |    |         | 1697 | 2.3 | 1697 | 2.3 | 0.682   | 12.6 | LOS B | 9.8  | 69.6 | 0.77 | 0.66 | 0.79 | 33.3 |
| West: Collins Road |    |         |      |     |      |     |         |      |       |      |      |      |      |      |      |
| 10                 | L2 | All MCs | 225  | 1.6 | 225  | 1.6 | 0.634   | 14.0 | LOS B | 3.9  | 27.6 | 0.74 | 0.83 | 0.85 | 37.0 |
| 12                 | R2 | All MCs | 161  | 0.8 | 161  | 0.8 | * 0.920 | 43.9 | LOS D | 5.5  | 39.1 | 1.00 | 1.28 | 2.14 | 27.3 |
| Approach           |    |         | 386  | 1.3 | 386  | 1.3 | 0.920   | 26.5 | LOS C | 5.5  | 39.1 | 0.85 | 1.02 | 1.39 | 31.8 |
| All Vehicles       |    |         | 3078 | 2.6 | 3078 | 2.6 | 0.920   | 17.7 | LOS B | 11.7 | 84.6 | 0.85 | 0.83 | 1.03 | 30.5 |

### ITA Scenario 1B - AM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|-------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | 95% Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.            | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    | v/c       | sec         |                  | veh               | m      |            |                |                            | km/h        |
| South: Ohaupo Road           |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 1                            | L2   | All MCs   | 175          | 3.0  | 175           | 3.0  | 0.870     | 30.4        | LOS C            | 19.2              | 138.5  | 1.00       | 1.09           | 1.29                       | 32.7        |
| 2                            | T1   | All MCs   | 1144         | 4.0  | 1144          | 4.0  | * 0.870   | 25.7        | LOS C            | 19.4              | 140.2  | 1.00       | 1.09           | 1.29                       | 22.1        |
| Approach                     |      |           | 1319         | 3.8  | 1319          | 3.8  | 0.870     | 26.3        | LOS C            | 19.4              | 140.2  | 1.00       | 1.09           | 1.29                       | 24.4        |
| North: Ohaupo Road           |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 8                            | T1   | All MCs   | 687          | 9.3  | 687           | 9.3  | 0.176     | 7.8         | LOS A            | 4.5               | 33.9   | 0.55       | 0.47           | 0.55                       | 37.6        |
| 9                            | R2   | All MCs   | 330          | 2.5  | 330           | 2.5  | * 0.877   | 36.8        | LOS D            | 9.8               | 70.0   | 1.00       | 1.07           | 1.45                       | 27.7        |
| Approach                     |      |           | 1017         | 7.1  | 1017          | 7.1  | 0.877     | 17.2        | LOS B            | 9.8               | 70.0   | 0.70       | 0.66           | 0.85                       | 30.9        |
| West: Collins Road           |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 10                           | L2   | All MCs   | 311          | 2.7  | 311           | 2.7  | 0.632     | 16.4        | LOS B            | 6.3               | 45.4   | 0.79       | 0.82           | 0.83                       | 35.6        |
| 12                           | R2   | All MCs   | 216          | 1.9  | 216           | 1.9  | * 0.870   | 37.5        | LOS D            | 7.2               | 51.2   | 1.00       | 1.13           | 1.61                       | 29.1        |
| Approach                     |      |           | 527          | 2.4  | 527           | 2.4  | 0.870     | 25.1        | LOS C            | 7.2               | 51.2   | 0.88       | 0.95           | 1.15                       | 32.4        |
| All Vehicles                 |      |           | 2863         | 4.7  | 2863          | 4.7  | 0.877     | 22.9        | LOS C            | 19.4              | 140.2  | 0.87       | 0.91           | 1.11                       | 28.4        |

## ITA Scenario 1B - PM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|-------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | 95% Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.            | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    | v/c       | sec         |                  | veh               | m      |            |                |                            | km/h        |
| South: Ohaupo Road           |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 1                            | L2   | All MCs   | 119          | 3.5  | 119           | 3.5  | 0.846     | 27.3        | LOS C            | 11.8              | 84.9   | 1.00       | 1.05           | 1.32                       | 34.0        |
| 2                            | T1   | All MCs   | 883          | 3.6  | 883           | 3.6  | * 0.846   | 22.7        | LOS C            | 11.9              | 85.9   | 1.00       | 1.05           | 1.32                       | 23.7        |
| Approach                     |      |           | 1002         | 3.6  | 1002          | 3.6  | 0.846     | 23.3        | LOS C            | 11.9              | 85.9   | 1.00       | 1.05           | 1.32                       | 25.7        |
| North: Ohaupo Road           |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 8                            | T1   | All MCs   | 1372         | 1.7  | 1372          | 1.7  | 0.405     | 9.2         | LOS A            | 10.0              | 71.2   | 0.72       | 0.62           | 0.72                       | 35.5        |
| 9                            | R2   | All MCs   | 347          | 4.0  | 347           | 4.0  | * 0.682   | 26.3        | LOS C            | 7.4               | 53.7   | 1.00       | 0.85           | 1.09                       | 31.5        |
| Approach                     |      |           | 1720         | 2.2  | 1720          | 2.2  | 0.682     | 12.6        | LOS B            | 10.0              | 71.2   | 0.77       | 0.66           | 0.79                       | 33.2        |
| West: Collins Road           |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 10                           | L2   | All MCs   | 225          | 1.6  | 225           | 1.6  | 0.634     | 14.0        | LOS B            | 3.9               | 27.6   | 0.74       | 0.83           | 0.85                       | 37.0        |
| 12                           | R2   | All MCs   | 162          | 0.8  | 162           | 0.8  | * 0.927   | 45.5        | LOS D            | 5.7               | 40.2   | 1.00       | 1.30           | 2.19                       | 26.9        |
| Approach                     |      |           | 387          | 1.2  | 387           | 1.2  | 0.927     | 27.2        | LOS C            | 5.7               | 40.2   | 0.85       | 1.03           | 1.41                       | 31.5        |
| All Vehicles                 |      |           | 3109         | 2.5  | 3109          | 2.5  | 0.927     | 17.9        | LOS B            | 11.9              | 85.9   | 0.86       | 0.83           | 1.04                       | 30.4        |

## ITA Scenario 1C - AM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|-------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | 95% Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.            | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    | v/c       | sec         |                  | veh               | m      |            |                |                            | km/h        |
| South: Ohaupo Road           |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 1                            | L2   | All MCs   | 178          | 2.9  | 178           | 2.9  | 0.873     | 30.9        | LOS C            | 20.0              | 144.2  | 1.00       | 1.09           | 1.29                       | 32.5        |
| 2                            | T1   | All MCs   | 1165         | 4.0  | 1165          | 4.0  | * 0.873   | 26.3        | LOS C            | 20.2              | 146.1  | 1.00       | 1.10           | 1.29                       | 21.9        |
| Approach                     |      |           | 1343         | 3.9  | 1343          | 3.9  | 0.873     | 26.9        | LOS C            | 20.2              | 146.1  | 1.00       | 1.10           | 1.29                       | 24.1        |
| North: Ohaupo Road           |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 8                            | T1   | All MCs   | 693          | 9.1  | 693           | 9.1  | 0.177     | 8.0         | LOS A            | 4.6               | 34.7   | 0.55       | 0.47           | 0.55                       | 37.5        |
| 9                            | R2   | All MCs   | 330          | 2.5  | 330           | 2.5  | * 0.883   | 38.1        | LOS D            | 10.0              | 71.7   | 1.00       | 1.08           | 1.46                       | 27.4        |
| Approach                     |      |           | 1023         | 7.0  | 1023          | 7.0  | 0.883     | 17.8        | LOS B            | 10.0              | 71.7   | 0.70       | 0.66           | 0.85                       | 30.5        |

|                    |    |         |      |     |      |     |         |      |       |      |       |      |      |      |      |
|--------------------|----|---------|------|-----|------|-----|---------|------|-------|------|-------|------|------|------|------|
| West: Collins Road |    |         |      |     |      |     |         |      |       |      |       |      |      |      |      |
| 10                 | L2 | All MCs | 311  | 2.7 | 311  | 2.7 | 0.632   | 16.6 | LOS B | 6.4  | 46.1  | 0.79 | 0.82 | 0.83 | 35.6 |
| 12                 | R2 | All MCs | 219  | 1.9 | 219  | 1.9 | * 0.873 | 38.3 | LOS D | 7.5  | 53.0  | 1.00 | 1.14 | 1.61 | 28.9 |
| Approach           |    |         | 530  | 2.4 | 530  | 2.4 | 0.873   | 25.6 | LOS C | 7.5  | 53.0  | 0.88 | 0.95 | 1.15 | 32.1 |
| All Vehicles       |    |         | 2897 | 4.7 | 2897 | 4.7 | 0.883   | 23.4 | LOS C | 20.2 | 146.1 | 0.87 | 0.92 | 1.11 | 28.1 |

### ITA Scenario 1C - PM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|-------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | 95% Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.            | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    | v/c       | sec         |                  | veh               | m      |            |                |                            | km/h        |
| South: Ohaupo Road           |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 1                            | L2   | All MCs   | 121          | 3.4  | 121           | 3.4  | 0.853     | 27.6        | LOS C            | 12.0              | 86.3   | 1.00       | 1.06           | 1.34                       | 33.9        |
| 2                            | T1   | All MCs   | 889          | 3.6  | 889           | 3.6  | * 0.853   | 23.0        | LOS C            | 12.1              | 87.3   | 1.00       | 1.06           | 1.34                       | 23.5        |
| Approach                     |      |           | 1010         | 3.6  | 1010          | 3.6  | 0.853     | 23.6        | LOS C            | 12.1              | 87.3   | 1.00       | 1.06           | 1.34                       | 25.6        |
| North: Ohaupo Road           |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 8                            | T1   | All MCs   | 1396         | 1.7  | 1396          | 1.7  | 0.413     | 9.2         | LOS A            | 10.3              | 73.0   | 0.72       | 0.62           | 0.72                       | 35.5        |
| 9                            | R2   | All MCs   | 347          | 4.0  | 347           | 4.0  | * 0.682   | 26.4        | LOS C            | 7.4               | 53.7   | 1.00       | 0.85           | 1.09                       | 31.5        |
| Approach                     |      |           | 1743         | 2.2  | 1743          | 2.2  | 0.682     | 12.7        | LOS B            | 10.3              | 73.0   | 0.77       | 0.67           | 0.79                       | 33.2        |
| West: Collins Road           |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 10                           | L2   | All MCs   | 225          | 1.6  | 225           | 1.6  | 0.634     | 14.0        | LOS B            | 3.9               | 27.6   | 0.74       | 0.83           | 0.85                       | 37.0        |
| 12                           | R2   | All MCs   | 167          | 0.7  | 167           | 0.7  | * 0.954   | 53.2        | LOS D            | 6.5               | 45.7   | 1.00       | 1.38           | 2.39                       | 25.0        |
| Approach                     |      |           | 392          | 1.2  | 392           | 1.2  | 0.954     | 30.7        | LOS C            | 6.5               | 45.7   | 0.85       | 1.07           | 1.51                       | 30.2        |
| All Vehicles                 |      |           | 3146         | 2.5  | 3146          | 2.5  | 0.954     | 18.4        | LOS B            | 12.1              | 87.3   | 0.86       | 0.84           | 1.06                       | 30.0        |

### ITA Scenario 1D - AM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|-------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | 95% Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.            | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    | v/c       | sec         |                  | veh               | m      |            |                |                            | km/h        |
| South: Ohaupo Road           |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 1                            | L2   | All MCs   | 180          | 2.9  | 180           | 2.9  | 0.879     | 31.7        | LOS C            | 20.9              | 151.0  | 1.00       | 1.10           | 1.30                       | 32.2        |

|                    |    |         |      |     |      |     |         |      |       |      |       |      |      |      |      |
|--------------------|----|---------|------|-----|------|-----|---------|------|-------|------|-------|------|------|------|------|
| 2                  | T1 | All MCs | 1188 | 4.0 | 1188 | 4.0 | * 0.879 | 27.1 | LOS C | 21.1 | 152.9 | 1.00 | 1.11 | 1.30 | 21.5 |
| Approach           |    |         | 1369 | 3.9 | 1369 | 3.9 | 0.879   | 27.7 | LOS C | 21.1 | 152.9 | 1.00 | 1.11 | 1.30 | 23.8 |
| North: Ohaupo Road |    |         |      |     |      |     |         |      |       |      |       |      |      |      |      |
| 8                  | T1 | All MCs | 701  | 9.0 | 701  | 9.0 | 0.178   | 8.4  | LOS A | 4.7  | 35.6  | 0.55 | 0.47 | 0.55 | 37.4 |
| 9                  | R2 | All MCs | 330  | 2.5 | 330  | 2.5 | * 0.890 | 39.6 | LOS D | 10.3 | 73.8  | 1.00 | 1.09 | 1.49 | 27.0 |
| Approach           |    |         | 1031 | 6.9 | 1031 | 6.9 | 0.890   | 18.4 | LOS B | 10.3 | 73.8  | 0.70 | 0.67 | 0.85 | 30.1 |
| West: Collins Road |    |         |      |     |      |     |         |      |       |      |       |      |      |      |      |
| 10                 | L2 | All MCs | 311  | 2.7 | 311  | 2.7 | 0.631   | 16.7 | LOS B | 6.5  | 46.7  | 0.79 | 0.81 | 0.82 | 35.5 |
| 12                 | R2 | All MCs | 223  | 1.8 | 223  | 1.8 | * 0.879 | 39.4 | LOS D | 7.8  | 55.5  | 1.00 | 1.15 | 1.62 | 28.5 |
| Approach           |    |         | 534  | 2.3 | 534  | 2.3 | 0.879   | 26.2 | LOS C | 7.8  | 55.5  | 0.88 | 0.96 | 1.16 | 31.9 |
| All Vehicles       |    |         | 2934 | 4.7 | 2934 | 4.7 | 0.890   | 24.1 | LOS C | 21.1 | 152.9 | 0.87 | 0.93 | 1.12 | 27.7 |

### ITA Scenario 1D - PM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|-------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | 95% Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.            | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    | v/c       | sec         |                  | veh               | m      |            |                |                            | km/h        |
| South: Ohaupo Road           |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 1                            | L2   | All MCs   | 121          | 3.4  | 121           | 3.4  | 0.857     | 27.8        | LOS C            | 12.1              | 87.3   | 1.00       | 1.07           | 1.35                       | 33.8        |
| 2                            | T1   | All MCs   | 896          | 3.5  | 896           | 3.5  | * 0.857   | 23.2        | LOS C            | 12.2              | 88.3   | 1.00       | 1.07           | 1.35                       | 23.4        |
| Approach                     |      |           | 1017         | 3.5  | 1017          | 3.5  | 0.857     | 23.8        | LOS C            | 12.2              | 88.3   | 1.00       | 1.07           | 1.35                       | 25.4        |
| North: Ohaupo Road           |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 8                            | T1   | All MCs   | 1423         | 1.7  | 1423          | 1.7  | 0.423     | 9.4         | LOS A            | 10.6              | 75.1   | 0.72       | 0.62           | 0.72                       | 35.4        |
| 9                            | R2   | All MCs   | 347          | 4.0  | 347           | 4.0  | * 0.682   | 26.6        | LOS C            | 7.4               | 53.7   | 1.00       | 0.85           | 1.09                       | 31.5        |
| Approach                     |      |           | 1771         | 2.1  | 1771          | 2.1  | 0.682     | 12.7        | LOS B            | 10.6              | 75.1   | 0.78       | 0.67           | 0.79                       | 33.1        |
| West: Collins Road           |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 10                           | L2   | All MCs   | 225          | 1.6  | 225           | 1.6  | 0.634     | 14.0        | LOS B            | 3.9               | 27.6   | 0.74       | 0.83           | 0.85                       | 37.0        |
| 12                           | R2   | All MCs   | 170          | 0.7  | 170           | 0.7  | * 0.968   | 58.0        | LOS E            | 7.0               | 49.0   | 1.00       | 1.43           | 2.51                       | 23.9        |
| Approach                     |      |           | 395          | 1.2  | 395           | 1.2  | 0.968     | 32.9        | LOS C            | 7.0               | 49.0   | 0.85       | 1.09           | 1.56                       | 29.4        |
| All Vehicles                 |      |           | 3182         | 2.4  | 3182          | 2.4  | 0.968     | 18.8        | LOS B            | 12.2              | 88.3   | 0.86       | 0.85           | 1.07                       | 29.8        |

## ITA Scenario 1E - AM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|-------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | 95% Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.            | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    | v/c       | sec         |                  | veh               | m      |            |                |                            | km/h        |
| South: Ohaupo Road           |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 1                            | L2   | All MCs   | 182          | 2.9  | 182           | 2.9  | 0.879     | 31.9        | LOS C            | 21.5              | 154.7  | 1.00       | 1.09           | 1.29                       | 32.1        |
| 2                            | T1   | All MCs   | 1203         | 3.7  | 1203          | 3.7  | * 0.879   | 27.3        | LOS C            | 21.7              | 156.6  | 1.00       | 1.10           | 1.29                       | 21.4        |
| Approach                     |      |           | 1385         | 3.6  | 1385          | 3.6  | 0.879     | 27.9        | LOS C            | 21.7              | 156.6  | 1.00       | 1.10           | 1.29                       | 23.7        |
| North: Ohaupo Road           |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 8                            | T1   | All MCs   | 707          | 8.9  | 707           | 8.9  | 0.179     | 8.6         | LOS A            | 4.8               | 36.4   | 0.55       | 0.47           | 0.55                       | 37.3        |
| 9                            | R2   | All MCs   | 330          | 2.5  | 330           | 2.5  | * 0.892   | 40.7        | LOS D            | 10.5              | 75.3   | 1.00       | 1.10           | 1.49                       | 26.8        |
| Approach                     |      |           | 1037         | 6.9  | 1037          | 6.9  | 0.892     | 18.8        | LOS B            | 10.5              | 75.3   | 0.69       | 0.67           | 0.85                       | 29.8        |
| West: Collins Road           |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 10                           | L2   | All MCs   | 311          | 2.7  | 311           | 2.7  | 0.633     | 17.0        | LOS B            | 6.6               | 47.6   | 0.79       | 0.81           | 0.82                       | 35.4        |
| 12                           | R2   | All MCs   | 224          | 1.8  | 224           | 1.8  | * 0.879   | 39.9        | LOS D            | 8.0               | 56.6   | 1.00       | 1.15           | 1.61                       | 28.4        |
| Approach                     |      |           | 535          | 2.3  | 535           | 2.3  | 0.879     | 26.6        | LOS C            | 8.0               | 56.6   | 0.88       | 0.96           | 1.15                       | 31.7        |
| All Vehicles                 |      |           | 2958         | 4.5  | 2958          | 4.5  | 0.892     | 24.5        | LOS C            | 21.7              | 156.6  | 0.87       | 0.92           | 1.11                       | 27.5        |

## ITA Scenario 1E - PM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|-------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | 95% Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.            | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    | v/c       | sec         |                  | veh               | m      |            |                |                            | km/h        |
| South: Ohaupo Road           |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 1                            | L2   | All MCs   | 122          | 3.4  | 122           | 3.4  | 0.880     | 29.6        | LOS C            | 12.9              | 92.7   | 1.00       | 1.12           | 1.42                       | 33.1        |
| 2                            | T1   | All MCs   | 902          | 3.4  | 902           | 3.4  | * 0.880   | 25.0        | LOS C            | 13.0              | 93.7   | 1.00       | 1.12           | 1.41                       | 22.5        |
| Approach                     |      |           | 1024         | 3.4  | 1024          | 3.4  | 0.880     | 25.5        | LOS C            | 13.0              | 93.7   | 1.00       | 1.12           | 1.41                       | 24.6        |
| North: Ohaupo Road           |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 8                            | T1   | All MCs   | 1438         | 1.6  | 1438          | 1.6  | 0.441     | 10.1        | LOS B            | 11.3              | 80.1   | 0.74       | 0.64           | 0.74                       | 34.8        |
| 9                            | R2   | All MCs   | 347          | 4.0  | 347           | 4.0  | * 0.698   | 27.7        | LOS C            | 7.6               | 55.3   | 1.00       | 0.86           | 1.10                       | 31.2        |
| Approach                     |      |           | 1786         | 2.1  | 1786          | 2.1  | 0.698     | 13.5        | LOS B            | 11.3              | 80.1   | 0.79       | 0.68           | 0.81                       | 32.5        |

|                    |    |         |      |     |      |     |         |      |       |      |      |      |      |      |      |
|--------------------|----|---------|------|-----|------|-----|---------|------|-------|------|------|------|------|------|------|
| West: Collins Road |    |         |      |     |      |     |         |      |       |      |      |      |      |      |      |
| 10                 | L2 | All MCs | 225  | 1.6 | 225  | 1.6 | 0.623   | 13.6 | LOS B | 3.8  | 27.2 | 0.72 | 0.82 | 0.82 | 37.3 |
| 12                 | R2 | All MCs | 172  | 0.7 | 172  | 0.7 | * 0.927 | 46.2 | LOS D | 6.2  | 43.7 | 1.00 | 1.30 | 2.15 | 26.7 |
| Approach           |    |         | 397  | 1.2 | 397  | 1.2 | 0.927   | 27.7 | LOS C | 6.2  | 43.7 | 0.84 | 1.03 | 1.40 | 31.3 |
| All Vehicles       |    |         | 3207 | 2.4 | 3207 | 2.4 | 0.927   | 19.1 | LOS B | 13.0 | 93.7 | 0.86 | 0.86 | 1.08 | 29.6 |

## ITA Scenario 2 - AM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|---------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | Aver. Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.              | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    |           |             |                  | v/c                 | sec    |            |                |                            |             |
| South: Ohaupo Road           |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 1                            | L2   | All MCs   | 182          | 2.8  | 179           | 2.8  | 0.794     | 22.1        | LOS C            | 17.2                | 124.0  | 0.92       | 0.86           | 0.95                       | 36.5        |
| 2                            | T1   | All MCs   | 1822         | 4.0  | 1790          | 4.1  | * 0.794   | 17.5        | LOS B            | 17.3                | 125.1  | 0.92       | 0.86           | 0.95                       | 26.9        |
| Approach                     |      |           | 2004         | 3.9  | 1969          | 3.9  | 0.794     | 17.9        | LOS B            | 17.3                | 125.1  | 0.92       | 0.86           | 0.95                       | 28.4        |
| North: Ohaupo Road           |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 8                            | T1   | All MCs   | 926          | 9.3  | 926           | 9.3  | 0.193     | 5.0         | LOS A            | 3.6                 | 27.3   | 0.43       | 0.37           | 0.43                       | 27.7        |
| 9                            | R2   | All MCs   | 145          | 2.5  | 145           | 2.5  | * 0.433   | 36.3        | LOS D            | 2.8                 | 20.1   | 0.99       | 0.77           | 0.99                       | 27.2        |
| Approach                     |      |           | 1072         | 8.4  | 1072          | 8.4  | 0.433     | 9.2         | LOS A            | 3.6                 | 27.3   | 0.51       | 0.42           | 0.51                       | 27.4        |
| West: Collins Road           |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 10                           | L2   | All MCs   | 105          | 2.8  | 105           | 2.8  | 0.293     | 21.8        | LOS C            | 1.6                 | 11.2   | 0.76       | 0.75           | 0.76                       | 32.9        |
| 12                           | R2   | All MCs   | 140          | 1.9  | 140           | 1.9  | * 0.794   | 40.5        | LOS D            | 3.2                 | 22.7   | 1.00       | 0.98           | 1.37                       | 24.9        |
| Approach                     |      |           | 245          | 2.3  | 245           | 2.3  | 0.794     | 32.5        | LOS C            | 3.2                 | 22.7   | 0.90       | 0.88           | 1.11                       | 28.0        |
| All Vehicles                 |      |           | 3321         | 5.2  | 3286          | 5.3  | 0.794     | 16.2        | LOS B            | 17.3                | 125.1  | 0.78       | 0.72           | 0.82                       | 28.2        |

## ITA Scenario 2 - PM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|---------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | Aver. Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.              | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    |           |             |                  | v/c                 | sec    |            |                |                            | veh         |
| South: Ohaupo Road           |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 1                            | L2   | All MCs   | 178          | 3.1  | 178           | 3.1  | 0.575     | 25.8        | LOS C            | 11.4                | 82.5   | 0.88       | 0.78           | 0.88                       | 34.6        |

|                    |    |         |      |     |      |     |         |      |       |      |       |      |      |      |      |
|--------------------|----|---------|------|-----|------|-----|---------|------|-------|------|-------|------|------|------|------|
| 2                  | T1 | All MCs | 1126 | 3.6 | 1126 | 3.6 | * 0.575 | 21.2 | LOS C | 11.6 | 83.7  | 0.88 | 0.77 | 0.88 | 24.5 |
| Approach           |    |         | 1304 | 3.5 | 1304 | 3.5 | 0.575   | 21.8 | LOS C | 11.6 | 83.7  | 0.88 | 0.77 | 0.88 | 26.8 |
| North: Ohaupo Road |    |         |      |     |      |     |         |      |       |      |       |      |      |      |      |
| 8                  | T1 | All MCs | 2047 | 1.8 | 2047 | 1.8 | 0.539   | 17.1 | LOS B | 15.2 | 107.8 | 0.74 | 0.66 | 0.74 | 16.1 |
| 9                  | R2 | All MCs | 67   | 4.1 | 67   | 4.1 | * 0.222 | 47.2 | LOS D | 1.4  | 10.1  | 0.97 | 0.73 | 0.97 | 26.4 |
| Approach           |    |         | 2115 | 1.9 | 2115 | 1.9 | 0.539   | 18.1 | LOS B | 15.2 | 107.8 | 0.74 | 0.66 | 0.74 | 14.5 |
| West: Collins Road |    |         |      |     |      |     |         |      |       |      |       |      |      |      |      |
| 10                 | L2 | All MCs | 84   | 1.5 | 84   | 1.5 | 0.259   | 16.2 | LOS B | 1.1  | 7.7   | 0.61 | 0.71 | 0.61 | 35.8 |
| 12                 | R2 | All MCs | 125  | 0.7 | 125  | 0.7 | * 0.575 | 28.0 | LOS C | 2.4  | 17.2  | 0.87 | 0.82 | 0.91 | 29.5 |
| Approach           |    |         | 209  | 1.0 | 209  | 1.0 | 0.575   | 23.3 | LOS C | 2.4  | 17.2  | 0.77 | 0.77 | 0.79 | 31.9 |
| All Vehicles       |    |         | 3628 | 2.4 | 3628 | 2.4 | 0.575   | 19.7 | LOS B | 15.2 | 107.8 | 0.80 | 0.71 | 0.80 | 22.2 |

### ITA Scenario 3 - AM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|---------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | Aver. Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.              | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    | v/c       | sec         |                  | veh                 | m      |            |                |                            | km/h        |
| South: Ohaupo Road           |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 1                            | L2   | All MCs   | 203          | 2.8  | 203           | 2.8  | 0.759     | 24.6        | LOS C            | 15.5                | 111.6  | 0.92       | 0.84           | 0.93                       | 35.2        |
| 2                            | T1   | All MCs   | 1462         | 4.0  | 1462          | 4.0  | * 0.759   | 19.9        | LOS B            | 15.6                | 112.9  | 0.92       | 0.84           | 0.93                       | 25.2        |
| Approach                     |      |           | 1665         | 3.9  | 1665          | 3.9  | 0.759     | 20.5        | LOS C            | 15.6                | 112.9  | 0.92       | 0.84           | 0.93                       | 27.3        |
| North: Ohaupo Road           |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 8                            | T1   | All MCs   | 629          | 9.3  | 629           | 9.3  | 0.147     | 7.4         | LOS A            | 3.0                 | 23.0   | 0.49       | 0.41           | 0.49                       | 22.8        |
| 9                            | R2   | All MCs   | 123          | 2.5  | 123           | 2.5  | * 0.401   | 39.4        | LOS D            | 2.6                 | 18.6   | 0.99       | 0.76           | 0.99                       | 26.2        |
| Approach                     |      |           | 753          | 8.2  | 753           | 8.2  | 0.401     | 12.6        | LOS B            | 3.0                 | 23.0   | 0.57       | 0.47           | 0.57                       | 24.7        |
| West: Collins Road           |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 10                           | L2   | All MCs   | 125          | 2.8  | 125           | 2.8  | 0.293     | 19.8        | LOS B            | 1.8                 | 13.1   | 0.70       | 0.74           | 0.70                       | 33.9        |
| 12                           | R2   | All MCs   | 171          | 1.9  | 171           | 1.9  | * 0.653   | 33.2        | LOS C            | 3.6                 | 25.6   | 0.94       | 0.86           | 1.03                       | 27.4        |
| Approach                     |      |           | 296          | 2.3  | 296           | 2.3  | 0.653     | 27.5        | LOS C            | 3.6                 | 25.6   | 0.84       | 0.81           | 0.89                       | 30.0        |
| All Vehicles                 |      |           | 2714         | 4.9  | 2714          | 4.9  | 0.759     | 19.1        | LOS B            | 15.6                | 112.9  | 0.82       | 0.73           | 0.83                       | 27.4        |

### ITA Scenario 3 - PM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|---------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | Aver. Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.              | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    |           |             |                  | veh                 | m      |            |                |                            |             |
| South: Ohaupo Road           |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 1                            | L2   | All MCs   | 202          | 3.1  | 202           | 3.1  | 0.665     | 26.1        | LOS C            | 7.3                 | 52.7   | 0.97       | 0.83           | 0.98                       | 34.2        |
| 2                            | T1   | All MCs   | 771          | 3.6  | 771           | 3.6  | * 0.665   | 21.4        | LOS C            | 7.4                 | 53.8   | 0.97       | 0.83           | 0.98                       | 24.2        |
| Approach                     |      |           | 973          | 3.5  | 973           | 3.5  | 0.665     | 22.4        | LOS C            | 7.4                 | 53.8   | 0.97       | 0.83           | 0.98                       | 27.5        |
| North: Ohaupo Road           |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 8                            | T1   | All MCs   | 1537         | 1.8  | 1537          | 1.8  | 0.458     | 13.8        | LOS B            | 8.8                 | 62.6   | 0.75       | 0.66           | 0.75                       | 17.6        |
| 9                            | R2   | All MCs   | 53           | 4.1  | 53            | 4.1  | * 0.130   | 33.5        | LOS C            | 0.8                 | 5.7    | 0.93       | 0.71           | 0.93                       | 30.0        |
| Approach                     |      |           | 1589         | 1.9  | 1589          | 1.9  | 0.458     | 14.5        | LOS B            | 8.8                 | 62.6   | 0.76       | 0.66           | 0.76                       | 17.0        |
| West: Collins Road           |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 10                           | L2   | All MCs   | 79           | 1.5  | 79            | 1.5  | 0.216     | 11.3        | LOS B            | 0.7                 | 4.8    | 0.53       | 0.68           | 0.53                       | 38.8        |
| 12                           | R2   | All MCs   | 169          | 0.7  | 169           | 0.7  | * 0.763   | 29.3        | LOS C            | 3.1                 | 22.0   | 0.94       | 0.99           | 1.29                       | 28.9        |
| Approach                     |      |           | 248          | 1.0  | 248           | 1.0  | 0.763     | 23.6        | LOS C            | 3.1                 | 22.0   | 0.81       | 0.89           | 1.05                       | 31.7        |
| All Vehicles                 |      |           | 2811         | 2.4  | 2811          | 2.4  | 0.763     | 18.0        | LOS B            | 8.8                 | 62.6   | 0.84       | 0.74           | 0.86                       | 24.5        |

### ITA Scenario 4 - AM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|---------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | Aver. Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.              | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    |           |             |                  | veh                 | m      |            |                |                            |             |
| South: Ohaupo Road           |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 1                            | L2   | All MCs   | 242          | 2.8  | 230           | 2.9  | 0.831     | 29.1        | LOS C            | 17.5                | 126.4  | 0.97       | 0.94           | 1.07                       | 33.2        |
| 2                            | T1   | All MCs   | 1544         | 4.0  | 1469          | 4.2  | * 0.831   | 24.4        | LOS C            | 17.7                | 128.0  | 0.97       | 0.94           | 1.07                       | 22.7        |
| Approach                     |      |           | 1786         | 3.8  | 1699          | 4.0  | 0.831     | 25.1        | LOS C            | 17.7                | 128.0  | 0.97       | 0.94           | 1.07                       | 25.0        |
| North: Ohaupo Road           |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 8                            | T1   | All MCs   | 687          | 9.3  | 687           | 9.3  | 0.167     | 8.0         | LOS A            | 3.4                 | 26.0   | 0.52       | 0.44           | 0.52                       | 21.7        |
| 9                            | R2   | All MCs   | 121          | 2.5  | 121           | 2.5  | * 0.383   | 38.3        | LOS D            | 2.5                 | 17.7   | 0.99       | 0.76           | 0.99                       | 26.6        |
| Approach                     |      |           | 808          | 8.3  | 808           | 8.3  | 0.383     | 12.6        | LOS B            | 3.4                 | 26.0   | 0.59       | 0.49           | 0.59                       | 24.2        |

|                    |    |         |      |     |             |     |         |      |       |      |       |      |      |      |      |
|--------------------|----|---------|------|-----|-------------|-----|---------|------|-------|------|-------|------|------|------|------|
| West: Collins Road |    |         |      |     |             |     |         |      |       |      |       |      |      |      |      |
| 10                 | L2 | All MCs | 113  | 2.8 | 113         | 2.8 | 0.250   | 20.0 | LOS C | 1.5  | 10.9  | 0.66 | 0.72 | 0.66 | 34.8 |
| 12                 | R2 | All MCs | 215  | 1.9 | 215         | 1.9 | * 0.821 | 42.0 | LOS D | 5.2  | 37.2  | 0.99 | 1.01 | 1.34 | 25.1 |
| Approach           |    |         | 327  | 2.2 | 327         | 2.2 | 0.821   | 34.4 | LOS C | 5.2  | 37.2  | 0.88 | 0.91 | 1.11 | 27.3 |
| All Vehicles       |    |         | 2922 | 4.9 | <b>2834</b> | 5.0 | 0.831   | 22.6 | LOS C | 17.7 | 128.0 | 0.85 | 0.81 | 0.94 | 25.3 |

#### ITA Scenario 4 - PM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|---------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | Aver. Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.              | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    |           |             |                  | v/c                 | sec    |            |                |                            |             |
| South: Ohaupo Road           |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 1                            | L2   | All MCs   | 268          | 3.1  | 268           | 3.1  | 0.754     | 30.1        | LOS C            | 9.4                 | 68.0   | 1.00       | 0.89           | 1.07                       | 32.4        |
| 2                            | T1   | All MCs   | 808          | 3.6  | 808           | 3.6  | * 0.754   | 25.4        | LOS C            | 9.6                 | 69.6   | 1.00       | 0.90           | 1.07                       | 22.2        |
| Approach                     |      |           | 1077         | 3.5  | 1077          | 3.5  | 0.754     | 26.6        | LOS C            | 9.6                 | 69.6   | 1.00       | 0.90           | 1.07                       | 26.0        |
| North: Ohaupo Road           |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 8                            | T1   | All MCs   | 1697         | 1.8  | 1697          | 1.8  | 0.541     | 18.2        | LOS B            | 11.7                | 82.8   | 0.81       | 0.71           | 0.81                       | 15.1        |
| 9                            | R2   | All MCs   | 54           | 4.1  | 54            | 4.1  | * 0.147   | 39.8        | LOS D            | 0.9                 | 6.6    | 0.95       | 0.71           | 0.95                       | 28.7        |
| Approach                     |      |           | 1751         | 1.9  | 1751          | 1.9  | 0.541     | 18.8        | LOS B            | 11.7                | 82.8   | 0.82       | 0.71           | 0.82                       | 14.1        |
| West: Collins Road           |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 10                           | L2   | All MCs   | 69           | 1.5  | 69            | 1.5  | 0.182     | 11.0        | LOS B            | 0.6                 | 4.3    | 0.49       | 0.67           | 0.49                       | 39.0        |
| 12                           | R2   | All MCs   | 192          | 0.7  | 192           | 0.7  | * 0.754   | 28.8        | LOS C            | 3.7                 | 26.3   | 0.92       | 0.97           | 1.20                       | 29.1        |
| Approach                     |      |           | 261          | 0.9  | 261           | 0.9  | 0.754     | 24.1        | LOS C            | 3.7                 | 26.3   | 0.80       | 0.89           | 1.01                       | 31.4        |
| All Vehicles                 |      |           | 3088         | 2.3  | 3088          | 2.3  | 0.754     | 22.0        | LOS C            | 11.7                | 82.8   | 0.88       | 0.79           | 0.92                       | 22.3        |

#### ITA Scenario 5 - AM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|---------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | Aver. Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.              | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    |           |             |                  | veh                 | m      |            |                |                            |             |
| South: Ohaupo Road           |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 1                            | L2   | All MCs   | 198          | 2.8  | 180           | 3.0  | 0.835     | 12.5        | LOS B            | 18.4                | 133.1  | 0.97       | 0.94           | 1.07                       | 33.6        |

|                    |    |         |      |     |             |     |         |      |       |      |       |      |      |      |      |
|--------------------|----|---------|------|-----|-------------|-----|---------|------|-------|------|-------|------|------|------|------|
| 2                  | T1 | All MCs | 1755 | 4.0 | <b>1595</b> | 4.3 | * 0.835 | 25.8 | LOS C | 18.4 | 133.1 | 0.97 | 0.94 | 1.07 | 23.0 |
| Approach           |    |         | 1953 | 3.9 | <b>1775</b> | 4.2 | 0.835   | 24.5 | LOS C | 18.4 | 133.1 | 0.97 | 0.94 | 1.07 | 24.8 |
| North: Ohaupo Road |    |         |      |     |             |     |         |      |       |      |       |      |      |      |      |
| 8                  | T1 | All MCs | 724  | 9.3 | 724         | 9.3 | 0.172   | 7.6  | LOS A | 3.5  | 26.8  | 0.51 | 0.43 | 0.51 | 22.4 |
| 9                  | R2 | All MCs | 117  | 2.5 | 117         | 2.5 | * 0.370 | 38.2 | LOS D | 2.4  | 17.1  | 0.98 | 0.75 | 0.98 | 26.6 |
| Approach           |    |         | 841  | 8.4 | 841         | 8.4 | 0.370   | 11.9 | LOS B | 3.5  | 26.8  | 0.58 | 0.48 | 0.58 | 24.5 |
| West: Collins Road |    |         |      |     |             |     |         |      |       |      |       |      |      |      |      |
| 10                 | L2 | All MCs | 79   | 2.8 | 79          | 2.8 | 0.180   | 18.1 | LOS B | 1.0  | 7.5   | 0.65 | 0.71 | 0.65 | 34.7 |
| 12                 | R2 | All MCs | 126  | 1.9 | 126         | 1.9 | * 0.474 | 29.4 | LOS C | 2.4  | 16.8  | 0.89 | 0.79 | 0.89 | 28.9 |
| Approach           |    |         | 205  | 2.2 | 205         | 2.2 | 0.474   | 25.1 | LOS C | 2.4  | 16.8  | 0.80 | 0.76 | 0.80 | 31.1 |
| All Vehicles       |    |         | 2999 | 5.0 | <b>2821</b> | 5.3 | 0.835   | 20.8 | LOS C | 18.4 | 133.1 | 0.84 | 0.79 | 0.90 | 25.5 |

### ITA Scenario 5 - PM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|---------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | Aver. Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.              | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    | v/c       | sec         |                  | veh                 | m      |            |                |                            | km/h        |
| South: Ohaupo Road           |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 1                            | L2   | All MCs   | 184          | 3.1  | 184           | 3.1  | 0.572     | 24.6        | LOS C            | 8.4                 | 60.6   | 0.91       | 0.79           | 0.91                       | 35.0        |
| 2                            | T1   | All MCs   | 913          | 3.6  | 913           | 3.6  | * 0.572   | 20.0        | LOS B            | 8.5                 | 61.7   | 0.91       | 0.78           | 0.91                       | 25.1        |
| Approach                     |      |           | 1097         | 3.5  | 1097          | 3.5  | 0.572     | 20.8        | LOS C            | 8.5                 | 61.7   | 0.91       | 0.78           | 0.91                       | 27.9        |
| North: Ohaupo Road           |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 8                            | T1   | All MCs   | 2236         | 1.8  | 2236          | 1.8  | 0.587     | 14.8        | LOS B            | 14.3                | 101.8  | 0.76       | 0.68           | 0.76                       | 17.6        |
| 9                            | R2   | All MCs   | 63           | 4.1  | 63            | 4.1  | * 0.148   | 37.9        | LOS D            | 1.0                 | 7.5    | 0.93       | 0.72           | 0.93                       | 29.1        |
| Approach                     |      |           | 2299         | 1.9  | 2299          | 1.9  | 0.587     | 15.5        | LOS B            | 14.3                | 101.8  | 0.77       | 0.68           | 0.77                       | 15.9        |
| West: Collins Road           |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 10                           | L2   | All MCs   | 56           | 1.5  | 56            | 1.5  | 0.166     | 13.2        | LOS B            | 0.6                 | 3.9    | 0.55       | 0.68           | 0.55                       | 37.6        |
| 12                           | R2   | All MCs   | 119          | 0.7  | 119           | 0.7  | * 0.604   | 26.9        | LOS C            | 2.1                 | 14.6   | 0.90       | 0.85           | 1.00                       | 30.0        |
| Approach                     |      |           | 175          | 1.0  | 175           | 1.0  | 0.604     | 22.5        | LOS C            | 2.1                 | 14.6   | 0.79       | 0.79           | 0.86                       | 32.2        |
| All Vehicles                 |      |           | 3571         | 2.3  | 3571          | 2.3  | 0.604     | 17.4        | LOS B            | 14.3                | 101.8  | 0.81       | 0.72           | 0.82                       | 22.9        |

## Ohaupo Rd / Saxbys Rd / Tomin Rd Roundabout

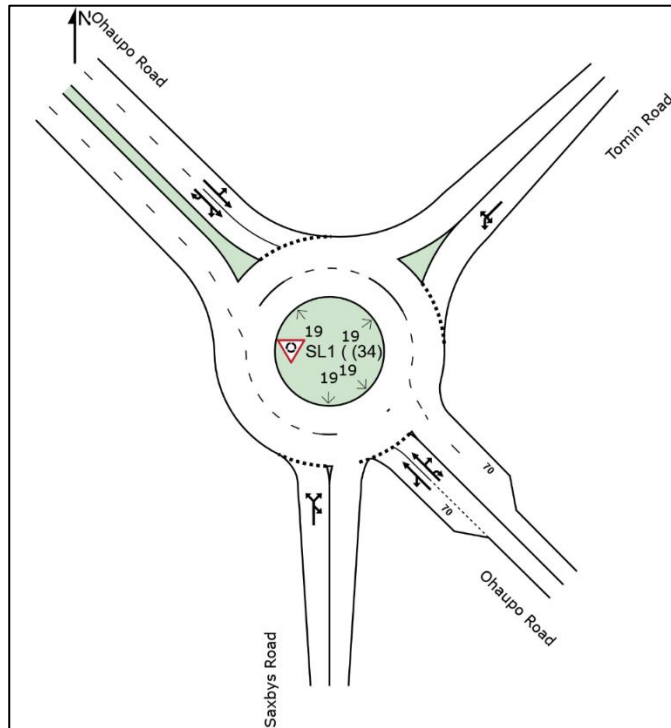


Figure: Existing Ohaupo Rd / Saxbys Rd / Tomin Rd Roundabout Layout – Scenarios 1A to 1C

### 2030 Baseline - AM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|-------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | 95% Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.            | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    |           |             |                  | veh               | m      |            |                |                            |             |
| South: Saxbys Road           |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 1a                           | L1   | All MCs   | 119          | 0.9  | 119           | 0.9  | 0.792     | 24.5        | LOS C            | 4.4               | 31.4   | 0.92       | 1.16           | 1.56                       | 27.1        |
| 3a                           | R1   | All MCs   | 24           | 0.0  | 24            | 0.0  | 0.792     | 28.3        | LOS C            | 4.4               | 31.4   | 0.92       | 1.16           | 1.56                       | 32.8        |
| 3b                           | R3   | All MCs   | 50           | 5.6  | 50            | 5.6  | 0.792     | 30.5        | LOS C            | 4.4               | 31.4   | 0.92       | 1.16           | 1.56                       | 31.3        |

|                        |    |         |      |      |      |      |       |      |       |     |      |      |      |      |      |
|------------------------|----|---------|------|------|------|------|-------|------|-------|-----|------|------|------|------|------|
| Approach               |    |         | 193  | 2.0  | 193  | 2.0  | 0.792 | 26.5 | LOS C | 4.4 | 31.4 | 0.92 | 1.16 | 1.56 | 29.2 |
| SouthEast: Ohaupo Road |    |         |      |      |      |      |       |      |       |     |      |      |      |      |      |
| 21b                    | L3 | All MCs | 36   | 9.1  | 36   | 9.1  | 0.583 | 8.5  | LOS A | 5.2 | 38.1 | 0.81 | 0.74 | 0.94 | 40.8 |
| 22                     | T1 | All MCs | 894  | 4.9  | 894  | 4.9  | 0.583 | 8.1  | LOS A | 5.2 | 38.1 | 0.81 | 0.75 | 0.95 | 41.3 |
| 23                     | R2 | All MCs | 26   | 10.5 | 26   | 10.5 | 0.583 | 13.0 | LOS B | 5.1 | 37.6 | 0.81 | 0.76 | 0.95 | 42.9 |
| 23u                    | U  | All MCs | 16   | 11.1 | 16   | 11.1 | 0.583 | 14.9 | LOS B | 5.1 | 37.6 | 0.81 | 0.76 | 0.95 | 42.3 |
| Approach               |    |         | 972  | 5.3  | 972  | 5.3  | 0.583 | 8.4  | LOS A | 5.2 | 38.1 | 0.81 | 0.75 | 0.95 | 41.3 |
| NorthEast: Tomin Road  |    |         |      |      |      |      |       |      |       |     |      |      |      |      |      |
| 24                     | L2 | All MCs | 32   | 10.0 | 32   | 10.0 | 0.836 | 21.0 | LOS C | 6.9 | 49.5 | 0.87 | 1.23 | 1.66 | 36.8 |
| 24a                    | L1 | All MCs | 46   | 3.4  | 46   | 3.4  | 0.836 | 19.9 | LOS B | 6.9 | 49.5 | 0.87 | 1.23 | 1.66 | 34.5 |
| 26                     | R2 | All MCs | 293  | 1.1  | 293  | 1.1  | 0.836 | 24.5 | LOS C | 6.9 | 49.5 | 0.87 | 1.23 | 1.66 | 34.1 |
| Approach               |    |         | 371  | 2.2  | 371  | 2.2  | 0.836 | 23.6 | LOS C | 6.9 | 49.5 | 0.87 | 1.23 | 1.66 | 34.4 |
| NorthWest: Ohaupo Road |    |         |      |      |      |      |       |      |       |     |      |      |      |      |      |
| 27                     | L2 | All MCs | 157  | 3.4  | 157  | 3.4  | 0.169 | 3.5  | LOS A | 1.0 | 7.3  | 0.28 | 0.39 | 0.28 | 45.2 |
| 28                     | T1 | All MCs | 660  | 9.1  | 660  | 9.1  | 0.334 | 3.3  | LOS A | 2.4 | 18.1 | 0.30 | 0.40 | 0.30 | 44.4 |
| 29a                    | R1 | All MCs | 117  | 0.0  | 117  | 0.0  | 0.334 | 6.6  | LOS A | 2.4 | 18.1 | 0.30 | 0.41 | 0.30 | 41.1 |
| 29u                    | U  | All MCs | 27   | 13.6 | 27   | 13.6 | 0.334 | 9.6  | LOS A | 2.4 | 18.1 | 0.30 | 0.41 | 0.30 | 39.4 |
| Approach               |    |         | 962  | 7.2  | 962  | 7.2  | 0.334 | 3.9  | LOS A | 2.4 | 18.1 | 0.30 | 0.40 | 0.30 | 44.1 |
| All Vehicles           |    |         | 2498 | 5.3  | 2498 | 5.3  | 0.836 | 10.3 | LOS B | 6.9 | 49.5 | 0.63 | 0.72 | 0.85 | 39.8 |

### 2030 Baseline - PM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|-------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | 95% Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.            | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    | v/c       | sec         |                  | veh               | m      |            |                |                            | km/h        |
| South: Saxbys Road           |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 1a                           | L1   | All MCs   | 112          | 0.0  | 112           | 0.0  | 0.715     | 21.1        | LOS C            | 3.4               | 24.2   | 0.88       | 1.08           | 1.34                       | 28.8        |
| 3a                           | R1   | All MCs   | 19           | 0.0  | 19            | 0.0  | 0.715     | 24.9        | LOS C            | 3.4               | 24.2   | 0.88       | 1.08           | 1.34                       | 34.3        |
| 3b                           | R3   | All MCs   | 40           | 6.9  | 40            | 6.9  | 0.715     | 27.5        | LOS C            | 3.4               | 24.2   | 0.88       | 1.08           | 1.34                       | 32.8        |
| Approach                     |      |           | 170          | 1.6  | 170           | 1.6  | 0.715     | 23.0        | LOS C            | 3.4               | 24.2   | 0.88       | 1.08           | 1.34                       | 30.7        |
| SouthEast: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 21b                          | L3   | All MCs   | 26           | 11.1 | 26            | 11.1 | 0.468     | 6.4         | LOS A            | 3.2               | 23.3   | 0.68       | 0.60           | 0.68                       | 42.3        |
| 22                           | T1   | All MCs   | 752          | 4.6  | 752           | 4.6  | 0.468     | 5.9         | LOS A            | 3.2               | 23.3   | 0.68       | 0.61           | 0.69                       | 42.7        |

|                        |    |         |      |      |      |      |       |      |       |     |      |      |      |      |      |
|------------------------|----|---------|------|------|------|------|-------|------|-------|-----|------|------|------|------|------|
| 23                     | R2 | All MCs | 40   | 5.9  | 40   | 5.9  | 0.468 | 10.5 | LOS B | 3.2 | 23.1 | 0.68 | 0.63 | 0.69 | 43.9 |
| 23u                    | U  | All MCs | 41   | 0.0  | 41   | 0.0  | 0.468 | 12.2 | LOS B | 3.2 | 23.1 | 0.68 | 0.63 | 0.69 | 43.4 |
| Approach               |    |         | 860  | 4.6  | 860  | 4.6  | 0.468 | 6.4  | LOS A | 3.2 | 23.3 | 0.68 | 0.62 | 0.69 | 42.8 |
| NorthEast: Tomin Road  |    |         |      |      |      |      |       |      |       |     |      |      |      |      |      |
| 24                     | L2 | All MCs | 25   | 10.0 | 25   | 10.0 | 0.781 | 36.3 | LOS D | 5.5 | 38.5 | 0.93 | 1.26 | 1.81 | 32.1 |
| 24a                    | L1 | All MCs | 22   | 0.0  | 22   | 0.0  | 0.781 | 33.4 | LOS C | 5.5 | 38.5 | 0.93 | 1.26 | 1.81 | 29.4 |
| 26                     | R2 | All MCs | 165  | 0.0  | 165  | 0.0  | 0.781 | 38.2 | LOS D | 5.5 | 38.5 | 0.93 | 1.26 | 1.81 | 29.0 |
| Approach               |    |         | 212  | 1.2  | 212  | 1.2  | 0.781 | 37.4 | LOS D | 5.5 | 38.5 | 0.93 | 1.26 | 1.81 | 29.5 |
| NorthWest: Ohaupo Road |    |         |      |      |      |      |       |      |       |     |      |      |      |      |      |
| 27                     | L2 | All MCs | 253  | 0.5  | 253  | 0.5  | 0.267 | 3.5  | LOS A | 1.7 | 11.8 | 0.31 | 0.40 | 0.31 | 45.1 |
| 28                     | T1 | All MCs | 1172 | 1.9  | 1172 | 1.9  | 0.529 | 3.6  | LOS A | 4.5 | 31.8 | 0.34 | 0.42 | 0.34 | 44.3 |
| 29a                    | R1 | All MCs | 166  | 0.0  | 166  | 0.0  | 0.529 | 6.8  | LOS A | 4.5 | 31.8 | 0.35 | 0.42 | 0.35 | 40.9 |
| 29u                    | U  | All MCs | 62   | 7.0  | 62   | 7.0  | 0.529 | 9.6  | LOS A | 4.5 | 31.8 | 0.35 | 0.42 | 0.35 | 40.0 |
| Approach               |    |         | 1653 | 1.7  | 1653 | 1.7  | 0.529 | 4.2  | LOS A | 4.5 | 31.8 | 0.33 | 0.42 | 0.33 | 44.1 |
| All Vehicles           |    |         | 2895 | 2.5  | 2895 | 2.5  | 0.781 | 8.4  | LOS A | 5.5 | 38.5 | 0.51 | 0.58 | 0.61 | 41.1 |

### ITA Scenario 1A - AM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|-------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | 95% Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.            | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    | v/c       | sec         |                  | veh               | m      |            |                |                            | km/h        |
| South: Saxbys Road           |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 1a                           | L1   | All MCs   | 121          | 0.9  | 121           | 0.9  | 0.820     | 26.9        | LOS C            | 4.8               | 33.9   | 0.93       | 1.19           | 1.65                       | 26.1        |
| 3a                           | R1   | All MCs   | 24           | 0.0  | 24            | 0.0  | 0.820     | 30.7        | LOS C            | 4.8               | 33.9   | 0.93       | 1.19           | 1.65                       | 31.9        |
| 3b                           | R3   | All MCs   | 50           | 5.6  | 50            | 5.6  | 0.820     | 32.9        | LOS C            | 4.8               | 33.9   | 0.93       | 1.19           | 1.65                       | 30.4        |
| Approach                     |      |           | 195          | 1.9  | 195           | 1.9  | 0.820     | 28.9        | LOS C            | 4.8               | 33.9   | 0.93       | 1.19           | 1.65                       | 28.2        |
| SouthEast: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 21b                          | L3   | All MCs   | 36           | 9.1  | 36            | 9.1  | 0.599     | 8.9         | LOS A            | 5.5               | 40.4   | 0.82       | 0.76           | 0.97                       | 40.6        |
| 22                           | T1   | All MCs   | 913          | 4.9  | 913           | 4.9  | 0.599     | 8.5         | LOS A            | 5.5               | 40.4   | 0.83       | 0.77           | 0.98                       | 41.1        |
| 23                           | R2   | All MCs   | 26           | 10.5 | 26            | 10.5 | 0.599     | 13.4        | LOS B            | 5.4               | 39.8   | 0.83       | 0.78           | 0.99                       | 42.7        |
| 23u                          | U    | All MCs   | 16           | 11.1 | 16            | 11.1 | 0.599     | 15.3        | LOS B            | 5.4               | 39.8   | 0.83       | 0.78           | 0.99                       | 42.1        |
| Approach                     |      |           | 991          | 5.3  | 991           | 5.3  | 0.599     | 8.7         | LOS A            | 5.5               | 40.4   | 0.83       | 0.77           | 0.98                       | 41.1        |
| NorthEast: Tomin Road        |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 24                           | L2   | All MCs   | 32           | 10.0 | 32            | 10.0 | 0.842     | 21.6        | LOS C            | 7.1               | 50.8   | 0.88       | 1.24           | 1.70                       | 36.6        |



|                        |    |         |      |      |      |      |       |      |       |     |      |      |      |      |      |
|------------------------|----|---------|------|------|------|------|-------|------|-------|-----|------|------|------|------|------|
| 24a                    | L1 | All MCs | 46   | 3.4  | 46   | 3.4  | 0.842 | 20.5 | LOS C | 7.1 | 50.8 | 0.88 | 1.24 | 1.70 | 34.3 |
| 26                     | R2 | All MCs | 293  | 1.1  | 293  | 1.1  | 0.842 | 25.1 | LOS C | 7.1 | 50.8 | 0.88 | 1.24 | 1.70 | 33.8 |
| Approach               |    |         | 371  | 2.2  | 371  | 2.2  | 0.842 | 24.2 | LOS C | 7.1 | 50.8 | 0.88 | 1.24 | 1.70 | 34.2 |
| NorthWest: Ohaupo Road |    |         |      |      |      |      |       |      |       |     |      |      |      |      |      |
| 27                     | L2 | All MCs | 157  | 3.4  | 157  | 3.4  | 0.170 | 3.5  | LOS A | 1.0 | 7.4  | 0.28 | 0.39 | 0.28 | 45.2 |
| 28                     | T1 | All MCs | 661  | 9.1  | 661  | 9.1  | 0.338 | 3.3  | LOS A | 2.5 | 18.4 | 0.30 | 0.41 | 0.30 | 44.4 |
| 29a                    | R1 | All MCs | 126  | 0.0  | 126  | 0.0  | 0.338 | 6.6  | LOS A | 2.5 | 18.4 | 0.30 | 0.41 | 0.30 | 41.1 |
| 29u                    | U  | All MCs | 27   | 13.6 | 27   | 13.6 | 0.338 | 9.6  | LOS A | 2.5 | 18.4 | 0.30 | 0.41 | 0.30 | 39.4 |
| Approach               |    |         | 971  | 7.2  | 971  | 7.2  | 0.338 | 4.0  | LOS A | 2.5 | 18.4 | 0.30 | 0.40 | 0.30 | 44.1 |
| All Vehicles           |    |         | 2529 | 5.3  | 2529 | 5.3  | 0.842 | 10.7 | LOS B | 7.1 | 50.8 | 0.64 | 0.73 | 0.88 | 39.6 |

### ITA Scenario 1A - PM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|-------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | 95% Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.            | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    | v/c       | sec         |                  | veh               | m      |            |                |                            | km/h        |
| South: Saxbys Road           |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 1a                           | L1   | All MCs   | 113          | 0.0  | 113           | 0.0  | 0.725     | 21.6        | LOS C            | 3.5               | 24.8   | 0.88       | 1.09           | 1.36                       | 28.6        |
| 3a                           | R1   | All MCs   | 19           | 0.0  | 19            | 0.0  | 0.725     | 25.4        | LOS C            | 3.5               | 24.8   | 0.88       | 1.09           | 1.36                       | 34.1        |
| 3b                           | R3   | All MCs   | 40           | 6.9  | 40            | 6.9  | 0.725     | 28.0        | LOS C            | 3.5               | 24.8   | 0.88       | 1.09           | 1.36                       | 32.6        |
| Approach                     |      |           | 171          | 1.6  | 171           | 1.6  | 0.725     | 23.5        | LOS C            | 3.5               | 24.8   | 0.88       | 1.09           | 1.36                       | 30.4        |
| SouthEast: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 21b                          | L3   | All MCs   | 26           | 11.1 | 26            | 11.1 | 0.478     | 6.8         | LOS A            | 3.3               | 24.4   | 0.70       | 0.62           | 0.72                       | 42.1        |
| 22                           | T1   | All MCs   | 757          | 4.5  | 757           | 4.5  | 0.478     | 6.3         | LOS A            | 3.3               | 24.4   | 0.70       | 0.64           | 0.72                       | 42.5        |
| 23                           | R2   | All MCs   | 40           | 5.9  | 40            | 5.9  | 0.478     | 10.9        | LOS B            | 3.3               | 24.2   | 0.70       | 0.65           | 0.73                       | 43.7        |
| 23u                          | U    | All MCs   | 41           | 0.0  | 41            | 0.0  | 0.478     | 12.6        | LOS B            | 3.3               | 24.2   | 0.70       | 0.65           | 0.73                       | 43.2        |
| Approach                     |      |           | 864          | 4.6  | 864           | 4.6  | 0.478     | 6.8         | LOS A            | 3.3               | 24.4   | 0.70       | 0.64           | 0.72                       | 42.6        |
| NorthEast: Tomin Road        |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 24                           | L2   | All MCs   | 25           | 10.0 | 25            | 10.0 | 0.800     | 39.5        | LOS D            | 5.8               | 41.1   | 0.94       | 1.30           | 1.91                       | 31.2        |
| 24a                          | L1   | All MCs   | 22           | 0.0  | 22            | 0.0  | 0.800     | 36.6        | LOS D            | 5.8               | 41.1   | 0.94       | 1.30           | 1.91                       | 28.4        |
| 26                           | R2   | All MCs   | 165          | 0.0  | 165           | 0.0  | 0.800     | 41.3        | LOS D            | 5.8               | 41.1   | 0.94       | 1.30           | 1.91                       | 28.1        |
| Approach                     |      |           | 212          | 1.2  | 212           | 1.2  | 0.800     | 40.6        | LOS D            | 5.8               | 41.1   | 0.94       | 1.30           | 1.91                       | 28.5        |
| NorthWest: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 27                           | L2   | All MCs   | 253          | 0.5  | 253           | 0.5  | 0.272     | 3.5         | LOS A            | 1.7               | 12.0   | 0.31       | 0.40           | 0.31                       | 45.1        |

|              |    |         |      |     |      |     |       |     |       |     |      |      |      |      |      |
|--------------|----|---------|------|-----|------|-----|-------|-----|-------|-----|------|------|------|------|------|
| 28           | T1 | All MCs | 1175 | 2.0 | 1175 | 2.0 | 0.538 | 3.6 | LOS A | 4.6 | 32.9 | 0.34 | 0.42 | 0.34 | 44.3 |
| 29a          | R1 | All MCs | 188  | 0.0 | 188  | 0.0 | 0.538 | 6.8 | LOS A | 4.6 | 32.9 | 0.35 | 0.43 | 0.35 | 40.9 |
| 29u          | U  | All MCs | 62   | 7.0 | 62   | 7.0 | 0.538 | 9.7 | LOS A | 4.6 | 32.9 | 0.35 | 0.43 | 0.35 | 40.0 |
| Approach     |    |         | 1678 | 1.7 | 1678 | 1.7 | 0.538 | 4.2 | LOS A | 4.6 | 32.9 | 0.34 | 0.42 | 0.34 | 44.0 |
| All Vehicles |    |         | 2926 | 2.5 | 2926 | 2.5 | 0.800 | 8.7 | LOS A | 5.8 | 41.1 | 0.52 | 0.59 | 0.62 | 40.8 |

### ITA Scenario 1B - AM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|-------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | 95% Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.            | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    | v/c       | sec         |                  | veh               | m      |            |                |                            | km/h        |
| South: Saxbys Road           |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 1a                           | L1   | All MCs   | 123          | 0.8  | 123           | 0.8  | 0.847     | 29.7        | LOS C            | 5.2               | 36.7   | 0.95       | 1.23           | 1.77                       | 24.9        |
| 3a                           | R1   | All MCs   | 24           | 0.0  | 24            | 0.0  | 0.847     | 33.5        | LOS C            | 5.2               | 36.7   | 0.95       | 1.23           | 1.77                       | 30.8        |
| 3b                           | R3   | All MCs   | 50           | 5.6  | 50            | 5.6  | 0.847     | 35.7        | LOS D            | 5.2               | 36.7   | 0.95       | 1.23           | 1.77                       | 29.3        |
| Approach                     |      |           | 197          | 1.9  | 197           | 1.9  | 0.847     | 31.7        | LOS C            | 5.2               | 36.7   | 0.95       | 1.23           | 1.77                       | 27.1        |
| SouthEast: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 21b                          | L3   | All MCs   | 36           | 9.1  | 36            | 9.1  | 0.613     | 9.2         | LOS A            | 5.8               | 42.5   | 0.84       | 0.78           | 1.00                       | 40.4        |
| 22                           | T1   | All MCs   | 932          | 4.8  | 932           | 4.8  | 0.613     | 8.8         | LOS A            | 5.8               | 42.5   | 0.84       | 0.79           | 1.01                       | 40.9        |
| 23                           | R2   | All MCs   | 26           | 10.5 | 26            | 10.5 | 0.613     | 13.7        | LOS B            | 5.7               | 41.8   | 0.84       | 0.80           | 1.02                       | 42.6        |
| 23u                          | U    | All MCs   | 16           | 11.1 | 16            | 11.1 | 0.613     | 15.7        | LOS B            | 5.7               | 41.8   | 0.84       | 0.80           | 1.02                       | 41.9        |
| Approach                     |      |           | 1010         | 5.2  | 1010          | 5.2  | 0.613     | 9.1         | LOS A            | 5.8               | 42.5   | 0.84       | 0.79           | 1.01                       | 40.9        |
| NorthEast: Tomin Road        |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 24                           | L2   | All MCs   | 32           | 10.0 | 32            | 10.0 | 0.848     | 22.2        | LOS C            | 7.3               | 51.8   | 0.88       | 1.26           | 1.74                       | 36.4        |
| 24a                          | L1   | All MCs   | 46           | 3.4  | 46            | 3.4  | 0.848     | 21.0        | LOS C            | 7.3               | 51.8   | 0.88       | 1.26           | 1.74                       | 34.0        |
| 26                           | R2   | All MCs   | 293          | 1.1  | 293           | 1.1  | 0.848     | 25.6        | LOS C            | 7.3               | 51.8   | 0.88       | 1.26           | 1.74                       | 33.6        |
| Approach                     |      |           | 371          | 2.2  | 371           | 2.2  | 0.848     | 24.8        | LOS C            | 7.3               | 51.8   | 0.88       | 1.26           | 1.74                       | 33.9        |
| NorthWest: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 27                           | L2   | All MCs   | 157          | 3.4  | 157           | 3.4  | 0.172     | 3.5         | LOS A            | 1.0               | 7.5    | 0.28       | 0.39           | 0.28                       | 45.2        |
| 28                           | T1   | All MCs   | 662          | 9.1  | 662           | 9.1  | 0.340     | 3.3         | LOS A            | 2.5               | 18.6   | 0.30       | 0.41           | 0.30                       | 44.4        |
| 29a                          | R1   | All MCs   | 132          | 0.0  | 132           | 0.0  | 0.340     | 6.6         | LOS A            | 2.5               | 18.6   | 0.30       | 0.41           | 0.30                       | 41.0        |
| 29u                          | U    | All MCs   | 27           | 13.6 | 27            | 13.6 | 0.340     | 9.6         | LOS A            | 2.5               | 18.6   | 0.30       | 0.41           | 0.30                       | 39.3        |
| Approach                     |      |           | 979          | 7.1  | 979           | 7.1  | 0.340     | 4.0         | LOS A            | 2.5               | 18.6   | 0.30       | 0.41           | 0.30                       | 44.1        |

|              |      |     |      |     |       |      |       |     |      |      |      |      |      |
|--------------|------|-----|------|-----|-------|------|-------|-----|------|------|------|------|------|
| All Vehicles | 2557 | 5.2 | 2557 | 5.2 | 0.848 | 11.1 | LOS B | 7.3 | 51.8 | 0.65 | 0.74 | 0.90 | 39.3 |
|--------------|------|-----|------|-----|-------|------|-------|-----|------|------|------|------|------|

### ITA Scenario 1B - PM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|-------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | 95% Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.            | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    |           |             |                  | veh               | m      |            |                |                            |             |
| South: Saxbys Road           |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 1a                           | L1   | All MCs   | 115          | 0.0  | 115           | 0.0  | 0.744     | 22.5        | LOS C            | 3.7               | 26.1   | 0.89       | 1.10           | 1.41                       | 28.1        |
| 3a                           | R1   | All MCs   | 19           | 0.0  | 19            | 0.0  | 0.744     | 26.3        | LOS C            | 3.7               | 26.1   | 0.89       | 1.10           | 1.41                       | 33.7        |
| 3b                           | R3   | All MCs   | 40           | 6.9  | 40            | 6.9  | 0.744     | 28.9        | LOS C            | 3.7               | 26.1   | 0.89       | 1.10           | 1.41                       | 32.2        |
| Approach                     |      |           | 173          | 1.6  | 173           | 1.6  | 0.744     | 24.4        | LOS C            | 3.7               | 26.1   | 0.89       | 1.10           | 1.41                       | 30.0        |
| SouthEast: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 21b                          | L3   | All MCs   | 26           | 11.1 | 26            | 11.1 | 0.491     | 7.2         | LOS A            | 3.6               | 25.9   | 0.71       | 0.64           | 0.75                       | 41.9        |
| 22                           | T1   | All MCs   | 764          | 4.5  | 764           | 4.5  | 0.491     | 6.6         | LOS A            | 3.6               | 25.9   | 0.72       | 0.66           | 0.76                       | 42.3        |
| 23                           | R2   | All MCs   | 40           | 5.9  | 40            | 5.9  | 0.491     | 11.3        | LOS B            | 3.5               | 25.6   | 0.72       | 0.68           | 0.76                       | 43.5        |
| 23u                          | U    | All MCs   | 41           | 0.0  | 41            | 0.0  | 0.491     | 13.0        | LOS B            | 3.5               | 25.6   | 0.72       | 0.68           | 0.76                       | 43.1        |
| Approach                     |      |           | 871          | 4.5  | 871           | 4.5  | 0.491     | 7.2         | LOS A            | 3.6               | 25.9   | 0.72       | 0.66           | 0.76                       | 42.4        |
| NorthEast: Tomin Road        |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 24                           | L2   | All MCs   | 25           | 10.0 | 25            | 10.0 | 0.824     | 43.6        | LOS D            | 6.3               | 44.4   | 0.95       | 1.34           | 2.04                       | 30.1        |
| 24a                          | L1   | All MCs   | 22           | 0.0  | 22            | 0.0  | 0.824     | 40.6        | LOS D            | 6.3               | 44.4   | 0.95       | 1.34           | 2.04                       | 27.3        |
| 26                           | R2   | All MCs   | 165          | 0.0  | 165           | 0.0  | 0.824     | 45.3        | LOS D            | 6.3               | 44.4   | 0.95       | 1.34           | 2.04                       | 27.0        |
| Approach                     |      |           | 212          | 1.2  | 212           | 1.2  | 0.824     | 44.6        | LOS D            | 6.3               | 44.4   | 0.95       | 1.34           | 2.04                       | 27.4        |
| NorthWest: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 27                           | L2   | All MCs   | 253          | 0.5  | 253           | 0.5  | 0.276     | 3.5         | LOS A            | 1.7               | 12.3   | 0.31       | 0.40           | 0.31                       | 45.1        |
| 28                           | T1   | All MCs   | 1178         | 1.9  | 1178          | 1.9  | 0.546     | 3.7         | LOS A            | 4.8               | 34.0   | 0.34       | 0.42           | 0.34                       | 44.3        |
| 29a                          | R1   | All MCs   | 212          | 0.0  | 212           | 0.0  | 0.546     | 6.8         | LOS A            | 4.8               | 34.0   | 0.35       | 0.43           | 0.35                       | 40.8        |
| 29u                          | U    | All MCs   | 62           | 7.0  | 62            | 7.0  | 0.546     | 9.7         | LOS A            | 4.8               | 34.0   | 0.35       | 0.43           | 0.35                       | 39.9        |
| Approach                     |      |           | 1705         | 1.7  | 1705          | 1.7  | 0.546     | 4.2         | LOS A            | 4.8               | 34.0   | 0.34       | 0.42           | 0.34                       | 43.9        |
| All Vehicles                 |      |           | 2961         | 2.5  | 2961          | 2.5  | 0.824     | 9.2         | LOS A            | 6.3               | 44.4   | 0.53       | 0.60           | 0.65                       | 40.5        |



## ITA Scenario 1C - AM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|-------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | 95% Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.            | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    |           |             |                  | veh               | m      |            |                |                            |             |
| South: Saxbys Road           |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 1a                           | L1   | All MCs   | 126          | 0.8  | 126           | 0.8  | 0.884     | 34.9        | LOS C            | 5.9               | 41.8   | 0.96       | 1.30           | 1.98                       | 23.1        |
| 3a                           | R1   | All MCs   | 24           | 0.0  | 24            | 0.0  | 0.884     | 38.7        | LOS D            | 5.9               | 41.8   | 0.96       | 1.30           | 1.98                       | 29.1        |
| 3b                           | R3   | All MCs   | 50           | 5.6  | 50            | 5.6  | 0.884     | 40.9        | LOS D            | 5.9               | 41.8   | 0.96       | 1.30           | 1.98                       | 27.6        |
| Approach                     |      |           | 200          | 1.9  | 200           | 1.9  | 0.884     | 36.8        | LOS D            | 5.9               | 41.8   | 0.96       | 1.30           | 1.98                       | 25.2        |
| SouthEast: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 21b                          | L3   | All MCs   | 36           | 9.1  | 36            | 9.1  | 0.632     | 9.7         | LOS A            | 6.2               | 45.3   | 0.85       | 0.80           | 1.05                       | 40.1        |
| 22                           | T1   | All MCs   | 955          | 4.7  | 955           | 4.7  | 0.632     | 9.3         | LOS A            | 6.2               | 45.3   | 0.85       | 0.81           | 1.05                       | 40.6        |
| 23                           | R2   | All MCs   | 26           | 10.5 | 26            | 10.5 | 0.632     | 14.2        | LOS B            | 6.1               | 44.6   | 0.85       | 0.82           | 1.06                       | 42.4        |
| 23u                          | U    | All MCs   | 16           | 11.1 | 16            | 11.1 | 0.632     | 16.2        | LOS B            | 6.1               | 44.6   | 0.85       | 0.82           | 1.06                       | 41.7        |
| Approach                     |      |           | 1032         | 5.1  | 1032          | 5.1  | 0.632     | 9.5         | LOS A            | 6.2               | 45.3   | 0.85       | 0.81           | 1.05                       | 40.6        |
| NorthEast: Tomin Road        |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 24                           | L2   | All MCs   | 32           | 10.0 | 32            | 10.0 | 0.855     | 23.0        | LOS C            | 7.5               | 53.4   | 0.89       | 1.28           | 1.79                       | 36.1        |
| 24a                          | L1   | All MCs   | 46           | 3.4  | 46            | 3.4  | 0.855     | 21.8        | LOS C            | 7.5               | 53.4   | 0.89       | 1.28           | 1.79                       | 33.7        |
| 26                           | R2   | All MCs   | 293          | 1.1  | 293           | 1.1  | 0.855     | 26.4        | LOS C            | 7.5               | 53.4   | 0.89       | 1.28           | 1.79                       | 33.3        |
| Approach                     |      |           | 371          | 2.2  | 371           | 2.2  | 0.855     | 25.5        | LOS C            | 7.5               | 53.4   | 0.89       | 1.28           | 1.79                       | 33.6        |
| NorthWest: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 27                           | L2   | All MCs   | 157          | 3.4  | 157           | 3.4  | 0.174     | 3.5         | LOS A            | 1.0               | 7.6    | 0.29       | 0.39           | 0.29                       | 45.2        |
| 28                           | T1   | All MCs   | 663          | 9.1  | 663           | 9.1  | 0.344     | 3.4         | LOS A            | 2.5               | 18.9   | 0.30       | 0.41           | 0.30                       | 44.4        |
| 29a                          | R1   | All MCs   | 142          | 0.0  | 142           | 0.0  | 0.344     | 6.6         | LOS A            | 2.5               | 18.9   | 0.31       | 0.41           | 0.31                       | 41.0        |
| 29u                          | U    | All MCs   | 27           | 13.6 | 27            | 13.6 | 0.344     | 9.6         | LOS A            | 2.5               | 18.9   | 0.31       | 0.41           | 0.31                       | 39.3        |
| Approach                     |      |           | 990          | 7.0  | 990           | 7.0  | 0.344     | 4.0         | LOS A            | 2.5               | 18.9   | 0.30       | 0.41           | 0.30                       | 44.0        |
| All Vehicles                 |      |           | 2594         | 5.2  | 2594          | 5.2  | 0.884     | 11.8        | LOS B            | 7.5               | 53.4   | 0.66       | 0.76           | 0.94                       | 38.9        |

## ITA Scenario 1C - PM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|-------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | 95% Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.            | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    | v/c       | sec         |                  | veh               | m      |            |                |                            | km/h        |
| South: Saxbys Road           |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 1a                           | L1   | All MCs   | 119          | 0.0  | 119           | 0.0  | 0.767     | 23.8        | LOS C            | 3.9               | 27.8   | 0.90       | 1.12           | 1.47                       | 27.5        |
| 3a                           | R1   | All MCs   | 19           | 0.0  | 19            | 0.0  | 0.767     | 27.6        | LOS C            | 3.9               | 27.8   | 0.90       | 1.12           | 1.47                       | 33.2        |
| 3b                           | R3   | All MCs   | 40           | 6.9  | 40            | 6.9  | 0.767     | 30.2        | LOS C            | 3.9               | 27.8   | 0.90       | 1.12           | 1.47                       | 31.7        |
| Approach                     |      |           | 177          | 1.5  | 177           | 1.5  | 0.767     | 25.6        | LOS C            | 3.9               | 27.8   | 0.90       | 1.12           | 1.47                       | 29.4        |
| SouthEast: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 21b                          | L3   | All MCs   | 26           | 11.1 | 26            | 11.1 | 0.504     | 7.6         | LOS A            | 3.8               | 27.5   | 0.73       | 0.67           | 0.79                       | 41.7        |
| 22                           | T1   | All MCs   | 769          | 4.5  | 769           | 4.5  | 0.504     | 7.1         | LOS A            | 3.8               | 27.5   | 0.73       | 0.68           | 0.80                       | 42.1        |
| 23                           | R2   | All MCs   | 40           | 5.9  | 40            | 5.9  | 0.504     | 11.7        | LOS B            | 3.7               | 27.1   | 0.74       | 0.70           | 0.81                       | 43.4        |
| 23u                          | U    | All MCs   | 41           | 0.0  | 41            | 0.0  | 0.504     | 13.5        | LOS B            | 3.7               | 27.1   | 0.74       | 0.70           | 0.81                       | 42.9        |
| Approach                     |      |           | 877          | 4.5  | 877           | 4.5  | 0.504     | 7.6         | LOS A            | 3.8               | 27.5   | 0.74       | 0.69           | 0.80                       | 42.2        |
| NorthEast: Tomin Road        |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 24                           | L2   | All MCs   | 25           | 10.0 | 25            | 10.0 | 0.851     | 49.1        | LOS D            | 6.9               | 48.8   | 0.96       | 1.40           | 2.21                       | 28.7        |
| 24a                          | L1   | All MCs   | 22           | 0.0  | 22            | 0.0  | 0.851     | 46.0        | LOS D            | 6.9               | 48.8   | 0.96       | 1.40           | 2.21                       | 25.8        |
| 26                           | R2   | All MCs   | 165          | 0.0  | 165           | 0.0  | 0.851     | 50.8        | LOS E            | 6.9               | 48.8   | 0.96       | 1.40           | 2.21                       | 25.6        |
| Approach                     |      |           | 212          | 1.2  | 212           | 1.2  | 0.851     | 50.1        | LOS E            | 6.9               | 48.8   | 0.96       | 1.40           | 2.21                       | 26.0        |
| NorthWest: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 27                           | L2   | All MCs   | 253          | 0.5  | 253           | 0.5  | 0.281     | 3.5         | LOS A            | 1.8               | 12.6   | 0.31       | 0.40           | 0.31                       | 45.1        |
| 28                           | T1   | All MCs   | 1181         | 1.9  | 1181          | 1.9  | 0.556     | 3.7         | LOS A            | 5.0               | 35.4   | 0.35       | 0.43           | 0.35                       | 44.2        |
| 29a                          | R1   | All MCs   | 237          | 0.0  | 237           | 0.0  | 0.556     | 6.8         | LOS A            | 5.0               | 35.4   | 0.36       | 0.43           | 0.36                       | 40.7        |
| 29u                          | U    | All MCs   | 62           | 7.0  | 62            | 7.0  | 0.556     | 9.7         | LOS A            | 5.0               | 35.4   | 0.36       | 0.43           | 0.36                       | 39.8        |
| Approach                     |      |           | 1734         | 1.6  | 1734          | 1.6  | 0.556     | 4.3         | LOS A            | 5.0               | 35.4   | 0.34       | 0.42           | 0.34                       | 43.9        |
| All Vehicles                 |      |           | 2999         | 2.4  | 2999          | 2.4  | 0.851     | 9.8         | LOS A            | 6.9               | 48.8   | 0.53       | 0.61           | 0.68                       | 40.1        |

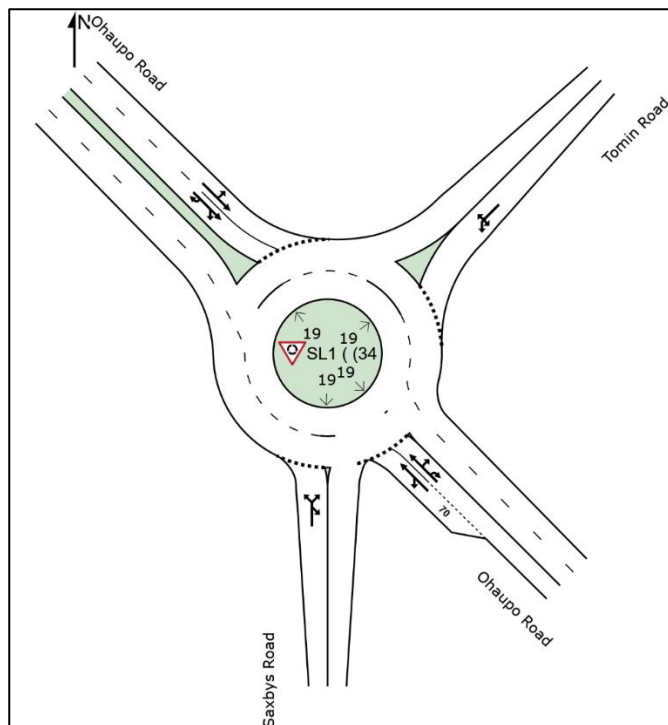


Figure: Proposed Ohaupo Rd / Saxbys Rd / Tomin Rd Roundabout Layout with 2 Southbound Exit Lanes on Ohaupo Rd – Scenarios 1D and 1E

### ITA Scenario 1D - AM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|-------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | 95% Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.            | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    | v/c       | sec         |                  | veh               | m      |            |                |                            | km/h        |
| South: Saxbys Road           |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 1a                           | L1   | All MCs   | 128          | 0.8  | 128           | 0.8  | 0.918     | 41.5        | LOS D            | 6.7               | 47.9   | 0.97       | 1.38           | 2.23                       | 21.1        |
| 3a                           | R1   | All MCs   | 24           | 0.0  | 24            | 0.0  | 0.918     | 45.3        | LOS D            | 6.7               | 47.9   | 0.97       | 1.38           | 2.23                       | 27.2        |
| 3b                           | R3   | All MCs   | 50           | 5.6  | 50            | 5.6  | 0.918     | 47.4        | LOS D            | 6.7               | 47.9   | 0.97       | 1.38           | 2.23                       | 25.6        |
| Approach                     |      |           | 202          | 1.9  | 202           | 1.9  | 0.918     | 43.4        | LOS D            | 6.7               | 47.9   | 0.97       | 1.38           | 2.23                       | 23.2        |
| SouthEast: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 21b                          | L3   | All MCs   | 36           | 9.1  | 36            | 9.1  | 0.648     | 10.1        | LOS B            | 6.6               | 47.9   | 0.86       | 0.82           | 1.08                       | 39.9        |

|                        |    |         |      |      |      |      |       |      |       |     |      |      |      |      |      |
|------------------------|----|---------|------|------|------|------|-------|------|-------|-----|------|------|------|------|------|
| 22                     | T1 | All MCs | 978  | 4.6  | 978  | 4.6  | 0.648 | 9.7  | LOS A | 6.6 | 47.9 | 0.86 | 0.83 | 1.09 | 40.3 |
| 23                     | R2 | All MCs | 26   | 10.5 | 26   | 10.5 | 0.648 | 14.7 | LOS B | 6.4 | 47.1 | 0.86 | 0.84 | 1.10 | 42.2 |
| 23u                    | U  | All MCs | 16   | 11.1 | 16   | 11.1 | 0.648 | 16.6 | LOS B | 6.4 | 47.1 | 0.86 | 0.84 | 1.10 | 41.5 |
| Approach               |    |         | 1056 | 5.0  | 1056 | 5.0  | 0.648 | 10.0 | LOS A | 6.6 | 47.9 | 0.86 | 0.83 | 1.09 | 40.4 |
| NorthEast: Tomin Road  |    |         |      |      |      |      |       |      |       |     |      |      |      |      |      |
| 24                     | L2 | All MCs | 32   | 10.0 | 32   | 10.0 | 0.809 | 16.1 | LOS B | 5.4 | 38.4 | 0.84 | 1.14 | 1.45 | 38.7 |
| 24a                    | L1 | All MCs | 46   | 3.4  | 46   | 3.4  | 0.809 | 15.3 | LOS B | 5.4 | 38.4 | 0.84 | 1.14 | 1.45 | 36.7 |
| 26                     | R2 | All MCs | 293  | 1.1  | 293  | 1.1  | 0.809 | 19.9 | LOS B | 5.4 | 38.4 | 0.84 | 1.14 | 1.45 | 36.2 |
| Approach               |    |         | 371  | 2.2  | 371  | 2.2  | 0.809 | 19.0 | LOS B | 5.4 | 38.4 | 0.84 | 1.14 | 1.45 | 36.5 |
| NorthWest: Ohaupo Road |    |         |      |      |      |      |       |      |       |     |      |      |      |      |      |
| 27                     | L2 | All MCs | 157  | 3.4  | 157  | 3.4  | 0.279 | 3.4  | LOS A | 1.9 | 14.5 | 0.29 | 0.37 | 0.29 | 45.1 |
| 28                     | T1 | All MCs | 667  | 9.1  | 667  | 9.1  | 0.279 | 3.3  | LOS A | 1.9 | 14.5 | 0.30 | 0.40 | 0.30 | 44.5 |
| 29a                    | R1 | All MCs | 151  | 0.0  | 151  | 0.0  | 0.279 | 6.8  | LOS A | 1.8 | 13.4 | 0.32 | 0.46 | 0.32 | 40.4 |
| 29u                    | U  | All MCs | 27   | 13.6 | 27   | 13.6 | 0.279 | 9.7  | LOS A | 1.8 | 13.4 | 0.32 | 0.46 | 0.32 | 38.7 |
| Approach               |    |         | 1003 | 6.9  | 1003 | 6.9  | 0.279 | 4.0  | LOS A | 1.9 | 14.5 | 0.30 | 0.41 | 0.30 | 44.0 |
| All Vehicles           |    |         | 2633 | 5.1  | 2633 | 5.1  | 0.918 | 11.5 | LOS B | 6.7 | 47.9 | 0.66 | 0.76 | 0.93 | 39.0 |

### ITA Scenario 1D - PM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|-------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | 95% Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.            | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    | v/c       | sec         |                  | veh               | m      |            |                |                            | km/h        |
| South: Saxbys Road           |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 1a                           | L1   | All MCs   | 120          | 0.0  | 120           | 0.0  | 0.786     | 24.9        | LOS C            | 4.1               | 29.0   | 0.91       | 1.14           | 1.52                       | 27.0        |
| 3a                           | R1   | All MCs   | 19           | 0.0  | 19            | 0.0  | 0.786     | 28.7        | LOS C            | 4.1               | 29.0   | 0.91       | 1.14           | 1.52                       | 32.7        |
| 3b                           | R3   | All MCs   | 40           | 6.9  | 40            | 6.9  | 0.786     | 31.2        | LOS C            | 4.1               | 29.0   | 0.91       | 1.14           | 1.52                       | 31.2        |
| Approach                     |      |           | 178          | 1.5  | 178           | 1.5  | 0.786     | 26.7        | LOS C            | 4.1               | 29.0   | 0.91       | 1.14           | 1.52                       | 28.8        |
| SouthEast: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 21b                          | L3   | All MCs   | 26           | 11.1 | 26            | 11.1 | 0.518     | 8.1         | LOS A            | 4.0               | 29.0   | 0.75       | 0.70           | 0.84                       | 41.4        |
| 22                           | T1   | All MCs   | 776          | 4.4  | 776           | 4.4  | 0.518     | 7.6         | LOS A            | 4.0               | 29.0   | 0.75       | 0.71           | 0.84                       | 41.8        |
| 23                           | R2   | All MCs   | 40           | 5.9  | 40            | 5.9  | 0.518     | 12.3        | LOS B            | 3.9               | 28.6   | 0.75       | 0.73           | 0.85                       | 43.2        |
| 23u                          | U    | All MCs   | 41           | 0.0  | 41            | 0.0  | 0.518     | 13.9        | LOS B            | 3.9               | 28.6   | 0.75       | 0.73           | 0.85                       | 42.6        |
| Approach                     |      |           | 884          | 4.5  | 884           | 4.5  | 0.518     | 8.1         | LOS A            | 4.0               | 29.0   | 0.75       | 0.71           | 0.84                       | 41.9        |
| NorthEast: Tomin Road        |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |

|                        |    |         |      |      |      |      |       |      |       |     |      |      |      |      |      |
|------------------------|----|---------|------|------|------|------|-------|------|-------|-----|------|------|------|------|------|
| 24                     | L2 | All MCs | 25   | 10.0 | 25   | 10.0 | 0.652 | 18.0 | LOS B | 3.1 | 21.9 | 0.86 | 1.08 | 1.28 | 38.1 |
| 24a                    | L1 | All MCs | 22   | 0.0  | 22   | 0.0  | 0.652 | 16.4 | LOS B | 3.1 | 21.9 | 0.86 | 1.08 | 1.28 | 36.0 |
| 26                     | R2 | All MCs | 165  | 0.0  | 165  | 0.0  | 0.652 | 21.1 | LOS C | 3.1 | 21.9 | 0.86 | 1.08 | 1.28 | 35.6 |
| Approach               |    |         | 212  | 1.2  | 212  | 1.2  | 0.652 | 20.3 | LOS C | 3.1 | 21.9 | 0.86 | 1.08 | 1.28 | 36.0 |
| NorthWest: Ohaupo Road |    |         |      |      |      |      |       |      |       |     |      |      |      |      |      |
| 27                     | L2 | All MCs | 253  | 0.5  | 253  | 0.5  | 0.460 | 3.5  | LOS A | 3.6 | 25.6 | 0.33 | 0.38 | 0.33 | 45.0 |
| 28                     | T1 | All MCs | 1185 | 1.9  | 1185 | 1.9  | 0.460 | 3.4  | LOS A | 3.6 | 25.6 | 0.35 | 0.42 | 0.35 | 44.3 |
| 29a                    | R1 | All MCs | 267  | 0.0  | 267  | 0.0  | 0.460 | 7.0  | LOS A | 3.5 | 24.8 | 0.39 | 0.48 | 0.39 | 40.0 |
| 29u                    | U  | All MCs | 62   | 7.0  | 62   | 7.0  | 0.460 | 9.9  | LOS A | 3.5 | 24.8 | 0.39 | 0.48 | 0.39 | 39.1 |
| Approach               |    |         | 1766 | 1.6  | 1766 | 1.6  | 0.460 | 4.1  | LOS A | 3.6 | 25.6 | 0.36 | 0.43 | 0.36 | 43.7 |
| All Vehicles           |    |         | 3040 | 2.4  | 3040 | 2.4  | 0.786 | 7.7  | LOS A | 4.1 | 29.0 | 0.54 | 0.60 | 0.63 | 41.4 |

### ITA Scenario 1E - AM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|-------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | 95% Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.            | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    | v/c       | sec         |                  | veh               | m      |            |                |                            | km/h        |
| South: Saxbys Road           |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 1a                           | L1   | All MCs   | 130          | 0.8  | 130           | 0.8  | 0.945     | 48.5        | LOS D            | 7.7               | 54.6   | 0.98       | 1.46           | 2.49                       | 19.3        |
| 3a                           | R1   | All MCs   | 24           | 0.0  | 24            | 0.0  | 0.945     | 52.3        | LOS E            | 7.7               | 54.6   | 0.98       | 1.46           | 2.49                       | 25.4        |
| 3b                           | R3   | All MCs   | 50           | 5.6  | 50            | 5.6  | 0.945     | 54.5        | LOS E            | 7.7               | 54.6   | 0.98       | 1.46           | 2.49                       | 23.8        |
| Approach                     |      |           | 204          | 1.9  | 204           | 1.9  | 0.945     | 50.4        | LOS E            | 7.7               | 54.6   | 0.98       | 1.46           | 2.49                       | 21.4        |
| SouthEast: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 21b                          | L3   | All MCs   | 36           | 9.1  | 36            | 9.1  | 0.661     | 10.5        | LOS B            | 6.9               | 50.1   | 0.87       | 0.84           | 1.11                       | 39.7        |
| 22                           | T1   | All MCs   | 994          | 4.5  | 994           | 4.5  | 0.661     | 10.1        | LOS B            | 6.9               | 50.1   | 0.87       | 0.85           | 1.12                       | 40.1        |
| 23                           | R2   | All MCs   | 26           | 10.5 | 26            | 10.5 | 0.661     | 15.1        | LOS B            | 6.7               | 49.2   | 0.88       | 0.86           | 1.13                       | 42.0        |
| 23u                          | U    | All MCs   | 16           | 11.1 | 16            | 11.1 | 0.661     | 17.0        | LOS B            | 6.7               | 49.2   | 0.88       | 0.86           | 1.13                       | 41.3        |
| Approach                     |      |           | 1071         | 4.9  | 1071          | 4.9  | 0.661     | 10.3        | LOS B            | 6.9               | 50.1   | 0.87       | 0.85           | 1.12                       | 40.2        |
| NorthEast: Tomin Road        |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 24                           | L2   | All MCs   | 32           | 10.0 | 32            | 10.0 | 0.814     | 16.4        | LOS B            | 5.5               | 39.0   | 0.85       | 1.15           | 1.48                       | 38.6        |
| 24a                          | L1   | All MCs   | 46           | 3.4  | 46            | 3.4  | 0.814     | 15.6        | LOS B            | 5.5               | 39.0   | 0.85       | 1.15           | 1.48                       | 36.5        |
| 26                           | R2   | All MCs   | 293          | 1.1  | 293           | 1.1  | 0.814     | 20.2        | LOS C            | 5.5               | 39.0   | 0.85       | 1.15           | 1.48                       | 36.0        |
| Approach                     |      |           | 371          | 2.2  | 371           | 2.2  | 0.814     | 19.3        | LOS B            | 5.5               | 39.0   | 0.85       | 1.15           | 1.48                       | 36.4        |
| NorthWest: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |



|              |    |         |      |      |      |      |       |      |       |     |      |      |      |      |      |
|--------------|----|---------|------|------|------|------|-------|------|-------|-----|------|------|------|------|------|
| 27           | L2 | All MCs | 157  | 3.4  | 157  | 3.4  | 0.282 | 3.4  | LOS A | 2.0 | 14.7 | 0.29 | 0.37 | 0.29 | 45.1 |
| 28           | T1 | All MCs | 668  | 9.1  | 668  | 9.1  | 0.282 | 3.3  | LOS A | 2.0 | 14.7 | 0.30 | 0.40 | 0.30 | 44.5 |
| 29a          | R1 | All MCs | 158  | 0.0  | 158  | 0.0  | 0.282 | 6.8  | LOS A | 1.8 | 13.6 | 0.32 | 0.46 | 0.32 | 40.3 |
| 29u          | U  | All MCs | 27   | 13.6 | 27   | 13.6 | 0.282 | 9.7  | LOS A | 1.8 | 13.6 | 0.32 | 0.46 | 0.32 | 38.7 |
| Approach     |    |         | 1011 | 6.9  | 1011 | 6.9  | 0.282 | 4.0  | LOS A | 2.0 | 14.7 | 0.30 | 0.41 | 0.30 | 43.9 |
| All Vehicles |    |         | 2658 | 5.0  | 2658 | 5.0  | 0.945 | 12.3 | LOS B | 7.7 | 54.6 | 0.66 | 0.77 | 0.97 | 38.6 |

### ITA Scenario 1E - PM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|-------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | 95% Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.            | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    | v/c       | sec         |                  | veh               | m      |            |                |                            | km/h        |
| South: Saxbys Road           |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 1a                           | L1   | All MCs   | 122          | 0.0  | 122           | 0.0  | 0.803     | 26.1        | LOS C            | 4.3               | 30.5   | 0.92       | 1.16           | 1.58                       | 26.5        |
| 3a                           | R1   | All MCs   | 19           | 0.0  | 19            | 0.0  | 0.803     | 29.9        | LOS C            | 4.3               | 30.5   | 0.92       | 1.16           | 1.58                       | 32.2        |
| 3b                           | R3   | All MCs   | 40           | 6.9  | 40            | 6.9  | 0.803     | 32.4        | LOS C            | 4.3               | 30.5   | 0.92       | 1.16           | 1.58                       | 30.7        |
| Approach                     |      |           | 180          | 1.5  | 180           | 1.5  | 0.803     | 27.9        | LOS C            | 4.3               | 30.5   | 0.92       | 1.16           | 1.58                       | 28.3        |
| SouthEast: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 21b                          | L3   | All MCs   | 26           | 11.1 | 26            | 11.1 | 0.528     | 8.5         | LOS A            | 4.1               | 30.2   | 0.76       | 0.71           | 0.86                       | 41.3        |
| 22                           | T1   | All MCs   | 781          | 4.4  | 781           | 4.4  | 0.528     | 7.9         | LOS A            | 4.1               | 30.2   | 0.76       | 0.73           | 0.87                       | 41.6        |
| 23                           | R2   | All MCs   | 40           | 5.9  | 40            | 5.9  | 0.528     | 12.6        | LOS B            | 4.1               | 29.7   | 0.76       | 0.74           | 0.88                       | 43.0        |
| 23u                          | U    | All MCs   | 41           | 0.0  | 41            | 0.0  | 0.528     | 14.2        | LOS B            | 4.1               | 29.7   | 0.76       | 0.74           | 0.88                       | 42.5        |
| Approach                     |      |           | 888          | 4.5  | 888           | 4.5  | 0.528     | 8.5         | LOS A            | 4.1               | 30.2   | 0.76       | 0.73           | 0.87                       | 41.7        |
| NorthEast: Tomin Road        |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 24                           | L2   | All MCs   | 25           | 10.0 | 25            | 10.0 | 0.659     | 18.4        | LOS B            | 3.2               | 22.3   | 0.87       | 1.08           | 1.30                       | 38.0        |
| 24a                          | L1   | All MCs   | 22           | 0.0  | 22            | 0.0  | 0.659     | 16.8        | LOS B            | 3.2               | 22.3   | 0.87       | 1.08           | 1.30                       | 35.9        |
| 26                           | R2   | All MCs   | 165          | 0.0  | 165           | 0.0  | 0.659     | 21.5        | LOS C            | 3.2               | 22.3   | 0.87       | 1.08           | 1.30                       | 35.4        |
| Approach                     |      |           | 212          | 1.2  | 212           | 1.2  | 0.659     | 20.7        | LOS C            | 3.2               | 22.3   | 0.87       | 1.08           | 1.30                       | 35.8        |
| NorthWest: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 27                           | L2   | All MCs   | 253          | 0.5  | 253           | 0.5  | 0.465     | 3.5         | LOS A            | 3.7               | 26.1   | 0.33       | 0.38           | 0.33                       | 45.0        |
| 28                           | T1   | All MCs   | 1187         | 1.9  | 1187          | 1.9  | 0.465     | 3.4         | LOS A            | 3.7               | 26.1   | 0.35       | 0.42           | 0.35                       | 44.3        |
| 29a                          | R1   | All MCs   | 283          | 0.0  | 283           | 0.0  | 0.465     | 7.0         | LOS A            | 3.6               | 25.3   | 0.39       | 0.49           | 0.39                       | 39.9        |
| 29u                          | U    | All MCs   | 62           | 7.0  | 62            | 7.0  | 0.465     | 9.9         | LOS A            | 3.6               | 25.3   | 0.39       | 0.49           | 0.39                       | 39.0        |
| Approach                     |      |           | 1784         | 1.6  | 1784          | 1.6  | 0.465     | 4.2         | LOS A            | 3.7               | 26.1   | 0.36       | 0.43           | 0.36                       | 43.7        |



|              |      |     |      |     |       |     |       |     |      |      |      |      |      |
|--------------|------|-----|------|-----|-------|-----|-------|-----|------|------|------|------|------|
| All Vehicles | 3065 | 2.4 | 3065 | 2.4 | 0.803 | 7.9 | LOS A | 4.3 | 30.5 | 0.54 | 0.60 | 0.64 | 41.3 |
|--------------|------|-----|------|-----|-------|-----|-------|-----|------|------|------|------|------|

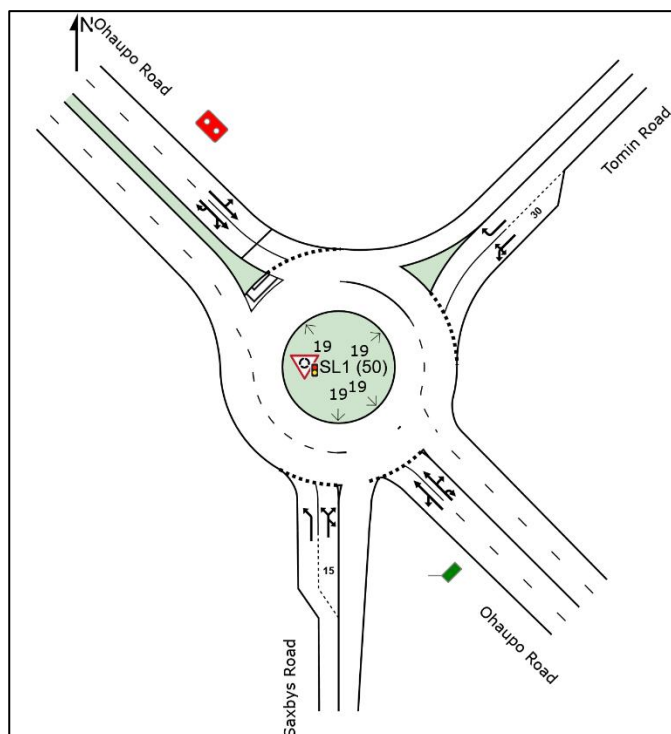


Figure: Ohaupo Rd / Saxbys Rd / Tomin Rd Alternative Roundabout Layout with Four Lanes on Ohaupo Rd (South), Additional Lanes on Saxbys Rd and Tomin Rd and Metering on Northern Approach – Scenarios 2 to 5 (Metering during AM Peak only)

### ITA Scenario 2 - AM Peak

#### Vehicle Movement Performance

| Mov ID             | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | 95% Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|--------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|-------------------|--------|------------|----------------|----------------------------|-------------|
|                    |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.            | Dist ] |            |                |                            |             |
|                    |      |           | veh/h        | %    | veh/h         | %    |           |             |                  | veh               | m      |            |                |                            |             |
| South: Saxbys Road |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 1a                 | L1   | All MCs   | 412          | 0.9  | 412           | 0.9  | 1.038     | 41.5        | LOS D            | 7.0               | 50.0   | 1.00       | 1.91           | 5.97                       | 20.7        |
| 3a                 | R1   | All MCs   | 14           | 0.0  | 14            | 0.0  | 1.038     | 47.5        | LOS D            | 7.0               | 50.0   | 1.00       | 2.10           | 6.99                       | 26.2        |
| 3b                 | R3   | All MCs   | 38           | 5.6  | 38            | 5.6  | 1.038     | 49.6        | LOS D            | 7.0               | 50.0   | 1.00       | 2.10           | 6.99                       | 24.6        |

|                        |    |         |      |      |      |      |       |      |       |      |       |      |      |      |      |
|------------------------|----|---------|------|------|------|------|-------|------|-------|------|-------|------|------|------|------|
| Approach               |    |         | 463  | 1.2  | 463  | 1.2  | 1.038 | 42.4 | LOS D | 7.0  | 50.0  | 1.00 | 1.93 | 6.08 | 21.3 |
| SouthEast: Ohaupo Road |    |         |      |      |      |      |       |      |       |      |       |      |      |      |      |
| 21b                    | L3 | All MCs | 23   | 9.1  | 23   | 9.1  | 0.799 | 5.1  | LOS A | 3.3  | 23.8  | 0.79 | 0.87 | 0.81 | 41.6 |
| 22                     | T1 | All MCs | 1216 | 4.9  | 1216 | 4.9  | 0.799 | 4.5  | LOS A | 3.3  | 23.8  | 0.79 | 0.87 | 0.82 | 42.3 |
| 23                     | R2 | All MCs | 20   | 10.5 | 20   | 10.5 | 0.799 | 9.0  | LOS A | 3.1  | 23.0  | 0.79 | 0.88 | 0.83 | 43.7 |
| 23u                    | U  | All MCs | 9    | 11.1 | 9    | 11.1 | 0.799 | 10.9 | LOS B | 3.1  | 23.0  | 0.79 | 0.88 | 0.83 | 43.2 |
| Approach               |    |         | 1268 | 5.1  | 1268 | 5.1  | 0.799 | 4.7  | LOS A | 3.3  | 23.8  | 0.79 | 0.87 | 0.82 | 42.3 |
| NorthEast: Tomin Road  |    |         |      |      |      |      |       |      |       |      |       |      |      |      |      |
| 24                     | L2 | All MCs | 21   | 10.0 | 21   | 10.0 | 0.257 | 5.0  | LOS A | 0.4  | 2.7   | 0.29 | 0.71 | 0.30 | 44.0 |
| 24a                    | L1 | All MCs | 31   | 3.4  | 31   | 3.4  | 0.257 | 4.5  | LOS A | 0.4  | 2.7   | 0.29 | 0.71 | 0.30 | 43.0 |
| 26                     | R2 | All MCs | 377  | 1.1  | 377  | 1.1  | 0.257 | 8.3  | LOS A | 0.5  | 3.5   | 0.33 | 0.74 | 0.33 | 42.1 |
| Approach               |    |         | 428  | 1.7  | 428  | 1.7  | 0.257 | 7.9  | LOS A | 0.5  | 3.5   | 0.33 | 0.73 | 0.33 | 42.3 |
| NorthWest: Ohaupo Road |    |         |      |      |      |      |       |      |       |      |       |      |      |      |      |
| 27                     | L2 | All MCs | 154  | 3.4  | 154  | 3.4  | 0.973 | 28.7 | LOS C | 16.8 | 125.7 | 1.05 | 1.94 | 3.38 | 31.9 |
| 28                     | T1 | All MCs | 677  | 9.1  | 677  | 9.1  | 0.973 | 30.0 | LOS C | 16.8 | 125.7 | 1.05 | 1.94 | 3.47 | 30.0 |
| 29a                    | R1 | All MCs | 236  | 0.0  | 236  | 0.0  | 0.973 | 35.1 | LOS D | 12.6 | 91.4  | 1.05 | 1.95 | 3.70 | 23.7 |
| 29u                    | U  | All MCs | 23   | 13.6 | 23   | 13.6 | 0.973 | 39.4 | LOS D | 12.6 | 91.4  | 1.05 | 1.95 | 3.70 | 23.1 |
| Approach               |    |         | 1089 | 6.5  | 1089 | 6.5  | 0.973 | 31.1 | LOS C | 16.8 | 125.7 | 1.05 | 1.95 | 3.51 | 28.9 |
| All Vehicles           |    |         | 3249 | 4.6  | 3249 | 4.6  | 1.038 | 19.3 | LOS B | 16.8 | 125.7 | 0.85 | 1.37 | 2.41 | 33.7 |

### ITA Scenario 2 - PM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|-------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | 95% Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.            | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    | v/c       | sec         |                  | veh               | m      |            |                |                            | km/h        |
| South: Saxbys Road           |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 1a                           | L1   | All MCs   | 180          | 0.0  | 180           | 0.0  | 0.465     | 17.0        | LOS B            | 2.5               | 17.8   | 0.87       | 0.98           | 1.07                       | 31.6        |
| 3a                           | R1   | All MCs   | 14           | 0.0  | 14            | 0.0  | 0.465     | 18.6        | LOS B            | 2.5               | 17.8   | 0.87       | 0.99           | 1.04                       | 37.2        |
| 3b                           | R3   | All MCs   | 31           | 6.9  | 31            | 6.9  | 0.465     | 21.5        | LOS C            | 2.5               | 17.8   | 0.87       | 0.99           | 1.04                       | 35.9        |
| Approach                     |      |           | 224          | 0.9  | 224           | 0.9  | 0.465     | 17.7        | LOS B            | 2.5               | 17.8   | 0.87       | 0.98           | 1.06                       | 32.7        |
| SouthEast: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 21b                          | L3   | All MCs   | 25           | 11.1 | 25            | 11.1 | 0.777     | 16.2        | LOS B            | 8.7               | 63.7   | 0.94       | 1.11           | 1.54                       | 36.7        |
| 22                           | T1   | All MCs   | 964          | 4.6  | 964           | 4.6  | 0.777     | 15.7        | LOS B            | 8.7               | 63.7   | 0.94       | 1.11           | 1.55                       | 36.8        |

|                        |    |         |      |      |      |      |       |      |       |     |      |      |      |      |      |
|------------------------|----|---------|------|------|------|------|-------|------|-------|-----|------|------|------|------|------|
| 23                     | R2 | All MCs | 36   | 5.9  | 36   | 5.9  | 0.777 | 20.7 | LOS C | 8.4 | 61.2 | 0.94 | 1.12 | 1.56 | 39.3 |
| 23u                    | U  | All MCs | 35   | 0.0  | 35   | 0.0  | 0.777 | 22.1 | LOS C | 8.4 | 61.2 | 0.94 | 1.12 | 1.56 | 38.5 |
| Approach               |    |         | 1060 | 4.6  | 1060 | 4.6  | 0.777 | 16.1 | LOS B | 8.7 | 63.7 | 0.94 | 1.12 | 1.55 | 37.0 |
| NorthEast: Tomin Road  |    |         |      |      |      |      |       |      |       |     |      |      |      |      |      |
| 24                     | L2 | All MCs | 21   | 10.0 | 21   | 10.0 | 0.432 | 23.3 | LOS C | 2.0 | 14.2 | 0.89 | 1.03 | 1.12 | 36.5 |
| 24a                    | L1 | All MCs | 13   | 0.0  | 13   | 0.0  | 0.432 | 20.6 | LOS C | 2.0 | 14.2 | 0.89 | 1.03 | 1.12 | 34.2 |
| 26                     | R2 | All MCs | 160  | 0.0  | 160  | 0.0  | 0.432 | 26.1 | LOS C | 2.0 | 14.2 | 0.89 | 1.03 | 1.13 | 33.2 |
| Approach               |    |         | 194  | 1.1  | 194  | 1.1  | 0.432 | 25.4 | LOS C | 2.0 | 14.2 | 0.89 | 1.03 | 1.13 | 33.7 |
| NorthWest: Ohaupo Road |    |         |      |      |      |      |       |      |       |     |      |      |      |      |      |
| 27                     | L2 | All MCs | 339  | 0.5  | 339  | 0.5  | 0.538 | 3.3  | LOS A | 5.8 | 40.9 | 0.35 | 0.38 | 0.35 | 45.1 |
| 28                     | T1 | All MCs | 1243 | 1.9  | 1243 | 1.9  | 0.538 | 3.2  | LOS A | 5.8 | 40.9 | 0.37 | 0.40 | 0.37 | 44.4 |
| 29a                    | R1 | All MCs | 591  | 0.0  | 591  | 0.0  | 0.538 | 7.0  | LOS A | 5.4 | 38.4 | 0.45 | 0.51 | 0.45 | 39.1 |
| 29u                    | U  | All MCs | 45   | 7.0  | 45   | 7.0  | 0.538 | 9.9  | LOS A | 5.4 | 38.4 | 0.45 | 0.51 | 0.45 | 38.3 |
| Approach               |    |         | 2218 | 1.3  | 2218 | 1.3  | 0.538 | 4.4  | LOS A | 5.8 | 40.9 | 0.39 | 0.43 | 0.39 | 43.2 |
| All Vehicles           |    |         | 3696 | 2.2  | 3696 | 2.2  | 0.777 | 9.7  | LOS A | 8.7 | 63.7 | 0.61 | 0.69 | 0.80 | 39.8 |

### ITA Scenario 3 - AM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|---------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | Aver. Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.              | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    | v/c       | sec         |                  | veh                 | m      |            |                |                            | km/h        |
| South: Saxbys Road           |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 1a                           | L1   | All MCs   | 463          | 0.9  | 463           | 0.9  | 0.862     | 7.0         | LOS A            | 0.9                 | 6.6    | 0.94       | 1.00           | 1.07                       | 32.9        |
| 3a                           | R1   | All MCs   | 12           | 0.0  | 12            | 0.0  | 0.862     | 11.4        | LOS B            | 0.9                 | 6.3    | 0.94       | 1.04           | 1.23                       | 40.9        |
| 3b                           | R3   | All MCs   | 45           | 5.6  | 45            | 5.6  | 0.862     | 13.5        | LOS B            | 0.9                 | 6.3    | 0.94       | 1.04           | 1.23                       | 31.3        |
| Approach                     |      |           | 520          | 1.3  | 520           | 1.3  | 0.862     | 7.6         | LOS A            | 0.9                 | 6.6    | 0.94       | 1.00           | 1.09                       | 33.2        |
| SouthEast: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 21b                          | L3   | All MCs   | 33           | 9.1  | 33            | 9.1  | 0.574     | 5.3         | LOS A            | 0.9                 | 6.8    | 0.64       | 0.77           | 0.65                       | 42.3        |
| 22                           | T1   | All MCs   | 856          | 4.9  | 856           | 4.9  | 0.574     | 4.7         | LOS A            | 1.0                 | 7.1    | 0.63       | 0.77           | 0.65                       | 41.2        |
| 23                           | R2   | All MCs   | 20           | 10.5 | 20            | 10.5 | 0.574     | 9.1         | LOS A            | 1.0                 | 7.1    | 0.63       | 0.77           | 0.64                       | 44.3        |
| 23u                          | U    | All MCs   | 9            | 11.1 | 9             | 11.1 | 0.574     | 10.9        | LOS B            | 1.0                 | 7.1    | 0.63       | 0.77           | 0.64                       | 41.2        |
| Approach                     |      |           | 918          | 5.2  | 918           | 5.2  | 0.574     | 4.8         | LOS A            | 1.0                 | 7.1    | 0.63       | 0.77           | 0.65                       | 41.4        |
| NorthEast: Tomin Road        |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 24                           | L2   | All MCs   | 21           | 10.0 | 21            | 10.0 | 0.254     | 5.1         | LOS A            | 0.3                 | 2.1    | 0.42       | 0.73           | 0.42                       | 41.4        |



|                        |    |         |      |      |      |      |       |      |       |     |      |      |      |      |      |
|------------------------|----|---------|------|------|------|------|-------|------|-------|-----|------|------|------|------|------|
| 24a                    | L1 | All MCs | 31   | 3.4  | 31   | 3.4  | 0.254 | 4.6  | LOS A | 0.3 | 2.1  | 0.42 | 0.73 | 0.42 | 43.0 |
| 26                     | R2 | All MCs | 341  | 1.1  | 341  | 1.1  | 0.254 | 8.3  | LOS A | 0.3 | 2.1  | 0.37 | 0.73 | 0.37 | 41.2 |
| Approach               |    |         | 393  | 1.8  | 393  | 1.8  | 0.254 | 7.9  | LOS A | 0.3 | 2.1  | 0.38 | 0.73 | 0.38 | 41.3 |
| NorthWest: Ohaupo Road |    |         |      |      |      |      |       |      |       |     |      |      |      |      |      |
| 27                     | L2 | All MCs | 151  | 3.4  | 151  | 3.4  | 0.670 | 12.8 | LOS B | 4.6 | 34.2 | 0.94 | 0.98 | 1.16 | 39.4 |
| 28                     | T1 | All MCs | 399  | 9.1  | 399  | 9.1  | 0.670 | 12.8 | LOS B | 6.4 | 46.9 | 0.94 | 0.91 | 1.12 | 27.7 |
| 29a                    | R1 | All MCs | 246  | 0.0  | 246  | 0.0  | 0.670 | 15.2 | LOS B | 6.4 | 46.9 | 0.94 | 0.85 | 1.09 | 33.5 |
| 29u                    | U  | All MCs | 23   | 13.6 | 23   | 13.6 | 0.670 | 19.3 | LOS B | 6.4 | 46.9 | 0.94 | 0.85 | 1.09 | 27.6 |
| Approach               |    |         | 819  | 5.5  | 819  | 5.5  | 0.670 | 13.7 | LOS B | 6.4 | 46.9 | 0.94 | 0.90 | 1.12 | 33.1 |
| All Vehicles           |    |         | 2649 | 4.0  | 2649 | 4.0  | 0.862 | 8.6  | LOS A | 6.4 | 46.9 | 0.75 | 0.85 | 0.84 | 37.5 |

### ITA Scenario 3 - PM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|---------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | Aver. Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.              | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    | v/c       | sec         |                  | veh                 | m      |            |                |                            | km/h        |
| South: Saxbys Road           |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 1a                           | L1   | All MCs   | 193          | 0.0  | 193           | 0.0  | 0.332     | 11.2        | LOS B            | 0.7                 | 4.8    | 0.75       | 0.86           | 0.80                       | 29.4        |
| 3a                           | R1   | All MCs   | 13           | 0.0  | 13            | 0.0  | 0.332     | 13.6        | LOS B            | 0.7                 | 4.8    | 0.75       | 0.88           | 0.79                       | 40.0        |
| 3b                           | R3   | All MCs   | 31           | 6.9  | 31            | 6.9  | 0.332     | 16.3        | LOS B            | 0.7                 | 4.8    | 0.75       | 0.88           | 0.79                       | 29.8        |
| Approach                     |      |           | 236          | 0.9  | 236           | 0.9  | 0.332     | 11.9        | LOS B            | 0.7                 | 4.8    | 0.75       | 0.87           | 0.80                       | 30.7        |
| SouthEast: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 21b                          | L3   | All MCs   | 48           | 11.1 | 48            | 11.1 | 0.517     | 10.7        | LOS B            | 1.7                 | 12.5   | 0.78       | 0.79           | 0.91                       | 40.0        |
| 22                           | T1   | All MCs   | 647          | 4.6  | 647           | 4.6  | 0.517     | 10.2        | LOS B            | 1.7                 | 12.5   | 0.78       | 0.80           | 0.91                       | 37.6        |
| 23                           | R2   | All MCs   | 36           | 5.9  | 36            | 5.9  | 0.517     | 14.8        | LOS B            | 1.7                 | 12.1   | 0.78       | 0.82           | 0.92                       | 41.9        |
| 23u                          | U    | All MCs   | 35           | 0.0  | 35            | 0.0  | 0.517     | 16.4        | LOS B            | 1.7                 | 12.1   | 0.78       | 0.82           | 0.92                       | 37.0        |
| Approach                     |      |           | 766          | 4.8  | 766           | 4.8  | 0.517     | 10.7        | LOS B            | 1.7                 | 12.5   | 0.78       | 0.81           | 0.91                       | 38.1        |
| NorthEast: Tomin Road        |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 24                           | L2   | All MCs   | 21           | 10.0 | 21            | 10.0 | 0.199     | 12.9        | LOS B            | 0.4                 | 3.0    | 0.78       | 0.83           | 0.78                       | 36.3        |
| 24a                          | L1   | All MCs   | 13           | 0.0  | 13            | 0.0  | 0.199     | 11.5        | LOS B            | 0.4                 | 3.0    | 0.78       | 0.83           | 0.78                       | 38.9        |
| 26                           | R2   | All MCs   | 134          | 0.0  | 134           | 0.0  | 0.199     | 15.5        | LOS B            | 0.4                 | 3.1    | 0.78       | 0.83           | 0.78                       | 36.2        |
| Approach                     |      |           | 167          | 1.3  | 167           | 1.3  | 0.199     | 14.9        | LOS B            | 0.4                 | 3.1    | 0.78       | 0.83           | 0.78                       | 36.5        |
| NorthWest: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 27                           | L2   | All MCs   | 315          | 0.5  | 315           | 0.5  | 0.423     | 3.2         | LOS A            | 1.5                 | 10.5   | 0.24       | 0.36           | 0.24                       | 45.6        |
| 28                           | T1   | All MCs   | 762          | 1.9  | 762           | 1.9  | 0.423     | 3.1         | LOS A            | 1.5                 | 10.5   | 0.24       | 0.37           | 0.24                       | 39.8        |

|              |    |         |      |     |      |     |       |     |       |     |      |      |      |      |      |
|--------------|----|---------|------|-----|------|-----|-------|-----|-------|-----|------|------|------|------|------|
| 29a          | R1 | All MCs | 629  | 0.0 | 629  | 0.0 | 0.423 | 6.9 | LOS A | 1.3 | 9.4  | 0.29 | 0.56 | 0.29 | 39.0 |
| 29u          | U  | All MCs | 45   | 7.0 | 45   | 7.0 | 0.423 | 9.8 | LOS A | 1.3 | 9.4  | 0.29 | 0.56 | 0.29 | 35.0 |
| Approach     |    |         | 1752 | 1.1 | 1752 | 1.1 | 0.423 | 4.7 | LOS A | 1.5 | 10.5 | 0.26 | 0.44 | 0.26 | 41.0 |
| All Vehicles |    |         | 2921 | 2.1 | 2921 | 2.1 | 0.517 | 7.4 | LOS A | 1.7 | 12.5 | 0.47 | 0.59 | 0.50 | 39.1 |

#### ITA Scenario 4 - AM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|---------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | Aver. Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.              | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    | v/c       | sec         |                  | veh                 | m      |            |                |                            | km/h        |
| South: Saxbys Road           |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 1a                           | L1   | All MCs   | 565          | 0.9  | 565           | 0.9  | 1.188     | 176.1       | LOS F            | 13.6                | 96.3   | 1.00       | 4.13           | 13.64                      | 4.3         |
| 3a                           | R1   | All MCs   | 11           | 0.0  | 11            | 0.0  | 1.188     | 179.9       | LOS F            | 13.6                | 96.3   | 1.00       | 4.51           | 15.16                      | 11.4        |
| 3b                           | R3   | All MCs   | 49           | 5.6  | 49            | 5.6  | 1.188     | 182.1       | LOS F            | 13.6                | 96.3   | 1.00       | 4.51           | 15.16                      | 4.4         |
| Approach                     |      |           | 625          | 1.2  | 625           | 1.2  | 1.188     | 176.6       | LOS F            | 13.6                | 96.3   | 1.00       | 4.17           | 13.79                      | 4.5         |
| SouthEast: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 21b                          | L3   | All MCs   | 38           | 9.1  | 38            | 9.1  | 0.652     | 5.7         | LOS A            | 1.3                 | 9.4    | 0.69       | 0.81           | 0.72                       | 42.0        |
| 22                           | T1   | All MCs   | 877          | 4.9  | 877           | 4.9  | 0.652     | 5.1         | LOS A            | 1.3                 | 9.4    | 0.70       | 0.81           | 0.72                       | 40.8        |
| 23                           | R2   | All MCs   | 20           | 10.5 | 20            | 10.5 | 0.652     | 9.6         | LOS A            | 1.2                 | 8.8    | 0.70       | 0.82           | 0.72                       | 44.0        |
| 23u                          | U    | All MCs   | 9            | 11.1 | 9             | 11.1 | 0.652     | 11.5        | LOS B            | 1.2                 | 8.8    | 0.70       | 0.82           | 0.72                       | 40.7        |
| Approach                     |      |           | 944          | 5.3  | 944           | 5.3  | 0.652     | 5.3         | LOS A            | 1.3                 | 9.4    | 0.70       | 0.81           | 0.72                       | 41.0        |
| NorthEast: Tomin Road        |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 24                           | L2   | All MCs   | 21           | 10.0 | 21            | 10.0 | 0.290     | 4.8         | LOS A            | 0.4                 | 2.6    | 0.49       | 0.75           | 0.49                       | 41.4        |
| 24a                          | L1   | All MCs   | 31           | 3.4  | 31            | 3.4  | 0.290     | 4.3         | LOS A            | 0.4                 | 2.6    | 0.49       | 0.75           | 0.49                       | 42.9        |
| 26                           | R2   | All MCs   | 343          | 1.1  | 343           | 1.1  | 0.290     | 8.3         | LOS A            | 0.4                 | 2.6    | 0.44       | 0.75           | 0.44                       | 41.0        |
| Approach                     |      |           | 395          | 1.8  | 395           | 1.8  | 0.290     | 7.8         | LOS A            | 0.4                 | 2.6    | 0.45       | 0.75           | 0.45                       | 41.2        |
| NorthWest: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 27                           | L2   | All MCs   | 152          | 3.4  | 152           | 3.4  | 0.638     | 11.1        | LOS B            | 7.3                 | 54.2   | 0.90       | 0.74           | 0.99                       | 40.5        |
| 28                           | T1   | All MCs   | 478          | 9.1  | 478           | 9.1  | 0.638     | 11.6        | LOS B            | 7.3                 | 54.2   | 0.90       | 0.76           | 1.00                       | 29.3        |
| 29a                          | R1   | All MCs   | 273          | 0.0  | 273           | 0.0  | 0.638     | 15.2        | LOS B            | 5.3                 | 38.3   | 0.90       | 0.87           | 1.04                       | 33.1        |
| 29u                          | U    | All MCs   | 23           | 13.6 | 23            | 13.6 | 0.638     | 19.4        | LOS B            | 5.3                 | 38.3   | 0.90       | 0.87           | 1.04                       | 27.1        |
| Approach                     |      |           | 925          | 5.6  | 925           | 5.6  | 0.638     | 12.8        | LOS B            | 7.3                 | 54.2   | 0.90       | 0.79           | 1.01                       | 33.5        |
| All Vehicles                 |      |           | 2889         | 4.0  | 2889          | 4.0  | 1.188     | 45.1        | LOS D            | 13.6                | 96.3   | 0.80       | 1.52           | 3.60                       | 19.3        |

## ITA Scenario 4 - PM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|---------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | Aver. Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.              | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    |           |             |                  | veh                 | m      |            |                |                            |             |
| South: Saxbys Road           |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 1a                           | L1   | All MCs   | 215          | 0.0  | 215           | 0.0  | 0.385     | 12.6        | LOS B            | 0.8                 | 5.7    | 0.78       | 0.90           | 0.90                       | 28.1        |
| 3a                           | R1   | All MCs   | 15           | 0.0  | 15            | 0.0  | 0.385     | 14.9        | LOS B            | 0.8                 | 5.7    | 0.78       | 0.91           | 0.88                       | 39.4        |
| 3b                           | R3   | All MCs   | 25           | 6.9  | 25            | 6.9  | 0.385     | 17.6        | LOS B            | 0.8                 | 5.7    | 0.78       | 0.91           | 0.88                       | 28.8        |
| Approach                     |      |           | 255          | 0.7  | 255           | 0.7  | 0.385     | 13.2        | LOS B            | 0.8                 | 5.7    | 0.78       | 0.90           | 0.89                       | 29.5        |
| SouthEast: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 21b                          | L3   | All MCs   | 57           | 11.1 | 57            | 11.1 | 0.574     | 12.1        | LOS B            | 2.1                 | 15.4   | 0.79       | 0.84           | 0.97                       | 39.0        |
| 22                           | T1   | All MCs   | 722          | 4.6  | 722           | 4.6  | 0.574     | 11.6        | LOS B            | 2.1                 | 15.4   | 0.79       | 0.86           | 0.98                       | 36.4        |
| 23                           | R2   | All MCs   | 36           | 5.9  | 36            | 5.9  | 0.574     | 16.3        | LOS B            | 2.0                 | 14.9   | 0.79       | 0.87           | 0.98                       | 41.3        |
| 23u                          | U    | All MCs   | 35           | 0.0  | 35            | 0.0  | 0.574     | 17.8        | LOS B            | 2.0                 | 14.9   | 0.79       | 0.87           | 0.98                       | 35.9        |
| Approach                     |      |           | 849          | 4.9  | 849           | 4.9  | 0.574     | 12.1        | LOS B            | 2.1                 | 15.4   | 0.79       | 0.86           | 0.98                       | 37.0        |
| NorthEast: Tomin Road        |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 24                           | L2   | All MCs   | 21           | 10.0 | 21            | 10.0 | 0.207     | 14.2        | LOS B            | 0.5                 | 3.5    | 0.82       | 0.82           | 0.82                       | 35.3        |
| 24a                          | L1   | All MCs   | 9            | 0.0  | 9             | 0.0  | 0.207     | 12.9        | LOS B            | 0.5                 | 3.5    | 0.82       | 0.82           | 0.82                       | 38.0        |
| 26                           | R2   | All MCs   | 140          | 0.0  | 140           | 0.0  | 0.207     | 17.0        | LOS B            | 0.5                 | 3.6    | 0.82       | 0.82           | 0.82                       | 35.2        |
| Approach                     |      |           | 171          | 1.2  | 171           | 1.2  | 0.207     | 16.4        | LOS B            | 0.5                 | 3.6    | 0.82       | 0.82           | 0.82                       | 35.4        |
| NorthWest: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 27                           | L2   | All MCs   | 302          | 0.5  | 302           | 0.5  | 0.466     | 3.2         | LOS A            | 1.8                 | 12.5   | 0.23       | 0.36           | 0.23                       | 45.6        |
| 28                           | T1   | All MCs   | 943          | 1.9  | 943           | 1.9  | 0.466     | 3.1         | LOS A            | 1.8                 | 12.5   | 0.24       | 0.38           | 0.24                       | 39.6        |
| 29a                          | R1   | All MCs   | 644          | 0.0  | 644           | 0.0  | 0.466     | 6.9         | LOS A            | 1.6                 | 11.2   | 0.29       | 0.55           | 0.29                       | 39.2        |
| 29u                          | U    | All MCs   | 45           | 7.0  | 45            | 7.0  | 0.466     | 9.8         | LOS A            | 1.6                 | 11.2   | 0.29       | 0.55           | 0.29                       | 35.3        |
| Approach                     |      |           | 1935         | 1.2  | 1935          | 1.2  | 0.466     | 4.6         | LOS A            | 1.8                 | 12.5   | 0.26       | 0.44           | 0.26                       | 41.0        |
| All Vehicles                 |      |           | 3209         | 2.1  | 3209          | 2.1  | 0.574     | 7.9         | LOS A            | 2.1                 | 15.4   | 0.47       | 0.60           | 0.53                       | 38.5        |

## ITA Scenario 5 - AM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|---------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | Aver. Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.              | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    | v/c       | sec         |                  | veh                 | m      |            |                |                            | km/h        |
| South: Saxbys Road           |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 1a                           | L1   | All MCs   | 651          | 0.9  | 651           | 0.9  | 1.385     | 353.2       | LOS F            | 24.8                | 175.0  | 1.00       | 6.45           | 22.88                      | 2.3         |
| 3a                           | R1   | All MCs   | 14           | 0.0  | 14            | 0.0  | 1.385     | 357.7       | LOS F            | 24.8                | 175.0  | 1.00       | 5.98           | 21.02                      | 6.5         |
| 3b                           | R3   | All MCs   | 16           | 5.6  | 16            | 5.6  | 1.385     | 359.9       | LOS F            | 24.8                | 175.0  | 1.00       | 5.98           | 21.02                      | 2.3         |
| Approach                     |      |           | 680          | 1.0  | 680           | 1.0  | 1.385     | 353.5       | LOS F            | 24.8                | 175.0  | 1.00       | 6.43           | 22.80                      | 2.4         |
| SouthEast: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 21b                          | L3   | All MCs   | 20           | 9.1  | 20            | 9.1  | 0.738     | 5.9         | LOS A            | 1.4                 | 10.2   | 0.75       | 0.84           | 0.77                       | 41.8        |
| 22                           | T1   | All MCs   | 966          | 4.9  | 966           | 4.9  | 0.738     | 5.3         | LOS A            | 1.4                 | 10.2   | 0.76       | 0.85           | 0.77                       | 40.4        |
| 23                           | R2   | All MCs   | 20           | 10.5 | 20            | 10.5 | 0.738     | 9.8         | LOS A            | 1.3                 | 9.8    | 0.76       | 0.86           | 0.78                       | 43.8        |
| 23u                          | U    | All MCs   | 9            | 11.1 | 9             | 11.1 | 0.738     | 11.7        | LOS B            | 1.3                 | 9.8    | 0.76       | 0.86           | 0.78                       | 40.3        |
| Approach                     |      |           | 1016         | 5.2  | 1016          | 5.2  | 0.738     | 5.5         | LOS A            | 1.4                 | 10.2   | 0.76       | 0.85           | 0.77                       | 40.6        |
| NorthEast: Tomin Road        |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 24                           | L2   | All MCs   | 21           | 10.0 | 21            | 10.0 | 0.255     | 4.2         | LOS A            | 0.3                 | 2.2    | 0.45       | 0.71           | 0.45                       | 41.3        |
| 24a                          | L1   | All MCs   | 19           | 3.4  | 19            | 3.4  | 0.255     | 3.6         | LOS A            | 0.3                 | 2.2    | 0.45       | 0.71           | 0.45                       | 42.9        |
| 26                           | R2   | All MCs   | 336          | 1.1  | 336           | 1.1  | 0.255     | 8.0         | LOS A            | 0.3                 | 2.2    | 0.42       | 0.72           | 0.42                       | 41.0        |
| Approach                     |      |           | 376          | 1.7  | 376           | 1.7  | 0.255     | 7.6         | LOS A            | 0.3                 | 2.2    | 0.43       | 0.72           | 0.43                       | 41.1        |
| NorthWest: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 27                           | L2   | All MCs   | 149          | 3.4  | 149           | 3.4  | 0.607     | 10.8        | LOS B            | 6.7                 | 50.0   | 0.89       | 0.70           | 0.93                       | 40.7        |
| 28                           | T1   | All MCs   | 391          | 9.1  | 391           | 9.1  | 0.607     | 11.2        | LOS B            | 6.7                 | 50.0   | 0.89       | 0.72           | 0.93                       | 29.9        |
| 29a                          | R1   | All MCs   | 309          | 0.0  | 309           | 0.0  | 0.607     | 14.8        | LOS B            | 5.0                 | 35.3   | 0.89       | 0.83           | 0.96                       | 33.2        |
| 29u                          | U    | All MCs   | 23           | 13.6 | 23            | 13.6 | 0.607     | 19.0        | LOS B            | 5.0                 | 35.3   | 0.89       | 0.83           | 0.96                       | 27.2        |
| Approach                     |      |           | 873          | 5.0  | 873           | 5.0  | 0.607     | 12.6        | LOS B            | 6.7                 | 50.0   | 0.89       | 0.76           | 0.94                       | 34.1        |
| All Vehicles                 |      |           | 2944         | 3.7  | 2944          | 3.7  | 1.385     | 88.2        | LOS F            | 24.8                | 175.0  | 0.81       | 2.09           | 5.87                       | 12.3        |

## ITA Scenario 5 - PM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|---------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | Aver. Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.              | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    | v/c       | sec         |                  | veh                 | m      |            |                |                            | km/h        |
| South: Saxbys Road           |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 1a                           | L1   | All MCs   | 254          | 0.0  | 254           | 0.0  | 0.422     | 12.7        | LOS B            | 0.9                 | 6.6    | 0.79       | 0.91           | 0.93                       | 28.0        |
| 3a                           | R1   | All MCs   | 20           | 0.0  | 20            | 0.0  | 0.422     | 15.1        | LOS B            | 0.9                 | 6.6    | 0.79       | 0.92           | 0.91                       | 39.6        |
| 3b                           | R3   | All MCs   | 16           | 6.9  | 16            | 6.9  | 0.422     | 17.7        | LOS B            | 0.9                 | 6.6    | 0.79       | 0.92           | 0.91                       | 29.0        |
| Approach                     |      |           | 289          | 0.4  | 289           | 0.4  | 0.422     | 13.1        | LOS B            | 0.9                 | 6.6    | 0.79       | 0.91           | 0.93                       | 29.7        |
| SouthEast: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 21b                          | L3   | All MCs   | 14           | 11.1 | 14            | 11.1 | 0.656     | 19.7        | LOS B            | 3.1                 | 22.3   | 0.83       | 0.95           | 1.20                       | 34.8        |
| 22                           | T1   | All MCs   | 708          | 4.6  | 708           | 4.6  | 0.656     | 19.3        | LOS B            | 3.1                 | 22.3   | 0.82       | 0.96           | 1.20                       | 31.1        |
| 23                           | R2   | All MCs   | 36           | 5.9  | 36            | 5.9  | 0.656     | 24.3        | LOS C            | 2.9                 | 20.9   | 0.82       | 0.98           | 1.21                       | 37.6        |
| 23u                          | U    | All MCs   | 35           | 0.0  | 35            | 0.0  | 0.656     | 25.8        | LOS C            | 2.9                 | 20.9   | 0.82       | 0.98           | 1.21                       | 30.5        |
| Approach                     |      |           | 793          | 4.5  | 793           | 4.5  | 0.656     | 19.8        | LOS B            | 3.1                 | 22.3   | 0.82       | 0.96           | 1.20                       | 31.6        |
| NorthEast: Tomin Road        |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 24                           | L2   | All MCs   | 21           | 10.0 | 21            | 10.0 | 0.273     | 20.8        | LOS C            | 0.7                 | 5.3    | 0.94       | 0.85           | 0.94                       | 31.7        |
| 24a                          | L1   | All MCs   | 15           | 0.0  | 15            | 0.0  | 0.273     | 19.3        | LOS B            | 0.7                 | 5.3    | 0.94       | 0.85           | 0.94                       | 34.9        |
| 26                           | R2   | All MCs   | 134          | 0.0  | 134           | 0.0  | 0.273     | 24.3        | LOS C            | 0.7                 | 5.3    | 0.94       | 0.85           | 0.94                       | 31.2        |
| Approach                     |      |           | 169          | 1.2  | 169           | 1.2  | 0.273     | 23.5        | LOS C            | 0.7                 | 5.3    | 0.94       | 0.85           | 0.94                       | 31.6        |
| NorthWest: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 27                           | L2   | All MCs   | 313          | 0.5  | 313           | 0.5  | 0.578     | 3.3         | LOS A            | 2.7                 | 19.4   | 0.23       | 0.36           | 0.23                       | 45.6        |
| 28                           | T1   | All MCs   | 1171         | 1.9  | 1171          | 1.9  | 0.578     | 3.2         | LOS A            | 2.7                 | 19.4   | 0.24       | 0.37           | 0.24                       | 39.8        |
| 29a                          | R1   | All MCs   | 873          | 0.0  | 873           | 0.0  | 0.578     | 7.0         | LOS A            | 2.4                 | 17.1   | 0.34       | 0.55           | 0.34                       | 38.8        |
| 29u                          | U    | All MCs   | 45           | 7.0  | 45            | 7.0  | 0.578     | 9.9         | LOS A            | 2.4                 | 17.1   | 0.34       | 0.55           | 0.34                       | 34.8        |
| Approach                     |      |           | 2401         | 1.1  | 2401          | 1.1  | 0.578     | 4.7         | LOS A            | 2.7                 | 19.4   | 0.28       | 0.44           | 0.28                       | 40.6        |
| All Vehicles                 |      |           | 3653         | 1.8  | 3653          | 1.8  | 0.656     | 9.5         | LOS A            | 3.1                 | 22.3   | 0.47       | 0.61           | 0.56                       | 36.5        |

## Ohaupo Rd / Lambert Ct Intersection

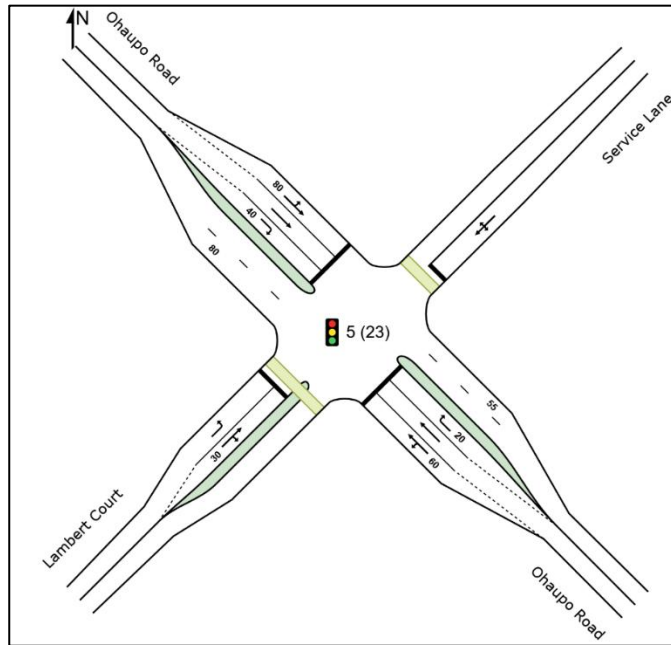


Figure 57: Proposed Ohaupo Rd / Lambert Ct Signalised Intersection Layout – Scenario 1A to 1C

### 2030 Baseline - AM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|-------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | 95% Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.            | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    | v/c       | sec         |                  | veh               | m      |            |                |                            | km/h        |
| SouthEast: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 21                           | L2   | All MCs   | 67           | 4.7  | 67            | 4.7  | 0.243     | 13.1        | LOS B            | 5.7               | 41.5   | 0.44       | 0.45           | 0.44                       | 29.6        |
| 22                           | T1   | All MCs   | 886          | 3.9  | 886           | 3.9  | * 0.530   | 14.1        | LOS B            | 16.3              | 118.1  | 0.54       | 0.50           | 0.54                       | 40.1        |
| 23                           | R2   | All MCs   | 1            | 0.0  | 1             | 0.0  | 0.009     | 57.9        | LOS E            | 0.0               | 0.3    | 0.95       | 0.59           | 0.95                       | 6.9         |
| Approach                     |      |           | 955          | 4.0  | 955           | 4.0  | 0.530     | 14.1        | LOS B            | 16.3              | 118.1  | 0.53       | 0.50           | 0.53                       | 35.9        |
| NorthEast: Service Lane      |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |

|                          |    |         |      |      |      |      |         |      |       |      |       |      |      |      |      |
|--------------------------|----|---------|------|------|------|------|---------|------|-------|------|-------|------|------|------|------|
| 24                       | L2 | All MCs | 5    | 0.0  | 5    | 0.0  | 0.205   | 59.8 | LOS E | 0.4  | 2.8   | 1.00 | 0.65 | 1.00 | 19.0 |
| 25                       | T1 | All MCs | 1    | 0.0  | 1    | 0.0  | * 0.205 | 57.8 | LOS E | 0.4  | 2.8   | 1.00 | 0.65 | 1.00 | 6.5  |
| 26                       | R2 | All MCs | 1    | 0.0  | 1    | 0.0  | 0.205   | 59.9 | LOS E | 0.4  | 2.8   | 1.00 | 0.65 | 1.00 | 17.0 |
| Approach                 |    |         | 7    | 0.0  | 7    | 0.0  | 0.205   | 59.6 | LOS E | 0.4  | 2.8   | 1.00 | 0.65 | 1.00 | 17.4 |
| NorthWest: Ohaupo Road   |    |         |      |      |      |      |         |      |       |      |       |      |      |      |      |
| 27                       | L2 | All MCs | 2    | 0.0  | 2    | 0.0  | 0.121   | 11.3 | LOS B | 2.5  | 19.4  | 0.40 | 0.34 | 0.40 | 21.0 |
| 28                       | T1 | All MCs | 561  | 10.8 | 561  | 10.8 | 0.349   | 7.8  | LOS A | 8.8  | 67.2  | 0.46 | 0.40 | 0.46 | 44.8 |
| 29                       | R2 | All MCs | 59   | 7.1  | 59   | 7.1  | * 0.530 | 55.9 | LOS E | 2.9  | 21.8  | 1.00 | 0.77 | 1.02 | 20.0 |
| Approach                 |    |         | 622  | 10.4 | 622  | 10.4 | 0.530   | 12.4 | LOS B | 8.8  | 67.2  | 0.51 | 0.44 | 0.52 | 41.8 |
| SouthWest: Lambert Court |    |         |      |      |      |      |         |      |       |      |       |      |      |      |      |
| 30                       | L2 | All MCs | 43   | 7.3  | 43   | 7.3  | 0.188   | 38.7 | LOS D | 1.7  | 12.4  | 0.93 | 1.04 | 0.93 | 21.3 |
| 31                       | T1 | All MCs | 1    | 0.0  | 1    | 0.0  | * 0.236 | 50.0 | LOS D | 1.2  | 9.2   | 0.98 | 0.71 | 0.98 | 7.1  |
| 32                       | R2 | All MCs | 24   | 8.7  | 24   | 8.7  | 0.236   | 54.7 | LOS D | 1.2  | 9.2   | 0.98 | 0.71 | 0.98 | 22.1 |
| Approach                 |    |         | 68   | 7.7  | 68   | 7.7  | 0.236   | 44.5 | LOS D | 1.7  | 12.4  | 0.95 | 0.92 | 0.95 | 21.5 |
| All Vehicles             |    |         | 1653 | 6.5  | 1653 | 6.5  | 0.530   | 14.9 | LOS B | 16.3 | 118.1 | 0.55 | 0.49 | 0.55 | 37.6 |

### 2030 Baseline - PM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|-------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | 95% Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.            | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    | v/c       | sec         |                  | veh               | m      |            |                |                            | km/h        |
| SouthEast: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 21                           | L2   | All MCs   | 81           | 3.9  | 81            | 3.9  | 0.285     | 24.5        | LOS C            | 6.0               | 43.5   | 0.71       | 0.66           | 0.71                       | 20.4        |
| 22                           | T1   | All MCs   | 607          | 5.1  | 607           | 5.1  | 0.622     | 32.4        | LOS C            | 15.7              | 115.0  | 0.82       | 0.73           | 0.82                       | 31.9        |
| 23                           | R2   | All MCs   | 1            | 0.0  | 1             | 0.0  | 0.008     | 59.2        | LOS E            | 0.0               | 0.3    | 0.95       | 0.58           | 0.95                       | 7.7         |
| Approach                     |      |           | 689          | 4.9  | 689           | 4.9  | 0.622     | 31.5        | LOS C            | 15.7              | 115.0  | 0.81       | 0.72           | 0.81                       | 26.3        |
| NorthEast: Service Lane      |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 24                           | L2   | All MCs   | 2            | 0.0  | 2             | 0.0  | 0.128     | 52.5        | LOS D            | 0.2               | 1.7    | 1.00       | 0.63           | 1.00                       | 20.7        |
| 25                           | T1   | All MCs   | 1            | 0.0  | 1             | 0.0  | * 0.128   | 50.0        | LOS D            | 0.2               | 1.7    | 1.00       | 0.63           | 1.00                       | 7.4         |
| 26                           | R2   | All MCs   | 2            | 0.0  | 2             | 0.0  | 0.128     | 52.1        | LOS D            | 0.2               | 1.7    | 1.00       | 0.63           | 1.00                       | 18.6        |
| Approach                     |      |           | 5            | 0.0  | 5             | 0.0  | 0.128     | 51.9        | LOS D            | 0.2               | 1.7    | 1.00       | 0.63           | 1.00                       | 17.9        |
| NorthWest: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 27                           | L2   | All MCs   | 5            | 20.0 | 5             | 20.0 | 0.261     | 14.2        | LOS B            | 5.9               | 42.1   | 0.50       | 0.44           | 0.50                       | 20.5        |



|                          |    |         |      |     |      |     |         |      |       |      |       |      |      |      |      |
|--------------------------|----|---------|------|-----|------|-----|---------|------|-------|------|-------|------|------|------|------|
| 28                       | T1 | All MCs | 1086 | 2.4 | 1086 | 2.4 | * 0.754 | 17.2 | LOS B | 23.7 | 168.9 | 0.71 | 0.64 | 0.71 | 42.5 |
| 29                       | R2 | All MCs | 166  | 0.6 | 166  | 0.6 | * 0.456 | 30.0 | LOS C | 4.3  | 30.0  | 0.93 | 1.04 | 0.93 | 19.8 |
| Approach                 |    |         | 1258 | 2.2 | 1258 | 2.2 | 0.754   | 18.9 | LOS B | 23.7 | 168.9 | 0.74 | 0.69 | 0.74 | 36.4 |
| SouthWest: Lambert Court |    |         |      |     |      |     |         |      |       |      |       |      |      |      |      |
| 30                       | L2 | All MCs | 126  | 1.7 | 126  | 1.7 | 0.194   | 19.9 | LOS B | 3.1  | 21.8  | 0.74 | 1.14 | 0.74 | 26.8 |
| 31                       | T1 | All MCs | 1    | 0.0 | 1    | 0.0 | * 0.272 | 43.3 | LOS D | 1.4  | 10.5  | 0.98 | 0.72 | 0.98 | 7.9  |
| 32                       | R2 | All MCs | 33   | 6.5 | 33   | 6.5 | 0.272   | 48.0 | LOS D | 1.4  | 10.5  | 0.98 | 0.72 | 0.98 | 23.7 |
| Approach                 |    |         | 160  | 2.6 | 160  | 2.6 | 0.272   | 25.8 | LOS C | 3.1  | 21.8  | 0.79 | 1.05 | 0.79 | 25.9 |
| All Vehicles             |    |         | 2113 | 3.1 | 2113 | 3.1 | 0.754   | 23.6 | LOS C | 23.7 | 168.9 | 0.76 | 0.73 | 0.76 | 32.8 |

### ITA Scenario 1A - AM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|-------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | 95% Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.            | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    | v/c       | sec         |                  | veh               | m      |            |                |                            | km/h        |
| SouthEast: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 21                           | L2   | All MCs   | 67           | 4.7  | 67            | 4.7  | 0.247     | 13.3        | LOS B            | 5.7               | 41.3   | 0.45       | 0.46           | 0.45                       | 29.4        |
| 22                           | T1   | All MCs   | 886          | 3.9  | 886           | 3.9  | * 0.538   | 14.4        | LOS B            | 16.3              | 117.6  | 0.55       | 0.51           | 0.55                       | 40.0        |
| 23                           | R2   | All MCs   | 1            | 0.0  | 1             | 0.0  | 0.009     | 56.7        | LOS E            | 0.0               | 0.3    | 0.95       | 0.59           | 0.95                       | 7.0         |
| Approach                     |      |           | 955          | 4.0  | 955           | 4.0  | 0.538     | 14.4        | LOS B            | 16.3              | 117.6  | 0.55       | 0.51           | 0.55                       | 35.8        |
| NorthEast: Service Lane      |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 24                           | L2   | All MCs   | 5            | 0.0  | 5             | 0.0  | 0.199     | 58.0        | LOS E            | 0.4               | 2.7    | 1.00       | 0.65           | 1.00                       | 19.4        |
| 25                           | T1   | All MCs   | 1            | 0.0  | 1             | 0.0  | * 0.199   | 56.0        | LOS E            | 0.4               | 2.7    | 1.00       | 0.65           | 1.00                       | 6.6         |
| 26                           | R2   | All MCs   | 1            | 0.0  | 1             | 0.0  | 0.199     | 58.1        | LOS E            | 0.4               | 2.7    | 1.00       | 0.65           | 1.00                       | 17.3        |
| Approach                     |      |           | 7            | 0.0  | 7             | 0.0  | 0.199     | 57.7        | LOS E            | 0.4               | 2.7    | 1.00       | 0.65           | 1.00                       | 17.8        |
| NorthWest: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 27                           | L2   | All MCs   | 2            | 0.0  | 2             | 0.0  | 0.122     | 11.5        | LOS B            | 2.5               | 19.3   | 0.41       | 0.34           | 0.41                       | 20.9        |
| 28                           | T1   | All MCs   | 561          | 10.7 | 561           | 10.7 | 0.353     | 8.0         | LOS A            | 8.8               | 66.9   | 0.47       | 0.41           | 0.47                       | 44.7        |
| 29                           | R2   | All MCs   | 60           | 7.0  | 60            | 7.0  | * 0.538   | 54.5        | LOS D            | 2.9               | 21.5   | 1.00       | 0.77           | 1.03                       | 20.3        |
| Approach                     |      |           | 623          | 10.3 | 623           | 10.3 | 0.538     | 12.5        | LOS B            | 8.8               | 66.9   | 0.53       | 0.45           | 0.53                       | 41.7        |
| SouthWest: Lambert Court     |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 30                           | L2   | All MCs   | 62           | 7.0  | 62            | 7.0  | 0.265     | 37.7        | LOS D            | 2.4               | 17.5   | 0.94       | 1.03           | 0.94                       | 21.4        |
| 31                           | T1   | All MCs   | 1            | 0.0  | 1             | 0.0  | * 0.308   | 48.7        | LOS D            | 1.6               | 12.1   | 0.99       | 0.72           | 0.99                       | 7.2         |

|              |    |         |      |      |      |      |       |      |       |      |       |      |      |      |      |
|--------------|----|---------|------|------|------|------|-------|------|-------|------|-------|------|------|------|------|
| 32           | R2 | All MCs | 33   | 10.0 | 33   | 10.0 | 0.308 | 53.4 | LOS D | 1.6  | 12.1  | 0.99 | 0.72 | 0.99 | 22.4 |
| Approach     |    |         | 96   | 8.0  | 96   | 8.0  | 0.308 | 43.2 | LOS D | 2.4  | 17.5  | 0.96 | 0.92 | 0.96 | 21.7 |
| All Vehicles |    |         | 1681 | 6.5  | 1681 | 6.5  | 0.538 | 15.5 | LOS B | 16.3 | 117.6 | 0.57 | 0.51 | 0.57 | 37.2 |

### ITA Scenario 1A - PM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|-------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | 95% Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.            | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    | v/c       | sec         |                  | veh               | m      |            |                |                            | km/h        |
| SouthEast: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 21                           | L2   | All MCs   | 82           | 3.8  | 82            | 3.8  | 0.287     | 24.7        | LOS C            | 6.0               | 43.7   | 0.72       | 0.66           | 0.72                       | 20.3        |
| 22                           | T1   | All MCs   | 607          | 5.0  | 607           | 5.0  | 0.626     | 32.6        | LOS C            | 15.8              | 115.5  | 0.82       | 0.73           | 0.82                       | 31.8        |
| 23                           | R2   | All MCs   | 1            | 0.0  | 1             | 0.0  | 0.008     | 59.3        | LOS E            | 0.0               | 0.3    | 0.95       | 0.58           | 0.95                       | 7.7         |
| Approach                     |      |           | 691          | 4.9  | 691           | 4.9  | 0.626     | 31.7        | LOS C            | 15.8              | 115.5  | 0.81       | 0.72           | 0.81                       | 26.2        |
| NorthEast: Service Lane      |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 24                           | L2   | All MCs   | 2            | 0.0  | 2             | 0.0  | 0.128     | 52.5        | LOS D            | 0.2               | 1.7    | 1.00       | 0.63           | 1.00                       | 20.7        |
| 25                           | T1   | All MCs   | 1            | 0.0  | 1             | 0.0  | * 0.128   | 50.0        | LOS D            | 0.2               | 1.7    | 1.00       | 0.63           | 1.00                       | 7.4         |
| 26                           | R2   | All MCs   | 2            | 0.0  | 2             | 0.0  | 0.128     | 52.1        | LOS D            | 0.2               | 1.7    | 1.00       | 0.63           | 1.00                       | 18.6        |
| Approach                     |      |           | 5            | 0.0  | 5             | 0.0  | 0.128     | 51.9        | LOS D            | 0.2               | 1.7    | 1.00       | 0.63           | 1.00                       | 17.9        |
| NorthWest: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 27                           | L2   | All MCs   | 5            | 20.0 | 5             | 20.0 | 0.262     | 14.2        | LOS B            | 5.9               | 42.2   | 0.50       | 0.44           | 0.50                       | 20.5        |
| 28                           | T1   | All MCs   | 1086         | 2.4  | 1086          | 2.4  | * 0.756   | 17.2        | LOS B            | 23.7              | 169.2  | 0.71       | 0.64           | 0.71                       | 42.5        |
| 29                           | R2   | All MCs   | 169          | 0.6  | 169           | 0.6  | * 0.461   | 29.9        | LOS C            | 4.3               | 30.5   | 0.93       | 1.04           | 0.93                       | 19.9        |
| Approach                     |      |           | 1261         | 2.3  | 1261          | 2.3  | 0.756     | 18.9        | LOS B            | 23.7              | 169.2  | 0.74       | 0.69           | 0.74                       | 36.4        |
| SouthWest: Lambert Court     |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 30                           | L2   | All MCs   | 131          | 1.6  | 131           | 1.6  | 0.200     | 19.9        | LOS B            | 3.2               | 22.5   | 0.74       | 1.14           | 0.74                       | 26.8        |
| 31                           | T1   | All MCs   | 1            | 0.0  | 1             | 0.0  | * 0.280   | 43.4        | LOS D            | 1.5               | 10.8   | 0.98       | 0.72           | 0.98                       | 7.9         |
| 32                           | R2   | All MCs   | 34           | 6.2  | 34            | 6.2  | 0.280     | 48.1        | LOS D            | 1.5               | 10.8   | 0.98       | 0.72           | 0.98                       | 23.7        |
| Approach                     |      |           | 165          | 2.5  | 165           | 2.5  | 0.280     | 25.8        | LOS C            | 3.2               | 22.5   | 0.79       | 1.05           | 0.79                       | 25.9        |
| All Vehicles                 |      |           | 2122         | 3.1  | 2122          | 3.1  | 0.756     | 23.7        | LOS C            | 23.7              | 169.2  | 0.77       | 0.73           | 0.77                       | 32.8        |

## ITA Scenario 1B - AM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|-------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | 95% Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.            | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    | v/c       | sec         |                  | veh               | m      |            |                |                            | km/h        |
| SouthEast: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 21                           | L2   | All MCs   | 67           | 4.7  | 67            | 4.7  | 0.248     | 13.4        | LOS B            | 5.7               | 41.3   | 0.46       | 0.46           | 0.46                       | 29.3        |
| 22                           | T1   | All MCs   | 886          | 3.9  | 886           | 3.9  | * 0.541   | 14.6        | LOS B            | 16.3              | 117.7  | 0.56       | 0.52           | 0.56                       | 39.9        |
| 23                           | R2   | All MCs   | 1            | 0.0  | 1             | 0.0  | 0.009     | 56.2        | LOS E            | 0.0               | 0.3    | 0.95       | 0.59           | 0.95                       | 7.1         |
| Approach                     |      |           | 955          | 4.0  | 955           | 4.0  | 0.541     | 14.6        | LOS B            | 16.3              | 117.7  | 0.55       | 0.52           | 0.55                       | 35.6        |
| NorthEast: Service Lane      |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 24                           | L2   | All MCs   | 5            | 0.0  | 5             | 0.0  | 0.196     | 57.4        | LOS E            | 0.4               | 2.6    | 1.00       | 0.65           | 1.00                       | 19.5        |
| 25                           | T1   | All MCs   | 1            | 0.0  | 1             | 0.0  | * 0.196   | 55.3        | LOS E            | 0.4               | 2.6    | 1.00       | 0.65           | 1.00                       | 6.7         |
| 26                           | R2   | All MCs   | 1            | 0.0  | 1             | 0.0  | 0.196     | 57.5        | LOS E            | 0.4               | 2.6    | 1.00       | 0.65           | 1.00                       | 17.4        |
| Approach                     |      |           | 7            | 0.0  | 7             | 0.0  | 0.196     | 57.1        | LOS E            | 0.4               | 2.6    | 1.00       | 0.65           | 1.00                       | 17.9        |
| NorthWest: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 27                           | L2   | All MCs   | 2            | 0.0  | 2             | 0.0  | 0.123     | 11.5        | LOS B            | 2.5               | 19.3   | 0.42       | 0.35           | 0.42                       | 20.9        |
| 28                           | T1   | All MCs   | 561          | 10.7 | 561           | 10.7 | 0.356     | 8.1         | LOS A            | 8.8               | 67.0   | 0.48       | 0.42           | 0.48                       | 44.6        |
| 29                           | R2   | All MCs   | 61           | 6.9  | 61            | 6.9  | * 0.541   | 53.9        | LOS D            | 2.9               | 21.7   | 1.00       | 0.77           | 1.04                       | 20.4        |
| Approach                     |      |           | 624          | 10.3 | 624           | 10.3 | 0.541     | 12.6        | LOS B            | 8.8               | 67.0   | 0.53       | 0.45           | 0.53                       | 41.7        |
| SouthWest: Lambert Court     |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 30                           | L2   | All MCs   | 80           | 6.8  | 80            | 6.8  | 0.337     | 37.6        | LOS D            | 3.0               | 22.4   | 0.95       | 1.03           | 0.95                       | 21.5        |
| 31                           | T1   | All MCs   | 1            | 0.0  | 1             | 0.0  | * 0.367   | 48.4        | LOS D            | 1.9               | 14.4   | 0.99       | 0.73           | 0.99                       | 7.3         |
| 32                           | R2   | All MCs   | 40           | 8.1  | 40            | 8.1  | 0.367     | 53.1        | LOS D            | 1.9               | 14.4   | 0.99       | 0.73           | 0.99                       | 22.5        |
| Approach                     |      |           | 121          | 7.2  | 121           | 7.2  | 0.367     | 42.8        | LOS D            | 3.0               | 22.4   | 0.97       | 0.93           | 0.97                       | 21.7        |
| All Vehicles                 |      |           | 1707         | 6.5  | 1707          | 6.5  | 0.541     | 16.0        | LOS B            | 16.3              | 117.7  | 0.58       | 0.52           | 0.58                       | 36.8        |

## ITA Scenario 1B - PM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|-------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | 95% Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.            | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    | v/c       | sec         |                  | veh               | m      |            |                |                            | km/h        |
| SouthEast: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 21                           | L2   | All MCs   | 84           | 3.8  | 84            | 3.8  | 0.289     | 25.0        | LOS C            | 6.0               | 43.9   | 0.72       | 0.66           | 0.72                       | 20.2        |
| 22                           | T1   | All MCs   | 607          | 5.0  | 607           | 5.0  | 0.630     | 32.9        | LOS C            | 15.9              | 116.2  | 0.83       | 0.73           | 0.83                       | 31.8        |
| 23                           | R2   | All MCs   | 1            | 0.0  | 1             | 0.0  | 0.008     | 59.4        | LOS E            | 0.0               | 0.3    | 0.95       | 0.58           | 0.95                       | 7.7         |
| Approach                     |      |           | 693          | 4.9  | 693           | 4.9  | 0.630     | 32.0        | LOS C            | 15.9              | 116.2  | 0.81       | 0.72           | 0.81                       | 26.0        |
| NorthEast: Service Lane      |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 24                           | L2   | All MCs   | 2            | 0.0  | 2             | 0.0  | 0.128     | 52.5        | LOS D            | 0.2               | 1.7    | 1.00       | 0.63           | 1.00                       | 20.7        |
| 25                           | T1   | All MCs   | 1            | 0.0  | 1             | 0.0  | * 0.128   | 50.0        | LOS D            | 0.2               | 1.7    | 1.00       | 0.63           | 1.00                       | 7.4         |
| 26                           | R2   | All MCs   | 2            | 0.0  | 2             | 0.0  | 0.128     | 52.1        | LOS D            | 0.2               | 1.7    | 1.00       | 0.63           | 1.00                       | 18.6        |
| Approach                     |      |           | 5            | 0.0  | 5             | 0.0  | 0.128     | 51.9        | LOS D            | 0.2               | 1.7    | 1.00       | 0.63           | 1.00                       | 17.9        |
| NorthWest: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 27                           | L2   | All MCs   | 5            | 20.0 | 5             | 20.0 | 0.262     | 14.2        | LOS B            | 5.9               | 42.3   | 0.50       | 0.44           | 0.50                       | 20.5        |
| 28                           | T1   | All MCs   | 1086         | 2.4  | 1086          | 2.4  | * 0.757   | 17.2        | LOS B            | 23.7              | 169.3  | 0.71       | 0.64           | 0.71                       | 42.5        |
| 29                           | R2   | All MCs   | 173          | 0.6  | 173           | 0.6  | * 0.466   | 29.9        | LOS C            | 4.4               | 31.1   | 0.93       | 1.04           | 0.93                       | 19.9        |
| Approach                     |      |           | 1264         | 2.2  | 1264          | 2.2  | 0.757     | 18.9        | LOS B            | 23.7              | 169.3  | 0.74       | 0.69           | 0.74                       | 36.3        |
| SouthWest: Lambert Court     |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 30                           | L2   | All MCs   | 137          | 1.6  | 137           | 1.6  | 0.209     | 19.9        | LOS B            | 3.3               | 23.6   | 0.74       | 1.13           | 0.74                       | 26.8        |
| 31                           | T1   | All MCs   | 1            | 0.0  | 1             | 0.0  | * 0.297   | 43.4        | LOS D            | 1.6               | 11.5   | 0.98       | 0.73           | 0.98                       | 7.9         |
| 32                           | R2   | All MCs   | 36           | 5.9  | 36            | 5.9  | 0.297     | 48.2        | LOS D            | 1.6               | 11.5   | 0.98       | 0.73           | 0.98                       | 23.7        |
| Approach                     |      |           | 174          | 2.4  | 174           | 2.4  | 0.297     | 25.8        | LOS C            | 3.3               | 23.6   | 0.80       | 1.05           | 0.80                       | 25.9        |
| All Vehicles                 |      |           | 2136         | 3.1  | 2136          | 3.1  | 0.757     | 23.8        | LOS C            | 23.7              | 169.3  | 0.77       | 0.73           | 0.77                       | 32.7        |

## ITA Scenario 1C - AM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|-------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | 95% Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.            | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    | v/c       | sec         |                  | veh               | m      |            |                |                            | km/h        |
| SouthEast: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 21                           | L2   | All MCs   | 67           | 4.7  | 67            | 4.7  | 0.250     | 13.5        | LOS B            | 5.7               | 41.4   | 0.46       | 0.47           | 0.46                       | 29.2        |
| 22                           | T1   | All MCs   | 886          | 3.9  | 886           | 3.9  | * 0.545   | 14.8        | LOS B            | 16.3              | 117.7  | 0.57       | 0.52           | 0.57                       | 39.8        |
| 23                           | R2   | All MCs   | 1            | 0.0  | 1             | 0.0  | 0.009     | 55.7        | LOS E            | 0.0               | 0.3    | 0.95       | 0.59           | 0.95                       | 7.2         |
| Approach                     |      |           | 955          | 4.0  | 955           | 4.0  | 0.545     | 14.7        | LOS B            | 16.3              | 117.7  | 0.56       | 0.52           | 0.56                       | 35.5        |
| NorthEast: Service Lane      |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 24                           | L2   | All MCs   | 5            | 0.0  | 5             | 0.0  | 0.194     | 56.8        | LOS E            | 0.4               | 2.6    | 1.00       | 0.65           | 1.00                       | 19.6        |
| 25                           | T1   | All MCs   | 1            | 0.0  | 1             | 0.0  | * 0.194   | 54.7        | LOS D            | 0.4               | 2.6    | 1.00       | 0.65           | 1.00                       | 6.8         |
| 26                           | R2   | All MCs   | 1            | 0.0  | 1             | 0.0  | 0.194     | 56.9        | LOS E            | 0.4               | 2.6    | 1.00       | 0.65           | 1.00                       | 17.5        |
| Approach                     |      |           | 7            | 0.0  | 7             | 0.0  | 0.194     | 56.5        | LOS E            | 0.4               | 2.6    | 1.00       | 0.65           | 1.00                       | 18.0        |
| NorthWest: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 27                           | L2   | All MCs   | 2            | 0.0  | 2             | 0.0  | 0.124     | 11.6        | LOS B            | 2.5               | 19.3   | 0.42       | 0.35           | 0.42                       | 20.9        |
| 28                           | T1   | All MCs   | 561          | 10.7 | 561           | 10.7 | 0.358     | 8.2         | LOS A            | 8.8               | 67.0   | 0.49       | 0.42           | 0.49                       | 44.6        |
| 29                           | R2   | All MCs   | 62           | 6.8  | 62            | 6.8  | * 0.545   | 53.4        | LOS D            | 2.9               | 21.8   | 1.00       | 0.77           | 1.04                       | 20.5        |
| Approach                     |      |           | 625          | 10.3 | 625           | 10.3 | 0.545     | 12.7        | LOS B            | 8.8               | 67.0   | 0.54       | 0.46           | 0.54                       | 41.6        |
| SouthWest: Lambert Court     |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 30                           | L2   | All MCs   | 102          | 7.6  | 102           | 7.6  | 0.428     | 37.6        | LOS D            | 3.9               | 28.9   | 0.96       | 1.02           | 0.96                       | 21.5        |
| 31                           | T1   | All MCs   | 1            | 0.0  | 1             | 0.0  | * 0.450   | 48.3        | LOS D            | 2.4               | 17.8   | 1.00       | 0.74           | 1.00                       | 7.3         |
| 32                           | R2   | All MCs   | 49           | 8.9  | 49            | 8.9  | 0.450     | 52.9        | LOS D            | 2.4               | 17.8   | 1.00       | 0.74           | 1.00                       | 22.5        |
| Approach                     |      |           | 153          | 8.0  | 153           | 8.0  | 0.450     | 42.6        | LOS D            | 3.9               | 28.9   | 0.98       | 0.93           | 0.98                       | 21.8        |
| All Vehicles                 |      |           | 1740         | 6.6  | 1740          | 6.6  | 0.545     | 16.6        | LOS B            | 16.3              | 117.7  | 0.59       | 0.53           | 0.59                       | 36.3        |

## ITA Scenario 1C - PM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|-------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | 95% Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.            | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    | v/c       | sec         |                  | veh               | m      |            |                |                            | km/h        |
| SouthEast: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 21                           | L2   | All MCs   | 87           | 3.7  | 87            | 3.7  | 0.291     | 25.2        | LOS C            | 6.1               | 44.2   | 0.72       | 0.66           | 0.72                       | 20.1        |
| 22                           | T1   | All MCs   | 607          | 5.0  | 607           | 5.0  | 0.634     | 33.2        | LOS C            | 16.0              | 117.1  | 0.83       | 0.74           | 0.83                       | 31.7        |
| 23                           | R2   | All MCs   | 1            | 0.0  | 1             | 0.0  | 0.008     | 59.5        | LOS E            | 0.0               | 0.3    | 0.95       | 0.58           | 0.95                       | 7.7         |
| Approach                     |      |           | 696          | 4.8  | 696           | 4.8  | 0.634     | 32.2        | LOS C            | 16.0              | 117.1  | 0.82       | 0.73           | 0.82                       | 25.9        |
| NorthEast: Service Lane      |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 24                           | L2   | All MCs   | 2            | 0.0  | 2             | 0.0  | 0.128     | 52.6        | LOS D            | 0.2               | 1.7    | 1.00       | 0.63           | 1.00                       | 20.7        |
| 25                           | T1   | All MCs   | 1            | 0.0  | 1             | 0.0  | * 0.128   | 50.0        | LOS D            | 0.2               | 1.7    | 1.00       | 0.63           | 1.00                       | 7.4         |
| 26                           | R2   | All MCs   | 2            | 0.0  | 2             | 0.0  | 0.128     | 52.1        | LOS D            | 0.2               | 1.7    | 1.00       | 0.63           | 1.00                       | 18.6        |
| Approach                     |      |           | 5            | 0.0  | 5             | 0.0  | 0.128     | 51.9        | LOS D            | 0.2               | 1.7    | 1.00       | 0.63           | 1.00                       | 17.9        |
| NorthWest: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 27                           | L2   | All MCs   | 5            | 20.0 | 5             | 20.0 | 0.263     | 14.2        | LOS B            | 5.9               | 42.4   | 0.50       | 0.44           | 0.50                       | 20.5        |
| 28                           | T1   | All MCs   | 1086         | 2.4  | 1086          | 2.4  | * 0.758   | 17.2        | LOS B            | 23.7              | 169.4  | 0.71       | 0.64           | 0.71                       | 42.5        |
| 29                           | R2   | All MCs   | 176          | 0.6  | 176           | 0.6  | * 0.473   | 29.9        | LOS C            | 4.5               | 31.6   | 0.93       | 1.04           | 0.93                       | 19.8        |
| Approach                     |      |           | 1267         | 2.2  | 1267          | 2.2  | 0.758     | 19.0        | LOS B            | 23.7              | 169.4  | 0.74       | 0.69           | 0.74                       | 36.3        |
| SouthWest: Lambert Court     |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 30                           | L2   | All MCs   | 142          | 1.5  | 142           | 1.5  | 0.216     | 19.9        | LOS B            | 3.5               | 24.5   | 0.75       | 1.13           | 0.75                       | 26.8        |
| 31                           | T1   | All MCs   | 1            | 0.0  | 1             | 0.0  | * 0.322   | 43.6        | LOS D            | 1.7               | 12.5   | 0.99       | 0.73           | 0.99                       | 7.9         |
| 32                           | R2   | All MCs   | 39           | 5.6  | 39            | 5.6  | 0.322     | 48.3        | LOS D            | 1.7               | 12.5   | 0.99       | 0.73           | 0.99                       | 23.6        |
| Approach                     |      |           | 182          | 2.4  | 182           | 2.4  | 0.322     | 26.1        | LOS C            | 3.5               | 24.5   | 0.80       | 1.05           | 0.80                       | 25.9        |
| All Vehicles                 |      |           | 2151         | 3.1  | 2151          | 3.1  | 0.758     | 23.9        | LOS C            | 23.7              | 169.4  | 0.77       | 0.73           | 0.77                       | 32.5        |

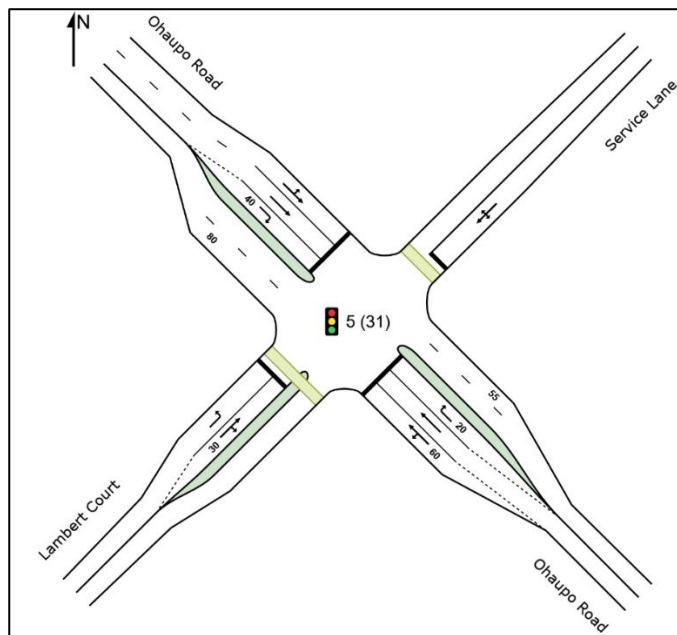


Figure: Proposed Ohaupo Rd / Lambert Ct Signalised Intersection Layout – Scenario 1D and 1E

### ITA Scenario 1D - AM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|-------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | 95% Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.            | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    | v/c       | sec         |                  | veh               | m      |            |                |                            | km/h        |
| SouthEast: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 21                           | L2   | All MCs   | 67           | 4.7  | 67            | 4.7  | 0.255     | 13.7        | LOS B            | 5.7               | 41.4   | 0.48       | 0.48           | 0.48                       | 28.9        |
| 22                           | T1   | All MCs   | 886          | 3.9  | 886           | 3.9  | * 0.555   | 15.3        | LOS B            | 16.3              | 117.9  | 0.59       | 0.54           | 0.59                       | 39.5        |
| 23                           | R2   | All MCs   | 1            | 0.0  | 1             | 0.0  | 0.008     | 54.3        | LOS D            | 0.0               | 0.3    | 0.95       | 0.58           | 0.95                       | 7.4         |
| Approach                     |      |           | 955          | 4.0  | 955           | 4.0  | 0.555     | 15.2        | LOS B            | 16.3              | 117.9  | 0.58       | 0.54           | 0.58                       | 35.2        |
| NorthEast: Service Lane      |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 24                           | L2   | All MCs   | 5            | 0.0  | 5             | 0.0  | 0.188     | 54.9        | LOS D            | 0.4               | 2.5    | 1.00       | 0.65           | 1.00                       | 20.0        |
| 25                           | T1   | All MCs   | 1            | 0.0  | 1             | 0.0  | * 0.188   | 52.9        | LOS D            | 0.4               | 2.5    | 1.00       | 0.65           | 1.00                       | 7.0         |
| 26                           | R2   | All MCs   | 1            | 0.0  | 1             | 0.0  | 0.188     | 55.0        | LOS E            | 0.4               | 2.5    | 1.00       | 0.65           | 1.00                       | 17.9        |

|                          |    |         |      |      |      |      |         |      |       |      |       |      |      |      |      |
|--------------------------|----|---------|------|------|------|------|---------|------|-------|------|-------|------|------|------|------|
| Approach                 |    |         | 7    | 0.0  | 7    | 0.0  | 0.188   | 54.6 | LOS D | 0.4  | 2.5   | 1.00 | 0.65 | 1.00 | 18.4 |
| NorthWest: Ohaupo Road   |    |         |      |      |      |      |         |      |       |      |       |      |      |      |      |
| 27                       | L2 | All MCs | 2    | 0.0  | 2    | 0.0  | 0.126   | 11.8 | LOS B | 2.5  | 19.4  | 0.43 | 0.36 | 0.43 | 20.8 |
| 28                       | T1 | All MCs | 561  | 10.7 | 561  | 10.7 | 0.365   | 8.4  | LOS A | 8.8  | 67.1  | 0.50 | 0.44 | 0.50 | 44.4 |
| 29                       | R2 | All MCs | 65   | 6.6  | 65   | 6.6  | * 0.554 | 51.8 | LOS D | 3.0  | 22.1  | 1.00 | 0.78 | 1.05 | 20.9 |
| Approach                 |    |         | 628  | 10.2 | 628  | 10.2 | 0.554   | 13.0 | LOS B | 8.8  | 67.1  | 0.55 | 0.47 | 0.56 | 41.4 |
| SouthWest: Lambert Court |    |         |      |      |      |      |         |      |       |      |       |      |      |      |      |
| 30                       | L2 | All MCs | 125  | 2.7  | 125  | 2.7  | 0.492   | 36.2 | LOS D | 4.6  | 32.9  | 0.97 | 1.01 | 0.97 | 21.8 |
| 31                       | T1 | All MCs | 1    | 0.0  | 1    | 0.0  | * 0.508 | 46.7 | LOS D | 2.8  | 20.0  | 1.00 | 0.76 | 1.01 | 7.5  |
| 32                       | R2 | All MCs | 60   | 3.7  | 60   | 3.7  | 0.508   | 51.4 | LOS D | 2.8  | 20.0  | 1.00 | 0.76 | 1.01 | 22.9 |
| Approach                 |    |         | 186  | 3.0  | 186  | 3.0  | 0.508   | 41.2 | LOS D | 4.6  | 32.9  | 0.98 | 0.93 | 0.98 | 22.1 |
| All Vehicles             |    |         | 1777 | 6.1  | 1777 | 6.1  | 0.555   | 17.3 | LOS B | 16.3 | 117.9 | 0.61 | 0.56 | 0.62 | 35.8 |

### ITA Scenario 1D - PM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|-------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | 95% Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.            | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    | v/c       | sec         |                  | veh               | m      |            |                |                            | km/h        |
| SouthEast: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 21                           | L2   | All MCs   | 88           | 3.6  | 88            | 3.6  | 0.229     | 18.3        | LOS B            | 5.5               | 39.6   | 0.59       | 0.59           | 0.59                       | 23.2        |
| 22                           | T1   | All MCs   | 607          | 5.0  | 607           | 5.0  | 0.499     | 23.8        | LOS C            | 14.4              | 105.0  | 0.68       | 0.62           | 0.68                       | 35.1        |
| 23                           | R2   | All MCs   | 1            | 0.0  | 1             | 0.0  | * 0.009   | 60.3        | LOS E            | 0.0               | 0.3    | 0.95       | 0.59           | 0.95                       | 7.0         |
| Approach                     |      |           | 697          | 4.8  | 697           | 4.8  | 0.499     | 23.1        | LOS C            | 14.4              | 105.0  | 0.67       | 0.61           | 0.67                       | 30.0        |
| NorthEast: Service Lane      |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 24                           | L2   | All MCs   | 2            | 0.0  | 2             | 0.0  | 0.141     | 58.1        | LOS E            | 0.3               | 1.9    | 1.00       | 0.63           | 1.00                       | 19.5        |
| 25                           | T1   | All MCs   | 1            | 0.0  | 1             | 0.0  | * 0.141   | 55.5        | LOS E            | 0.3               | 1.9    | 1.00       | 0.63           | 1.00                       | 6.8         |
| 26                           | R2   | All MCs   | 2            | 0.0  | 2             | 0.0  | 0.141     | 57.6        | LOS E            | 0.3               | 1.9    | 1.00       | 0.63           | 1.00                       | 17.4        |
| Approach                     |      |           | 5            | 0.0  | 5             | 0.0  | 0.141     | 57.4        | LOS E            | 0.3               | 1.9    | 1.00       | 0.63           | 1.00                       | 16.7        |
| NorthWest: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 27                           | L2   | All MCs   | 5            | 20.0 | 5             | 20.0 | 0.248     | 12.3        | LOS B            | 5.9               | 42.3   | 0.45       | 0.40           | 0.45                       | 20.7        |
| 28                           | T1   | All MCs   | 1086         | 2.4  | 1086          | 2.4  | * 0.715   | 15.3        | LOS B            | 23.6              | 168.7  | 0.64       | 0.58           | 0.64                       | 43.1        |
| 29                           | R2   | All MCs   | 179          | 0.6  | 179           | 0.6  | 0.499     | 47.7        | LOS D            | 7.5               | 52.7   | 0.94       | 0.80           | 0.94                       | 23.5        |
| Approach                     |      |           | 1271         | 2.2  | 1271          | 2.2  | 0.715     | 19.9        | LOS B            | 23.6              | 168.7  | 0.68       | 0.61           | 0.68                       | 37.9        |



|                          |    |         |      |     |      |     |         |      |       |      |       |      |      |      |      |
|--------------------------|----|---------|------|-----|------|-----|---------|------|-------|------|-------|------|------|------|------|
| SouthWest: Lambert Court |    |         |      |     |      |     |         |      |       |      |       |      |      |      |      |
| 30                       | L2 | All MCs | 148  | 1.4 | 148  | 1.4 | 0.299   | 27.8 | LOS C | 4.7  | 33.6  | 0.85 | 1.08 | 0.85 | 25.2 |
| 31                       | T1 | All MCs | 1    | 0.0 | 1    | 0.0 | * 0.365 | 48.9 | LOS D | 1.9  | 14.2  | 0.99 | 0.73 | 0.99 | 7.2  |
| 32                       | R2 | All MCs | 40   | 5.4 | 40   | 5.4 | 0.365   | 53.6 | LOS D | 1.9  | 14.2  | 0.99 | 0.73 | 0.99 | 22.4 |
| Approach                 |    |         | 189  | 2.3 | 189  | 2.3 | 0.365   | 33.3 | LOS C | 4.7  | 33.6  | 0.88 | 1.01 | 0.88 | 24.4 |
| All Vehicles             |    |         | 2162 | 3.1 | 2162 | 3.1 | 0.715   | 22.2 | LOS C | 23.6 | 168.7 | 0.70 | 0.65 | 0.70 | 34.6 |

### ITA Scenario 1E - AM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|-------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | 95% Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.            | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    | v/c       | sec         |                  | veh               | m      |            |                |                            | km/h        |
| SouthEast: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 21                           | L2   | All MCs   | 67           | 4.7  | 67            | 4.7  | 0.256     | 13.9        | LOS B            | 5.7               | 41.4   | 0.48       | 0.48           | 0.48                       | 28.8        |
| 22                           | T1   | All MCs   | 886          | 3.9  | 886           | 3.9  | * 0.559   | 15.5        | LOS B            | 16.3              | 117.9  | 0.59       | 0.55           | 0.59                       | 39.4        |
| 23                           | R2   | All MCs   | 1            | 0.0  | 1             | 0.0  | 0.008     | 53.8        | LOS D            | 0.0               | 0.3    | 0.95       | 0.58           | 0.95                       | 7.4         |
| Approach                     |      |           | 955          | 4.0  | 955           | 4.0  | 0.559     | 15.4        | LOS B            | 16.3              | 117.9  | 0.58       | 0.54           | 0.58                       | 35.1        |
| NorthEast: Service Lane      |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 24                           | L2   | All MCs   | 5            | 0.0  | 5             | 0.0  | 0.186     | 54.3        | LOS D            | 0.4               | 2.5    | 1.00       | 0.65           | 1.00                       | 20.1        |
| 25                           | T1   | All MCs   | 1            | 0.0  | 1             | 0.0  | * 0.186   | 52.2        | LOS D            | 0.4               | 2.5    | 1.00       | 0.65           | 1.00                       | 7.0         |
| 26                           | R2   | All MCs   | 1            | 0.0  | 1             | 0.0  | 0.186     | 54.4        | LOS D            | 0.4               | 2.5    | 1.00       | 0.65           | 1.00                       | 18.0        |
| Approach                     |      |           | 7            | 0.0  | 7             | 0.0  | 0.186     | 54.0        | LOS D            | 0.4               | 2.5    | 1.00       | 0.65           | 1.00                       | 18.5        |
| NorthWest: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 27                           | L2   | All MCs   | 2            | 0.0  | 2             | 0.0  | 0.127     | 11.9        | LOS B            | 2.5               | 19.4   | 0.44       | 0.37           | 0.44                       | 20.8        |
| 28                           | T1   | All MCs   | 561          | 10.7 | 561           | 10.7 | 0.367     | 8.5         | LOS A            | 8.8               | 67.1   | 0.51       | 0.44           | 0.51                       | 44.4        |
| 29                           | R2   | All MCs   | 66           | 6.5  | 66            | 6.5  | * 0.556   | 51.2        | LOS D            | 3.0               | 22.2   | 1.00       | 0.78           | 1.05                       | 21.0        |
| Approach                     |      |           | 629          | 10.2 | 629           | 10.2 | 0.556     | 13.0        | LOS B            | 8.8               | 67.1   | 0.56       | 0.48           | 0.56                       | 41.4        |
| SouthWest: Lambert Court     |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 30                           | L2   | All MCs   | 140          | 2.4  | 140           | 2.4  | 0.543     | 36.0        | LOS D            | 5.1               | 36.5   | 0.98       | 1.01           | 0.98                       | 21.9        |
| 31                           | T1   | All MCs   | 1            | 0.0  | 1             | 0.0  | * 0.553   | 46.5        | LOS D            | 3.0               | 21.9   | 1.00       | 0.78           | 1.04                       | 7.5         |
| 32                           | R2   | All MCs   | 66           | 3.4  | 66            | 3.4  | 0.553     | 51.1        | LOS D            | 3.0               | 21.9   | 1.00       | 0.78           | 1.04                       | 22.9        |
| Approach                     |      |           | 207          | 2.7  | 207           | 2.7  | 0.553     | 40.9        | LOS D            | 5.1               | 36.5   | 0.99       | 0.94           | 1.00                       | 22.2        |
| All Vehicles                 |      |           | 1799         | 6.0  | 1799          | 6.0  | 0.559     | 17.7        | LOS B            | 16.3              | 117.9  | 0.62       | 0.56           | 0.63                       | 35.5        |



## ITA Scenario 1E - PM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|-------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | 95% Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.            | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    | v/c       | sec         |                  | veh               | m      |            |                |                            | km/h        |
| SouthEast: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 21                           | L2   | All MCs   | 91           | 3.5  | 91            | 3.5  | 0.292     | 25.8        | LOS C            | 6.2               | 45.0   | 0.72       | 0.67           | 0.72                       | 20.0        |
| 22                           | T1   | All MCs   | 607          | 5.0  | 607           | 5.0  | 0.638     | 33.9        | LOS C            | 16.3              | 119.3  | 0.83       | 0.74           | 0.83                       | 31.5        |
| 23                           | R2   | All MCs   | 1            | 0.0  | 1             | 0.0  | 0.008     | 60.4        | LOS E            | 0.0               | 0.3    | 0.95       | 0.58           | 0.95                       | 7.6         |
| Approach                     |      |           | 699          | 4.8  | 699           | 4.8  | 0.638     | 32.9        | LOS C            | 16.3              | 119.3  | 0.82       | 0.73           | 0.82                       | 25.6        |
| NorthEast: Service Lane      |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 24                           | L2   | All MCs   | 2            | 0.0  | 2             | 0.0  | 0.129     | 53.2        | LOS D            | 0.2               | 1.7    | 1.00       | 0.63           | 1.00                       | 20.6        |
| 25                           | T1   | All MCs   | 1            | 0.0  | 1             | 0.0  | * 0.129   | 50.6        | LOS D            | 0.2               | 1.7    | 1.00       | 0.63           | 1.00                       | 7.3         |
| 26                           | R2   | All MCs   | 2            | 0.0  | 2             | 0.0  | 0.129     | 52.7        | LOS D            | 0.2               | 1.7    | 1.00       | 0.63           | 1.00                       | 18.4        |
| Approach                     |      |           | 5            | 0.0  | 5             | 0.0  | 0.129     | 52.5        | LOS D            | 0.2               | 1.7    | 1.00       | 0.63           | 1.00                       | 17.7        |
| NorthWest: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 27                           | L2   | All MCs   | 5            | 20.0 | 5             | 20.0 | 0.261     | 13.0        | LOS B            | 5.9               | 42.5   | 0.50       | 0.43           | 0.50                       | 20.5        |
| 28                           | T1   | All MCs   | 1086         | 2.4  | 1086          | 2.4  | * 0.754   | 16.8        | LOS B            | 23.7              | 169.6  | 0.70       | 0.63           | 0.70                       | 42.5        |
| 29                           | R2   | All MCs   | 181          | 0.6  | 181           | 0.6  | * 0.475   | 29.8        | LOS C            | 4.7               | 32.9   | 0.93       | 1.04           | 0.93                       | 19.8        |
| Approach                     |      |           | 1273         | 2.2  | 1273          | 2.2  | 0.754     | 18.6        | LOS B            | 23.7              | 169.6  | 0.73       | 0.69           | 0.73                       | 36.4        |
| SouthWest: Lambert Court     |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 30                           | L2   | All MCs   | 153          | 1.4  | 153           | 1.4  | 0.230     | 20.0        | LOS C            | 3.8               | 26.7   | 0.75       | 1.13           | 0.75                       | 26.7        |
| 31                           | T1   | All MCs   | 1            | 0.0  | 1             | 0.0  | * 0.350   | 44.3        | LOS D            | 1.9               | 13.6   | 0.99       | 0.73           | 0.99                       | 7.8         |
| 32                           | R2   | All MCs   | 42           | 5.1  | 42            | 5.1  | 0.350     | 49.0        | LOS D            | 1.9               | 13.6   | 0.99       | 0.73           | 0.99                       | 23.5        |
| Approach                     |      |           | 196          | 2.2  | 196           | 2.2  | 0.350     | 26.4        | LOS C            | 3.8               | 26.7   | 0.80       | 1.05           | 0.80                       | 25.8        |
| All Vehicles                 |      |           | 2173         | 3.1  | 2173          | 3.1  | 0.754     | 24.0        | LOS C            | 23.7              | 169.6  | 0.77       | 0.74           | 0.77                       | 32.4        |

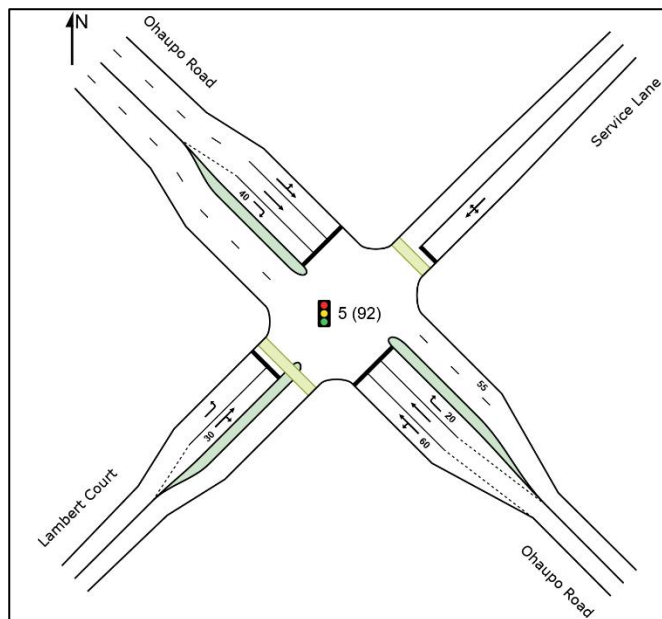


Figure: Proposed Ohaupo Rd / Lambert Ct Signalised Intersection Layout – Scenarios 2 to 5

### ITA Scenario 2 - AM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|---------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | Aver. Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.              | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    | v/c       | sec         |                  | veh                 | m      |            |                |                            | km/h        |
| SouthEast: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 21                           | L2   | All MCs   | 16           | 4.7  | 16            | 4.7  | 0.597     | 22.5        | LOS C            | 8.3                 | 59.7   | 0.88       | 0.76           | 0.88                       | 30.8        |
| 22                           | T1   | All MCs   | 986          | 3.9  | 986           | 3.9  | * 0.597   | 22.5        | LOS C            | 8.3                 | 59.8   | 0.88       | 0.76           | 0.88                       | 29.1        |
| 23                           | R2   | All MCs   | 1            | 0.0  | 1             | 0.0  | 0.006     | 39.7        | LOS D            | 0.0                 | 0.1    | 0.80       | 0.58           | 0.80                       | 22.4        |
| Approach                     |      |           | 1003         | 3.9  | 1003          | 3.9  | 0.597     | 22.5        | LOS C            | 8.3                 | 59.8   | 0.88       | 0.76           | 0.88                       | 26.3        |
| NorthEast: Service Lane      |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 24                           | L2   | All MCs   | 5            | 0.0  | 5             | 0.0  | 0.139     | 40.8        | LOS D            | 0.2                 | 1.1    | 1.00       | 0.64           | 1.00                       | 1.9         |
| 25                           | T1   | All MCs   | 1            | 0.0  | 1             | 0.0  | * 0.139   | 38.6        | LOS D            | 0.2                 | 1.1    | 1.00       | 0.64           | 1.00                       | 9.0         |
| 26                           | R2   | All MCs   | 1            | 0.0  | 1             | 0.0  | 0.139     | 40.7        | LOS D            | 0.2                 | 1.1    | 1.00       | 0.64           | 1.00                       | 1.9         |
| Approach                     |      |           | 7            | 0.0  | 7             | 0.0  | 0.139     | 40.5        | LOS D            | 0.2                 | 1.1    | 1.00       | 0.64           | 1.00                       | 3.1         |

|                          |    |         |      |      |      |      |         |      |       |     |      |      |      |      |      |
|--------------------------|----|---------|------|------|------|------|---------|------|-------|-----|------|------|------|------|------|
| NorthWest: Ohaupo Road   |    |         |      |      |      |      |         |      |       |     |      |      |      |      |      |
| 27                       | L2 | All MCs | 2    | 0.0  | 2    | 0.0  | 0.188   | 15.7 | LOS B | 1.9 | 14.3 | 0.62 | 0.51 | 0.62 | 23.5 |
| 28                       | T1 | All MCs | 618  | 10.8 | 615  | 10.8 | 0.542   | 14.2 | LOS B | 6.5 | 49.7 | 0.73 | 0.63 | 0.73 | 35.2 |
| 29                       | R2 | All MCs | 87   | 7.1  | 87   | 7.2  | 0.434   | 37.5 | LOS D | 1.7 | 12.7 | 0.97 | 0.76 | 0.97 | 25.2 |
| Approach                 |    |         | 707  | 10.3 | 704  | 10.3 | 0.542   | 17.1 | LOS B | 6.5 | 49.7 | 0.76 | 0.64 | 0.76 | 32.4 |
| SouthWest: Lambert Court |    |         |      |      |      |      |         |      |       |     |      |      |      |      |      |
| 30                       | L2 | All MCs | 252  | 7.3  | 252  | 7.3  | * 0.597 | 22.2 | LOS C | 3.7 | 27.8 | 0.94 | 0.80 | 0.94 | 13.7 |
| 31                       | T1 | All MCs | 1    | 0.0  | 1    | 0.0  | 0.535   | 32.0 | LOS C | 2.1 | 16.0 | 0.99 | 0.78 | 1.00 | 9.9  |
| 32                       | R2 | All MCs | 105  | 8.7  | 105  | 8.7  | 0.535   | 36.6 | LOS D | 2.1 | 16.0 | 0.99 | 0.78 | 1.00 | 9.6  |
| Approach                 |    |         | 358  | 7.7  | 358  | 7.7  | 0.597   | 26.5 | LOS C | 3.7 | 27.8 | 0.96 | 0.80 | 0.96 | 12.1 |
| All Vehicles             |    |         | 2076 | 6.7  | 2073 | 6.7  | 0.597   | 21.4 | LOS C | 8.3 | 59.8 | 0.85 | 0.73 | 0.85 | 26.6 |

## ITA Scenario 2 - PM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|---------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | Aver. Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.              | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    | v/c       | sec         |                  | veh                 | m      |            |                |                            | km/h        |
| SouthEast: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 21                           | L2   | All MCs   | 28           | 3.9  | 28            | 3.9  | 0.441     | 22.9        | LOS C            | 7.7                 | 56.4   | 0.90       | 0.63           | 0.90                       | 30.4        |
| 22                           | T1   | All MCs   | 823          | 5.1  | 823           | 5.1  | 0.441     | 22.7        | LOS C            | 7.7                 | 56.5   | 0.90       | 0.63           | 0.90                       | 28.7        |
| 23                           | R2   | All MCs   | 1            | 0.0  | 1             | 0.0  | 0.007     | 40.2        | LOS D            | 0.0                 | 0.1    | 0.76       | 0.57           | 0.76                       | 22.0        |
| Approach                     |      |           | 853          | 5.0  | 853           | 5.0  | 0.441     | 22.7        | LOS C            | 7.7                 | 56.5   | 0.90       | 0.63           | 0.90                       | 26.3        |
| NorthEast: Service Lane      |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 24                           | L2   | All MCs   | 2            | 0.0  | 2             | 0.0  | 0.108     | 45.2        | LOS D            | 0.1                 | 0.9    | 1.00       | 0.63           | 1.00                       | 1.9         |
| 25                           | T1   | All MCs   | 1            | 0.0  | 1             | 0.0  | * 0.108   | 42.0        | LOS D            | 0.1                 | 0.9    | 1.00       | 0.63           | 1.00                       | 8.5         |
| 26                           | R2   | All MCs   | 2            | 0.0  | 2             | 0.0  | 0.108     | 44.0        | LOS D            | 0.1                 | 0.9    | 1.00       | 0.63           | 1.00                       | 1.9         |
| Approach                     |      |           | 5            | 0.0  | 5             | 0.0  | 0.108     | 44.1        | LOS D            | 0.1                 | 0.9    | 1.00       | 0.63           | 1.00                       | 3.4         |
| NorthWest: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 27                           | L2   | All MCs   | 5            | 20.0 | 5             | 20.0 | 0.320     | 15.7        | LOS B            | 4.0                 | 28.5   | 0.62       | 0.54           | 0.62                       | 23.5        |
| 28                           | T1   | All MCs   | 1178         | 2.4  | 1178          | 2.4  | * 0.924   | 36.9        | LOS D            | 23.8                | 169.7  | 0.90       | 1.00           | 1.13                       | 25.8        |
| 29                           | R2   | All MCs   | 79           | 0.6  | 79            | 0.6  | * 0.521   | 51.8        | LOS D            | 1.8                 | 12.5   | 1.00       | 0.77           | 1.02                       | 23.6        |
| Approach                     |      |           | 1262         | 2.3  | 1262          | 2.3  | 0.924     | 37.7        | LOS D            | 23.8                | 169.7  | 0.90       | 0.98           | 1.12                       | 22.8        |
| SouthWest: Lambert Court     |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 30                           | L2   | All MCs   | 171          | 1.7  | 171           | 1.7  | 0.478     | 25.8        | LOS C            | 2.8                 | 20.2   | 0.94       | 0.78           | 0.94                       | 12.2        |

|              |    |         |      |     |      |     |         |      |       |      |       |      |      |      |      |
|--------------|----|---------|------|-----|------|-----|---------|------|-------|------|-------|------|------|------|------|
| 31           | T1 | All MCs | 1    | 0.0 | 1    | 0.0 | * 0.924 | 49.5 | LOS D | 4.6  | 34.1  | 1.00 | 1.12 | 1.68 | 7.1  |
| 32           | R2 | All MCs | 167  | 6.5 | 167  | 6.5 | 0.924   | 54.2 | LOS D | 4.6  | 34.1  | 1.00 | 1.12 | 1.68 | 6.9  |
| Approach     |    |         | 339  | 4.0 | 339  | 4.0 | 0.924   | 39.9 | LOS D | 4.6  | 34.1  | 0.97 | 0.95 | 1.31 | 8.8  |
| All Vehicles |    |         | 2459 | 3.5 | 2459 | 3.5 | 0.924   | 32.8 | LOS C | 23.8 | 169.7 | 0.91 | 0.85 | 1.07 | 22.1 |

### ITA Scenario 3 - AM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|---------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | Aver. Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.              | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    | v/c       | sec         |                  | veh                 | m      |            |                |                            | km/h        |
| SouthEast: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 21                           | L2   | All MCs   | 16           | 4.7  | 16            | 4.7  | 0.443     | 25.2        | LOS C            | 5.9                 | 42.5   | 0.87       | 0.74           | 0.87                       | 29.2        |
| 22                           | T1   | All MCs   | 644          | 3.9  | 644           | 3.9  | * 0.443   | 25.0        | LOS C            | 5.9                 | 42.5   | 0.87       | 0.74           | 0.87                       | 27.3        |
| 23                           | R2   | All MCs   | 1            | 0.0  | 1             | 0.0  | 0.007     | 37.1        | LOS D            | 0.0                 | 0.1    | 0.67       | 0.57           | 0.67                       | 23.3        |
| Approach                     |      |           | 661          | 3.9  | 661           | 3.9  | 0.443     | 25.0        | LOS C            | 5.9                 | 42.5   | 0.87       | 0.74           | 0.87                       | 25.0        |
| NorthEast: Service Lane      |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 24                           | L2   | All MCs   | 5            | 0.0  | 5             | 0.0  | 0.152     | 44.4        | LOS D            | 0.2                 | 1.2    | 1.00       | 0.64           | 1.00                       | 1.8         |
| 25                           | T1   | All MCs   | 1            | 0.0  | 1             | 0.0  | * 0.152   | 42.3        | LOS D            | 0.2                 | 1.2    | 1.00       | 0.64           | 1.00                       | 8.3         |
| 26                           | R2   | All MCs   | 1            | 0.0  | 1             | 0.0  | 0.152     | 44.4        | LOS D            | 0.2                 | 1.2    | 1.00       | 0.64           | 1.00                       | 1.8         |
| Approach                     |      |           | 7            | 0.0  | 7             | 0.0  | 0.152     | 44.1        | LOS D            | 0.2                 | 1.2    | 1.00       | 0.64           | 1.00                       | 2.8         |
| NorthWest: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 27                           | L2   | All MCs   | 2            | 0.0  | 2             | 0.0  | 0.113     | 16.6        | LOS B            | 1.2                 | 8.9    | 0.60       | 0.49           | 0.60                       | 23.1        |
| 28                           | T1   | All MCs   | 365          | 10.8 | 365           | 10.8 | 0.326     | 13.2        | LOS B            | 3.8                 | 28.8   | 0.66       | 0.55           | 0.66                       | 35.0        |
| 29                           | R2   | All MCs   | 82           | 7.1  | 82            | 7.1  | 0.324     | 35.8        | LOS D            | 1.7                 | 12.4   | 0.94       | 0.76           | 0.94                       | 25.3        |
| Approach                     |      |           | 449          | 10.1 | 449           | 10.1 | 0.326     | 17.4        | LOS B            | 3.8                 | 28.8   | 0.71       | 0.59           | 0.71                       | 32.2        |
| SouthWest: Lambert Court     |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 30                           | L2   | All MCs   | 246          | 7.3  | 246           | 7.3  | * 0.439   | 19.7        | LOS B            | 3.5                 | 26.0   | 0.85       | 0.78           | 0.85                       | 14.9        |
| 31                           | T1   | All MCs   | 1            | 0.0  | 1             | 0.0  | * 0.443   | 30.8        | LOS C            | 2.5                 | 18.9   | 0.95       | 0.78           | 0.95                       | 10.2        |
| 32                           | R2   | All MCs   | 122          | 8.7  | 122           | 8.7  | 0.443     | 35.4        | LOS D            | 2.5                 | 18.9   | 0.95       | 0.78           | 0.95                       | 9.8         |
| Approach                     |      |           | 369          | 7.8  | 369           | 7.8  | 0.443     | 25.0        | LOS C            | 3.5                 | 26.0   | 0.88       | 0.78           | 0.88                       | 12.7        |
| All Vehicles                 |      |           | 1487         | 6.7  | 1487          | 6.7  | 0.443     | 22.8        | LOS C            | 5.9                 | 42.5   | 0.83       | 0.70           | 0.83                       | 25.1        |

### ITA Scenario 3 - PM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|---------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | Aver. Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.              | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    | v/c       | sec         |                  | veh                 | m      |            |                |                            | km/h        |
| SouthEast: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 21                           | L2   | All MCs   | 26           | 3.9  | 26            | 3.9  | 0.409     | 10.3        | LOS B            | 1.8                 | 13.1   | 0.42       | 0.38           | 0.42                       | 39.8        |
| 22                           | T1   | All MCs   | 527          | 5.1  | 527           | 5.1  | 0.409     | 5.8         | LOS A            | 1.8                 | 13.2   | 0.42       | 0.36           | 0.42                       | 40.4        |
| 23                           | R2   | All MCs   | 1            | 0.0  | 1             | 0.0  | 0.005     | 30.3        | LOS C            | 0.0                 | 0.1    | 0.98       | 0.59           | 0.98                       | 22.5        |
| Approach                     |      |           | 555          | 5.0  | 555           | 5.0  | 0.409     | 6.0         | LOS A            | 1.8                 | 13.2   | 0.42       | 0.37           | 0.42                       | 40.3        |
| NorthEast: Service Lane      |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 24                           | L2   | All MCs   | 2            | 0.0  | 2             | 0.0  | 0.081     | 33.2        | LOS C            | 0.1                 | 0.7    | 0.99       | 0.63           | 0.99                       | 2.5         |
| 25                           | T1   | All MCs   | 1            | 0.0  | 1             | 0.0  | * 0.081   | 31.0        | LOS C            | 0.1                 | 0.7    | 0.99       | 0.63           | 0.99                       | 10.8        |
| 26                           | R2   | All MCs   | 2            | 0.0  | 2             | 0.0  | 0.081     | 33.0        | LOS C            | 0.1                 | 0.7    | 0.99       | 0.63           | 0.99                       | 2.5         |
| Approach                     |      |           | 5            | 0.0  | 5             | 0.0  | 0.081     | 32.7        | LOS C            | 0.1                 | 0.7    | 0.99       | 0.63           | 0.99                       | 4.4         |
| NorthWest: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 27                           | L2   | All MCs   | 5            | 20.0 | 5             | 20.0 | 0.266     | 18.2        | LOS B            | 2.2                 | 15.5   | 0.75       | 0.62           | 0.75                       | 22.6        |
| 28                           | T1   | All MCs   | 701          | 2.4  | 701           | 2.4  | * 0.769   | 20.2        | LOS C            | 8.4                 | 59.7   | 0.89       | 0.84           | 0.99                       | 31.6        |
| 29                           | R2   | All MCs   | 82           | 0.6  | 82            | 0.6  | * 0.406   | 33.4        | LOS C            | 1.3                 | 9.4    | 0.97       | 0.76           | 0.97                       | 27.2        |
| Approach                     |      |           | 788          | 2.3  | 788           | 2.3  | 0.769     | 21.5        | LOS C            | 8.4                 | 59.7   | 0.90       | 0.83           | 0.99                       | 29.7        |
| SouthWest: Lambert Court     |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 30                           | L2   | All MCs   | 172          | 1.7  | 172           | 1.7  | 0.375     | 16.9        | LOS B            | 1.8                 | 13.1   | 0.88       | 0.77           | 0.88                       | 16.5        |
| 31                           | T1   | All MCs   | 1            | 0.0  | 1             | 0.0  | * 0.769   | 29.0        | LOS C            | 3.1                 | 23.1   | 1.00       | 0.94           | 1.30                       | 10.6        |
| 32                           | R2   | All MCs   | 173          | 6.5  | 173           | 6.5  | 0.769     | 33.7        | LOS C            | 3.1                 | 23.1   | 1.00       | 0.94           | 1.30                       | 10.2        |
| Approach                     |      |           | 345          | 4.1  | 345           | 4.1  | 0.769     | 25.3        | LOS C            | 3.1                 | 23.1   | 0.94       | 0.85           | 1.09                       | 12.6        |
| All Vehicles                 |      |           | 1694         | 3.5  | 1694          | 3.5  | 0.769     | 17.3        | LOS B            | 8.4                 | 59.7   | 0.75       | 0.68           | 0.82                       | 29.4        |

## ITA Scenario 4 - AM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|---------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | Aver. Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.              | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    | v/c       | sec         |                  | veh                 | m      |            |                |                            | km/h        |
| SouthEast: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 21                           | L2   | All MCs   | 16           | 4.7  | 16            | 4.7  | 0.608     | 9.7         | LOS A            | 2.7                 | 19.9   | 0.47       | 0.41           | 0.47                       | 40.6        |
| 22                           | T1   | All MCs   | 763          | 3.9  | 763           | 3.9  | * 0.608   | 5.1         | LOS A            | 2.8                 | 19.9   | 0.47       | 0.41           | 0.47                       | 41.4        |
| 23                           | R2   | All MCs   | 1            | 0.0  | 1             | 0.0  | 0.005     | 29.3        | LOS C            | 0.0                 | 0.1    | 0.99       | 0.59           | 0.99                       | 22.9        |
| Approach                     |      |           | 780          | 3.9  | 780           | 3.9  | 0.608     | 5.2         | LOS A            | 2.8                 | 19.9   | 0.47       | 0.41           | 0.47                       | 41.3        |
| NorthEast: Service Lane      |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 24                           | L2   | All MCs   | 5            | 0.0  | 5             | 0.0  | 0.110     | 32.0        | LOS C            | 0.1                 | 0.9    | 0.99       | 0.64           | 0.99                       | 2.4         |
| 25                           | T1   | All MCs   | 1            | 0.0  | 1             | 0.0  | * 0.110   | 30.0        | LOS C            | 0.1                 | 0.9    | 0.99       | 0.64           | 0.99                       | 10.9        |
| 26                           | R2   | All MCs   | 1            | 0.0  | 1             | 0.0  | 0.110     | 32.0        | LOS C            | 0.1                 | 0.9    | 0.99       | 0.64           | 0.99                       | 2.4         |
| Approach                     |      |           | 7            | 0.0  | 7             | 0.0  | 0.110     | 31.7        | LOS C            | 0.1                 | 0.9    | 0.99       | 0.64           | 0.99                       | 3.9         |
| NorthWest: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 27                           | L2   | All MCs   | 2            | 0.0  | 2             | 0.0  | 0.186     | 18.0        | LOS B            | 1.3                 | 9.9    | 0.74       | 0.59           | 0.74                       | 22.7        |
| 28                           | T1   | All MCs   | 453          | 10.8 | <b>446</b>    | 10.8 | 0.536     | 15.0        | LOS B            | 4.3                 | 33.1   | 0.83       | 0.69           | 0.83                       | 33.7        |
| 29                           | R2   | All MCs   | 83           | 7.1  | <b>82</b>     | 7.2  | * 0.409   | 29.6        | LOS C            | 1.3                 | 9.6    | 0.97       | 0.76           | 0.97                       | 27.5        |
| Approach                     |      |           | 538          | 10.2 | <b>530</b>    | 10.2 | 0.536     | 17.3        | LOS B            | 4.3                 | 33.1   | 0.85       | 0.70           | 0.85                       | 32.3        |
| SouthWest: Lambert Court     |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 30                           | L2   | All MCs   | 156          | 7.3  | 156           | 7.3  | 0.345     | 16.0        | LOS B            | 1.6                 | 11.7   | 0.87       | 0.76           | 0.87                       | 17.2        |
| 31                           | T1   | All MCs   | 1            | 0.0  | 1             | 0.0  | * 0.608   | 25.4        | LOS C            | 2.2                 | 16.8   | 0.99       | 0.83           | 1.08                       | 11.6        |
| 32                           | R2   | All MCs   | 137          | 8.7  | 137           | 8.7  | 0.608     | 30.0        | LOS C            | 2.2                 | 16.8   | 0.99       | 0.83           | 1.08                       | 11.2        |
| Approach                     |      |           | 294          | 7.9  | 294           | 7.9  | 0.608     | 22.6        | LOS C            | 2.2                 | 16.8   | 0.92       | 0.79           | 0.97                       | 13.7        |
| All Vehicles                 |      |           | 1619         | 6.7  | <b>1611</b>   | 6.7  | 0.608     | 12.5        | LOS B            | 4.3                 | 33.1   | 0.68       | 0.58           | 0.69                       | 32.9        |

## ITA Scenario 4 - PM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|---------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | Aver. Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.              | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    | v/c       | sec         |                  | veh                 | m      |            |                |                            | km/h        |
| SouthEast: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 21                           | L2   | All MCs   | 25           | 3.9  | 25            | 3.9  | 0.427     | 14.0        | LOS B            | 3.3                 | 24.2   | 0.59       | 0.52           | 0.59                       | 36.5        |
| 22                           | T1   | All MCs   | 629          | 5.1  | 629           | 5.1  | 0.427     | 9.9         | LOS A            | 3.3                 | 24.3   | 0.59       | 0.51           | 0.59                       | 36.1        |
| 23                           | R2   | All MCs   | 1            | 0.0  | 1             | 0.0  | 0.006     | 34.8        | LOS C            | 0.0                 | 0.1    | 1.00       | 0.59           | 1.00                       | 21.2        |
| Approach                     |      |           | 656          | 5.0  | 656           | 5.0  | 0.427     | 10.1        | LOS B            | 3.3                 | 24.3   | 0.59       | 0.51           | 0.59                       | 35.6        |
| NorthEast: Service Lane      |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 24                           | L2   | All MCs   | 2            | 0.0  | 2             | 0.0  | 0.090     | 37.3        | LOS D            | 0.1                 | 0.7    | 0.99       | 0.63           | 0.99                       | 2.3         |
| 25                           | T1   | All MCs   | 1            | 0.0  | 1             | 0.0  | * 0.090   | 34.7        | LOS C            | 0.1                 | 0.7    | 0.99       | 0.63           | 0.99                       | 9.9         |
| 26                           | R2   | All MCs   | 2            | 0.0  | 2             | 0.0  | 0.090     | 36.7        | LOS D            | 0.1                 | 0.7    | 0.99       | 0.63           | 0.99                       | 2.3         |
| Approach                     |      |           | 5            | 0.0  | 5             | 0.0  | 0.090     | 36.5        | LOS D            | 0.1                 | 0.7    | 0.99       | 0.63           | 0.99                       | 4.0         |
| NorthWest: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 27                           | L2   | All MCs   | 5            | 20.0 | 5             | 20.0 | 0.308     | 17.9        | LOS B            | 3.0                 | 21.4   | 0.72       | 0.60           | 0.72                       | 22.8        |
| 28                           | T1   | All MCs   | 907          | 2.4  | 907           | 2.4  | * 0.888   | 30.6        | LOS C            | 14.6                | 104.2  | 0.92       | 0.99           | 1.16                       | 27.7        |
| 29                           | R2   | All MCs   | 66           | 0.6  | 66            | 0.6  | * 0.364   | 41.3        | LOS D            | 1.2                 | 8.5    | 0.97       | 0.75           | 0.97                       | 26.0        |
| Approach                     |      |           | 979          | 2.4  | 979           | 2.4  | 0.888     | 31.3        | LOS C            | 14.6                | 104.2  | 0.93       | 0.98           | 1.14                       | 25.1        |
| SouthWest: Lambert Court     |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 30                           | L2   | All MCs   | 155          | 1.7  | 155           | 1.7  | 0.349     | 18.9        | LOS B            | 1.9                 | 13.5   | 0.88       | 0.76           | 0.88                       | 15.3        |
| 31                           | T1   | All MCs   | 1            | 0.0  | 1             | 0.0  | * 0.888   | 37.9        | LOS D            | 4.6                 | 33.7   | 1.00       | 1.09           | 1.58                       | 8.7         |
| 32                           | R2   | All MCs   | 205          | 6.5  | 205           | 6.5  | 0.888     | 42.6        | LOS D            | 4.6                 | 33.7   | 1.00       | 1.09           | 1.58                       | 8.5         |
| Approach                     |      |           | 361          | 4.4  | 361           | 4.4  | 0.888     | 32.5        | LOS C            | 4.6                 | 33.7   | 0.95       | 0.95           | 1.28                       | 10.4        |
| All Vehicles                 |      |           | 2001         | 3.6  | 2001          | 3.6  | 0.888     | 24.6        | LOS C            | 14.6                | 104.2  | 0.82       | 0.82           | 0.99                       | 25.3        |

## ITA Scenario 5 - AM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|---------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | Aver. Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.              | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    | v/c       | sec         |                  | veh                 | m      |            |                |                            | km/h        |
| SouthEast: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 21                           | L2   | All MCs   | 15           | 4.7  | 15            | 4.7  | 0.618     | 22.8        | LOS C            | 5.4                 | 38.8   | 0.96       | 0.82           | 0.96                       | 21.3        |
| 22                           | T1   | All MCs   | 755          | 3.9  | 755           | 3.9  | * 0.618   | 21.3        | LOS C            | 5.4                 | 38.8   | 0.96       | 0.82           | 0.96                       | 15.3        |
| 23                           | R2   | All MCs   | 1            | 0.0  | 1             | 0.0  | 0.005     | 25.0        | LOS C            | 0.0                 | 0.1    | 0.60       | 0.56           | 0.60                       | 15.0        |
| Approach                     |      |           | 771          | 3.9  | 771           | 3.9  | 0.618     | 21.4        | LOS C            | 5.4                 | 38.8   | 0.96       | 0.82           | 0.96                       | 13.8        |
| NorthEast: Service Lane      |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 24                           | L2   | All MCs   | 5            | 0.0  | 5             | 0.0  | 0.106     | 30.7        | LOS C            | 0.1                 | 0.9    | 0.99       | 0.64           | 0.99                       | 2.5         |
| 25                           | T1   | All MCs   | 1            | 0.0  | 1             | 0.0  | * 0.106   | 28.7        | LOS C            | 0.1                 | 0.9    | 0.99       | 0.64           | 0.99                       | 11.2        |
| 26                           | R2   | All MCs   | 1            | 0.0  | 1             | 0.0  | 0.106     | 30.8        | LOS C            | 0.1                 | 0.9    | 0.99       | 0.64           | 0.99                       | 2.5         |
| Approach                     |      |           | 7            | 0.0  | 7             | 0.0  | 0.106     | 30.5        | LOS C            | 0.1                 | 0.9    | 0.99       | 0.64           | 0.99                       | 4.0         |
| NorthWest: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 27                           | L2   | All MCs   | 2            | 0.0  | 2             | 0.0  | 0.140     | 17.6        | LOS B            | 0.9                 | 7.0    | 0.74       | 0.58           | 0.74                       | 19.3        |
| 28                           | T1   | All MCs   | 331          | 10.8 | 327           | 10.8 | 0.405     | 14.2        | LOS B            | 2.9                 | 22.4   | 0.80       | 0.66           | 0.80                       | 34.3        |
| 29                           | R2   | All MCs   | 78           | 7.1  | 77            | 7.2  | 0.369     | 28.3        | LOS C            | 1.2                 | 8.6    | 0.96       | 0.75           | 0.96                       | 28.0        |
| Approach                     |      |           | 411          | 10.0 | 406           | 10.1 | 0.405     | 16.9        | LOS B            | 2.9                 | 22.4   | 0.83       | 0.67           | 0.83                       | 32.5        |
| SouthWest: Lambert Court     |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 30                           | L2   | All MCs   | 235          | 7.3  | 235           | 7.3  | * 0.535   | 16.3        | LOS B            | 2.4                 | 17.9   | 0.92       | 0.79           | 0.92                       | 17.0        |
| 31                           | T1   | All MCs   | 1            | 0.0  | 1             | 0.0  | 0.428     | 24.0        | LOS C            | 1.3                 | 10.1   | 0.97       | 0.76           | 0.97                       | 12.0        |
| 32                           | R2   | All MCs   | 87           | 8.7  | 87            | 8.7  | 0.428     | 28.6        | LOS C            | 1.3                 | 10.1   | 0.97       | 0.76           | 0.97                       | 11.6        |
| Approach                     |      |           | 323          | 7.7  | 323           | 7.7  | 0.535     | 19.7        | LOS B            | 2.4                 | 17.9   | 0.93       | 0.78           | 0.93                       | 15.0        |
| All Vehicles                 |      |           | 1512         | 6.4  | 1507          | 6.4  | 0.618     | 19.8        | LOS B            | 5.4                 | 38.8   | 0.92       | 0.77           | 0.92                       | 21.2        |

## ITA Scenario 5 - PM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|---------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | Aver. Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.              | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    | v/c       | sec         |                  | veh                 | m      |            |                |                            | km/h        |
| SouthEast: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 21                           | L2   | All MCs   | 24           | 3.9  | 24            | 3.9  | 0.286     | 23.8        | LOS C            | 6.0                 | 44.0   | 0.91       | 0.55           | 0.91                       | 29.9        |
| 22                           | T1   | All MCs   | 557          | 5.1  | 557           | 5.1  | 0.286     | 23.5        | LOS C            | 6.0                 | 44.1   | 0.91       | 0.55           | 0.91                       | 28.1        |
| 23                           | R2   | All MCs   | 1            | 0.0  | 1             | 0.0  | 0.008     | 52.4        | LOS D            | 0.0                 | 0.2    | 0.96       | 0.59           | 0.96                       | 18.0        |
| Approach                     |      |           | 582          | 5.0  | 582           | 5.0  | 0.286     | 23.5        | LOS C            | 6.0                 | 44.1   | 0.91       | 0.55           | 0.91                       | 25.8        |
| NorthEast: Service Lane      |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 24                           | L2   | All MCs   | 2            | 0.0  | 2             | 0.0  | 0.123     | 51.2        | LOS D            | 0.1                 | 1.0    | 1.00       | 0.63           | 1.00                       | 1.7         |
| 25                           | T1   | All MCs   | 1            | 0.0  | 1             | 0.0  | * 0.123   | 48.2        | LOS D            | 0.1                 | 1.0    | 1.00       | 0.63           | 1.00                       | 7.6         |
| 26                           | R2   | All MCs   | 2            | 0.0  | 2             | 0.0  | 0.123     | 50.2        | LOS D            | 0.1                 | 1.0    | 1.00       | 0.63           | 1.00                       | 1.7         |
| Approach                     |      |           | 5            | 0.0  | 5             | 0.0  | 0.123     | 50.2        | LOS D            | 0.1                 | 1.0    | 1.00       | 0.63           | 1.00                       | 3.0         |
| NorthWest: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 27                           | L2   | All MCs   | 5            | 20.0 | 5             | 20.0 | 0.286     | 15.7        | LOS B            | 4.0                 | 28.3   | 0.58       | 0.50           | 0.58                       | 23.5        |
| 28                           | T1   | All MCs   | 1106         | 2.4  | 1106          | 2.4  | * 0.826   | 25.7        | LOS C            | 18.2                | 130.2  | 0.81       | 0.78           | 0.87                       | 31.4        |
| 29                           | R2   | All MCs   | 81           | 0.6  | 81            | 0.6  | * 0.609   | 57.7        | LOS E            | 2.1                 | 14.9   | 1.00       | 0.80           | 1.09                       | 21.8        |
| Approach                     |      |           | 1193         | 2.3  | 1193          | 2.3  | 0.826     | 27.9        | LOS C            | 18.2                | 130.2  | 0.83       | 0.78           | 0.88                       | 26.6        |
| SouthWest: Lambert Court     |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 30                           | L2   | All MCs   | 169          | 1.7  | 169           | 1.7  | 0.454     | 28.8        | LOS C            | 3.2                 | 22.9   | 0.93       | 0.78           | 0.93                       | 11.2        |
| 31                           | T1   | All MCs   | 1            | 0.0  | 1             | 0.0  | * 0.826   | 44.8        | LOS D            | 4.9                 | 36.0   | 1.00       | 0.97           | 1.31                       | 7.7         |
| 32                           | R2   | All MCs   | 177          | 6.5  | 177           | 6.5  | 0.826     | 49.6        | LOS D            | 4.9                 | 36.0   | 1.00       | 0.97           | 1.31                       | 7.4         |
| Approach                     |      |           | 347          | 4.1  | 347           | 4.1  | 0.826     | 39.4        | LOS D            | 4.9                 | 36.0   | 0.97       | 0.88           | 1.13                       | 8.9         |
| All Vehicles                 |      |           | 2127         | 3.3  | 2127          | 3.3  | 0.826     | 28.6        | LOS C            | 18.2                | 130.2  | 0.87       | 0.73           | 0.93                       | 23.8        |

## Ohaupo Rd / Resthill Cres Intersection

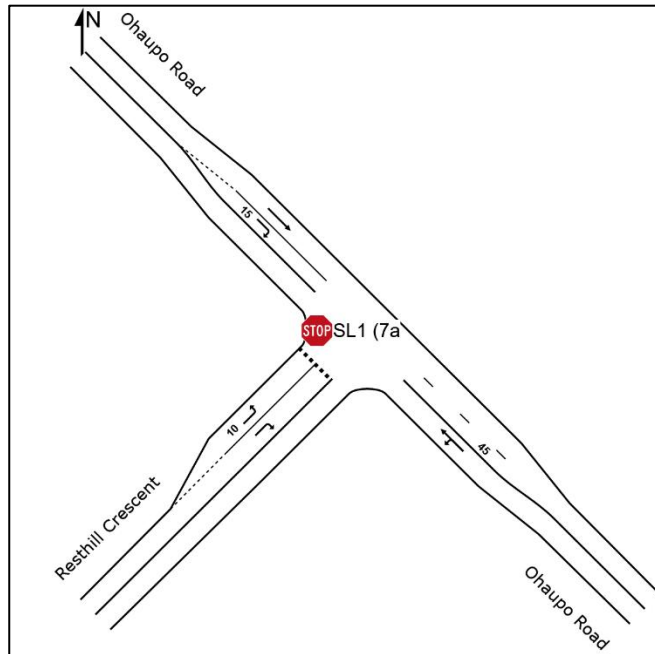


Figure 61: Existing Ohaupo Rd / Resthill Cres Intersection Layout – Scenarios 1A to 1E

### 2030 Baseline - AM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|-------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | 95% Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.            | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    |           |             |                  | veh               | m      |            |                |                            |             |
| SouthEast: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 21                           | L2   | All MCs   | 56           | 6.2  | 56            | 6.2  | 0.541     | 4.8         | LOS A            | 0.0               | 0.0    | 0.00       | 0.03           | 0.00                       | 46.4        |
| 22                           | T1   | All MCs   | 981          | 3.8  | 981           | 3.8  | 0.541     | 0.2         | LOS A            | 0.0               | 0.0    | 0.00       | 0.03           | 0.00                       | 49.3        |
| Approach                     |      |           | 1037         | 3.9  | 1037          | 3.9  | 0.541     | 0.5         | NA               | 0.0               | 0.0    | 0.00       | 0.03           | 0.00                       | 49.1        |
| NorthWest: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 28                           | T1   | All MCs   | 622          | 10.2 | 622           | 10.2 | 0.337     | 0.0         | LOS A            | 0.0               | 0.0    | 0.00       | 0.00           | 0.00                       | 49.8        |

|                              |    |         |      |      |      |      |       |       |       |     |     |      |      |      |      |
|------------------------------|----|---------|------|------|------|------|-------|-------|-------|-----|-----|------|------|------|------|
| 29                           | R2 | All MCs | 26   | 0.0  | 26   | 0.0  | 0.381 | 68.7  | LOS F | 1.2 | 8.2 | 0.95 | 1.02 | 1.11 | 9.4  |
| Approach                     |    |         | 648  | 9.8  | 648  | 9.8  | 0.381 | 2.8   | NA    | 1.2 | 8.2 | 0.04 | 0.04 | 0.04 | 46.1 |
| SouthWest: Resthill Crescent |    |         |      |      |      |      |       |       |       |     |     |      |      |      |      |
| 30                           | L2 | All MCs | 17   | 14.3 | 17   | 14.3 | 0.529 | 140.4 | LOS F | 1.2 | 9.3 | 0.97 | 1.05 | 1.21 | 5.2  |
| 32                           | R2 | All MCs | 29   | 0.0  | 29   | 0.0  | 0.200 | 30.2  | LOS D | 0.6 | 4.1 | 0.92 | 0.98 | 0.96 | 25.5 |
| Approach                     |    |         | 46   | 5.3  | 46   | 5.3  | 0.529 | 71.4  | LOS F | 1.2 | 9.3 | 0.94 | 1.00 | 1.06 | 13.5 |
| All Vehicles                 |    |         | 1732 | 6.2  | 1732 | 6.2  | 0.541 | 3.2   | NA    | 1.2 | 9.3 | 0.04 | 0.06 | 0.04 | 45.6 |

## 2030 Baseline - PM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|-------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | 95% Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.            | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    | v/c       | sec         |                  | veh               | m      |            |                |                            | km/h        |
| SouthEast: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 21                           | L2   | All MCs   | 53           | 0.0  | 53            | 0.0  | 0.410     | 4.7         | LOS A            | 0.0               | 0.0    | 0.00       | 0.04           | 0.00                       | 46.8        |
| 22                           | T1   | All MCs   | 732          | 4.5  | 732           | 4.5  | 0.410     | 0.1         | LOS A            | 0.0               | 0.0    | 0.00       | 0.04           | 0.00                       | 49.3        |
| Approach                     |      |           | 785          | 4.2  | 785           | 4.2  | 0.410     | 0.4         | NA               | 0.0               | 0.0    | 0.00       | 0.04           | 0.00                       | 49.2        |
| NorthWest: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 28                           | T1   | All MCs   | 1079         | 2.2  | 1079          | 2.2  | 0.556     | 0.1         | LOS A            | 0.0               | 0.0    | 0.00       | 0.00           | 0.00                       | 49.6        |
| 29                           | R2   | All MCs   | 27           | 5.3  | 27            | 5.3  | 0.243     | 38.8        | LOS E            | 0.7               | 5.4    | 0.88       | 0.97           | 0.97                       | 14.3        |
| Approach                     |      |           | 1107         | 2.2  | 1107          | 2.2  | 0.556     | 1.1         | NA               | 0.7               | 5.4    | 0.02       | 0.02           | 0.02                       | 48.2        |
| SouthWest: Resthill Crescent |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 30                           | L2   | All MCs   | 46           | 0.0  | 46            | 0.0  | 0.655     | 89.5        | LOS F            | 2.6               | 18.2   | 0.96       | 1.12           | 1.47                       | 7.7         |
| 32                           | R2   | All MCs   | 59           | 2.2  | 59            | 2.2  | 0.450     | 40.4        | LOS E            | 1.4               | 9.6    | 0.95       | 1.04           | 1.17                       | 22.3        |
| Approach                     |      |           | 105          | 1.2  | 105           | 1.2  | 0.655     | 62.1        | LOS F            | 2.6               | 18.2   | 0.95       | 1.07           | 1.31                       | 14.5        |
| All Vehicles                 |      |           | 1997         | 2.9  | 1997          | 2.9  | 0.655     | 4.0         | NA               | 2.6               | 18.2   | 0.06       | 0.08           | 0.08                       | 44.5        |

## ITA Scenario 1A - AM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|-------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | 95% Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.            | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    |           |             |                  | veh               | m      |            |                |                            |             |
| SouthEast: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 21                           | L2   | All MCs   | 59           | 5.9  | 59            | 5.9  | 0.543     | 4.8         | LOS A            | 0.0               | 0.0    | 0.00       | 0.03           | 0.00                       | 46.4        |
| 22                           | T1   | All MCs   | 981          | 3.8  | 981           | 3.8  | 0.543     | 0.2         | LOS A            | 0.0               | 0.0    | 0.00       | 0.03           | 0.00                       | 49.3        |
| Approach                     |      |           | 1041         | 3.9  | 1041          | 3.9  | 0.543     | 0.5         | NA               | 0.0               | 0.0    | 0.00       | 0.03           | 0.00                       | 49.1        |
| NorthWest: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 28                           | T1   | All MCs   | 631          | 10.2 | 631           | 10.2 | 0.342     | 0.0         | LOS A            | 0.0               | 0.0    | 0.00       | 0.00           | 0.00                       | 49.8        |
| 29                           | R2   | All MCs   | 26           | 0.0  | 26            | 0.0  | 0.386     | 70.1        | LOS F            | 1.2               | 8.3    | 0.95       | 1.02           | 1.11                       | 9.3         |
| Approach                     |      |           | 657          | 9.8  | 657           | 9.8  | 0.386     | 2.8         | NA               | 1.2               | 8.3    | 0.04       | 0.04           | 0.04                       | 46.1        |
| SouthWest: Resthill Crescent |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 30                           | L2   | All MCs   | 17           | 14.3 | 17            | 14.3 | 0.529     | 140.4       | LOS F            | 1.2               | 9.3    | 0.97       | 1.05           | 1.21                       | 5.2         |
| 32                           | R2   | All MCs   | 32           | 0.0  | 32            | 0.0  | 0.228     | 31.5        | LOS D            | 0.7               | 4.8    | 0.92       | 0.98           | 0.99                       | 25.0        |
| Approach                     |      |           | 49           | 5.0  | 49            | 5.0  | 0.529     | 69.4        | LOS F            | 1.2               | 9.3    | 0.94       | 1.01           | 1.07                       | 13.9        |
| All Vehicles                 |      |           | 1748         | 6.1  | 1748          | 6.1  | 0.543     | 3.3         | NA               | 1.2               | 9.3    | 0.04       | 0.06           | 0.05                       | 45.4        |

## ITA Scenario 1A - PM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|-------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | 95% Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.            | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    |           |             |                  | veh               | m      |            |                |                            |             |
| SouthEast: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 21                           | L2   | All MCs   | 58           | 0.0  | 58            | 0.0  | 0.414     | 4.7         | LOS A            | 0.0               | 0.0    | 0.00       | 0.04           | 0.00                       | 46.8        |
| 22                           | T1   | All MCs   | 733          | 4.4  | 733           | 4.4  | 0.414     | 0.1         | LOS A            | 0.0               | 0.0    | 0.00       | 0.04           | 0.00                       | 49.3        |
| Approach                     |      |           | 791          | 4.1  | 791           | 4.1  | 0.414     | 0.5         | NA               | 0.0               | 0.0    | 0.00       | 0.04           | 0.00                       | 49.1        |
| NorthWest: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 28                           | T1   | All MCs   | 1081         | 2.2  | 1081          | 2.2  | 0.556     | 0.1         | LOS A            | 0.0               | 0.0    | 0.00       | 0.00           | 0.00                       | 49.6        |
| 29                           | R2   | All MCs   | 27           | 5.3  | 27            | 5.3  | 0.249     | 39.8        | LOS E            | 0.8               | 5.5    | 0.89       | 0.97           | 0.98                       | 14.1        |
| Approach                     |      |           | 1108         | 2.3  | 1108          | 2.3  | 0.556     | 1.1         | NA               | 0.8               | 5.5    | 0.02       | 0.02           | 0.02                       | 48.2        |

|                              |    |         |      |     |      |     |       |      |       |     |      |      |      |      |      |
|------------------------------|----|---------|------|-----|------|-----|-------|------|-------|-----|------|------|------|------|------|
| SouthWest: Resthill Crescent |    |         |      |     |      |     |       |      |       |     |      |      |      |      |      |
| 30                           | L2 | All MCs | 46   | 0.0 | 46   | 0.0 | 0.658 | 90.2 | LOS F | 2.6 | 18.3 | 0.96 | 1.12 | 1.48 | 7.6  |
| 32                           | R2 | All MCs | 60   | 2.2 | 60   | 2.2 | 0.463 | 41.1 | LOS E | 1.4 | 10.0 | 0.95 | 1.04 | 1.19 | 22.1 |
| Approach                     |    |         | 106  | 1.2 | 106  | 1.2 | 0.658 | 62.5 | LOS F | 2.6 | 18.3 | 0.95 | 1.08 | 1.31 | 14.5 |
| All Vehicles                 |    |         | 2006 | 2.9 | 2006 | 2.9 | 0.658 | 4.1  | NA    | 2.6 | 18.3 | 0.06 | 0.09 | 0.08 | 44.4 |

### ITA Scenario 1B - AM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|-------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | 95% Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.            | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    | v/c       | sec         |                  | veh               | m      |            |                |                            | km/h        |
| SouthEast: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 21                           | L2   | All MCs   | 63           | 5.6  | 63            | 5.6  | 0.545     | 4.8         | LOS A            | 0.0               | 0.0    | 0.00       | 0.03           | 0.00                       | 46.4        |
| 22                           | T1   | All MCs   | 981          | 3.8  | 981           | 3.8  | 0.545     | 0.2         | LOS A            | 0.0               | 0.0    | 0.00       | 0.03           | 0.00                       | 49.2        |
| Approach                     |      |           | 1044         | 3.9  | 1044          | 3.9  | 0.545     | 0.5         | NA               | 0.0               | 0.0    | 0.00       | 0.03           | 0.00                       | 49.1        |
| NorthWest: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 28                           | T1   | All MCs   | 639          | 10.2 | 639           | 10.2 | 0.346     | 0.0         | LOS A            | 0.0               | 0.0    | 0.00       | 0.00           | 0.00                       | 49.8        |
| 29                           | R2   | All MCs   | 26           | 0.0  | 26            | 0.0  | 0.393     | 71.4        | LOS F            | 1.2               | 8.4    | 0.96       | 1.02           | 1.12                       | 9.2         |
| Approach                     |      |           | 665          | 9.8  | 665           | 9.8  | 0.393     | 2.8         | NA               | 1.2               | 8.4    | 0.04       | 0.04           | 0.04                       | 46.1        |
| SouthWest: Resthill Crescent |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 30                           | L2   | All MCs   | 17           | 14.3 | 17            | 14.3 | 0.529     | 140.4       | LOS F            | 1.2               | 9.3    | 0.97       | 1.05           | 1.21                       | 5.2         |
| 32                           | R2   | All MCs   | 36           | 0.0  | 36            | 0.0  | 0.256     | 32.8        | LOS D            | 0.8               | 5.4    | 0.93       | 0.99           | 1.01                       | 24.6        |
| Approach                     |      |           | 53           | 4.7  | 53            | 4.7  | 0.529     | 67.8        | LOS F            | 1.2               | 9.3    | 0.94       | 1.01           | 1.08                       | 14.3        |
| All Vehicles                 |      |           | 1762         | 6.1  | 1762          | 6.1  | 0.545     | 3.4         | NA               | 1.2               | 9.3    | 0.04       | 0.06           | 0.05                       | 45.3        |

### ITA Scenario 1B - PM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|-------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | 95% Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.            | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    | v/c       | sec         |                  | veh               | m      |            |                |                            | km/h        |
| SouthEast: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 21                           | L2   | All MCs   | 65           | 0.0  | 65            | 0.0  | 0.418     | 4.7         | LOS A            | 0.0               | 0.0    | 0.00       | 0.04           | 0.00                       | 46.7        |

|                              |    |         |      |     |      |     |       |      |       |     |      |      |      |      |      |
|------------------------------|----|---------|------|-----|------|-----|-------|------|-------|-----|------|------|------|------|------|
| 22                           | T1 | All MCs | 735  | 4.4 | 735  | 4.4 | 0.418 | 0.1  | LOS A | 0.0 | 0.0  | 0.00 | 0.04 | 0.00 | 49.2 |
| Approach                     |    |         | 800  | 4.0 | 800  | 4.0 | 0.418 | 0.5  | NA    | 0.0 | 0.0  | 0.00 | 0.04 | 0.00 | 49.0 |
| NorthWest: Ohaupo Road       |    |         |      |     |      |     |       |      |       |     |      |      |      |      |      |
| 28                           | T1 | All MCs | 1083 | 2.2 | 1083 | 2.2 | 0.557 | 0.1  | LOS A | 0.0 | 0.0  | 0.00 | 0.00 | 0.00 | 49.6 |
| 29                           | R2 | All MCs | 27   | 5.3 | 27   | 5.3 | 0.258 | 41.4 | LOS E | 0.8 | 5.7  | 0.89 | 0.98 | 0.99 | 13.7 |
| Approach                     |    |         | 1110 | 2.3 | 1110 | 2.3 | 0.557 | 1.1  | NA    | 0.8 | 5.7  | 0.02 | 0.02 | 0.02 | 48.1 |
| SouthWest: Resthill Crescent |    |         |      |     |      |     |       |      |       |     |      |      |      |      |      |
| 30                           | L2 | All MCs | 46   | 0.0 | 46   | 0.0 | 0.665 | 91.7 | LOS F | 2.6 | 18.5 | 0.96 | 1.13 | 1.49 | 7.5  |
| 32                           | R2 | All MCs | 63   | 2.1 | 63   | 2.1 | 0.489 | 42.4 | LOS E | 1.5 | 10.6 | 0.95 | 1.05 | 1.21 | 21.7 |
| Approach                     |    |         | 109  | 1.2 | 109  | 1.2 | 0.665 | 63.4 | LOS F | 2.6 | 18.5 | 0.96 | 1.08 | 1.33 | 14.4 |
| All Vehicles                 |    |         | 2019 | 2.9 | 2019 | 2.9 | 0.665 | 4.2  | NA    | 2.6 | 18.5 | 0.06 | 0.09 | 0.09 | 44.3 |

### ITA Scenario 1C - AM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|-------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | 95% Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.            | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    | v/c       | sec         |                  | veh               | m      |            |                |                            | km/h        |
| SouthEast: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 21                           | L2   | All MCs   | 70           | 5.1  | 70            | 5.1  | 0.549     | 4.8         | LOS A            | 0.0               | 0.0    | 0.00       | 0.04           | 0.00                       | 46.4        |
| 22                           | T1   | All MCs   | 981          | 3.8  | 981           | 3.8  | 0.549     | 0.2         | LOS A            | 0.0               | 0.0    | 0.00       | 0.04           | 0.00                       | 49.2        |
| Approach                     |      |           | 1051         | 3.9  | 1051          | 3.9  | 0.549     | 0.5         | NA               | 0.0               | 0.0    | 0.00       | 0.04           | 0.00                       | 49.0        |
| NorthWest: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 28                           | T1   | All MCs   | 649          | 10.2 | 649           | 10.2 | 0.352     | 0.0         | LOS A            | 0.0               | 0.0    | 0.00       | 0.00           | 0.00                       | 49.8        |
| 29                           | R2   | All MCs   | 26           | 0.0  | 26            | 0.0  | 0.405     | 74.3        | LOS F            | 1.2               | 8.7    | 0.96       | 1.02           | 1.12                       | 8.9         |
| Approach                     |      |           | 675          | 9.9  | 675           | 9.9  | 0.405     | 2.9         | NA               | 1.2               | 8.7    | 0.04       | 0.04           | 0.04                       | 46.0        |
| SouthWest: Resthill Crescent |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 30                           | L2   | All MCs   | 17           | 14.3 | 17            | 14.3 | 0.529     | 140.4       | LOS F            | 1.2               | 9.3    | 0.97       | 1.05           | 1.21                       | 5.2         |
| 32                           | R2   | All MCs   | 41           | 0.0  | 41            | 0.0  | 0.301     | 34.8        | LOS D            | 0.9               | 6.5    | 0.93       | 1.00           | 1.05                       | 23.9        |
| Approach                     |      |           | 58           | 4.2  | 58            | 4.2  | 0.529     | 66.2        | LOS F            | 1.2               | 9.3    | 0.94       | 1.02           | 1.10                       | 14.7        |
| All Vehicles                 |      |           | 1785         | 6.1  | 1785          | 6.1  | 0.549     | 3.6         | NA               | 1.2               | 9.3    | 0.04       | 0.07           | 0.05                       | 45.1        |

## ITA Scenario 1C - PM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|-------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | 95% Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.            | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    | v/c       | sec         |                  | veh               | m      |            |                |                            | km/h        |
| SouthEast: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 21                           | L2   | All MCs   | 72           | 0.0  | 72            | 0.0  | 0.424     | 4.7         | LOS A            | 0.0               | 0.0    | 0.00       | 0.05           | 0.00                       | 46.7        |
| 22                           | T1   | All MCs   | 739          | 4.4  | 739           | 4.4  | 0.424     | 0.1         | LOS A            | 0.0               | 0.0    | 0.00       | 0.05           | 0.00                       | 49.2        |
| Approach                     |      |           | 810          | 4.0  | 810           | 4.0  | 0.424     | 0.5         | NA               | 0.0               | 0.0    | 0.00       | 0.05           | 0.00                       | 49.0        |
| NorthWest: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 28                           | T1   | All MCs   | 1086         | 2.2  | 1086          | 2.2  | 0.559     | 0.1         | LOS A            | 0.0               | 0.0    | 0.00       | 0.00           | 0.00                       | 49.6        |
| 29                           | R2   | All MCs   | 27           | 5.3  | 27            | 5.3  | 0.268     | 43.3        | LOS E            | 0.8               | 5.9    | 0.90       | 0.98           | 1.01                       | 13.3        |
| Approach                     |      |           | 1113         | 2.3  | 1113          | 2.3  | 0.559     | 1.2         | NA               | 0.8               | 5.9    | 0.02       | 0.02           | 0.02                       | 48.1        |
| SouthWest: Resthill Crescent |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 30                           | L2   | All MCs   | 46           | 0.0  | 46            | 0.0  | 0.675     | 94.2        | LOS F            | 2.7               | 18.9   | 0.96       | 1.13           | 1.50                       | 7.4         |
| 32                           | R2   | All MCs   | 66           | 2.0  | 66            | 2.0  | 0.528     | 44.6        | LOS E            | 1.6               | 11.7   | 0.96       | 1.06           | 1.25                       | 21.2        |
| Approach                     |      |           | 113          | 1.2  | 113           | 1.2  | 0.675     | 65.0        | LOS F            | 2.7               | 18.9   | 0.96       | 1.09           | 1.36                       | 14.3        |
| All Vehicles                 |      |           | 2036         | 2.9  | 2036          | 2.9  | 0.675     | 4.5         | NA               | 2.7               | 18.9   | 0.07       | 0.09           | 0.09                       | 44.0        |

## ITA Scenario 1D - AM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|-------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | 95% Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.            | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    | v/c       | sec         |                  | veh               | m      |            |                |                            | km/h        |
| SouthEast: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 21                           | L2   | All MCs   | 75           | 4.8  | 75            | 4.8  | 0.552     | 4.8         | LOS A            | 0.0               | 0.0    | 0.00       | 0.04           | 0.00                       | 46.4        |
| 22                           | T1   | All MCs   | 981          | 3.8  | 981           | 3.8  | 0.552     | 0.2         | LOS A            | 0.0               | 0.0    | 0.00       | 0.04           | 0.00                       | 49.2        |
| Approach                     |      |           | 1057         | 3.8  | 1057          | 3.8  | 0.552     | 0.5         | NA               | 0.0               | 0.0    | 0.00       | 0.04           | 0.00                       | 49.0        |
| NorthWest: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 28                           | T1   | All MCs   | 661          | 9.7  | 661           | 9.7  | 0.357     | 0.1         | LOS A            | 0.0               | 0.0    | 0.00       | 0.00           | 0.00                       | 49.8        |
| 29                           | R2   | All MCs   | 26           | 0.0  | 26            | 0.0  | 0.415     | 76.6        | LOS F            | 1.3               | 8.9    | 0.96       | 1.03           | 1.13                       | 8.7         |
| Approach                     |      |           | 687          | 9.4  | 687           | 9.4  | 0.415     | 2.9         | NA               | 1.3               | 8.9    | 0.04       | 0.04           | 0.04                       | 46.0        |

|                              |    |         |      |      |      |      |       |       |       |     |     |      |      |      |      |
|------------------------------|----|---------|------|------|------|------|-------|-------|-------|-----|-----|------|------|------|------|
| SouthWest: Resthill Crescent |    |         |      |      |      |      |       |       |       |     |     |      |      |      |      |
| 30                           | L2 | All MCs | 17   | 14.3 | 17   | 14.3 | 0.529 | 140.4 | LOS F | 1.2 | 9.3 | 0.97 | 1.05 | 1.21 | 5.2  |
| 32                           | R2 | All MCs | 44   | 0.0  | 44   | 0.0  | 0.334 | 36.5  | LOS E | 1.0 | 7.3 | 0.94 | 1.01 | 1.07 | 23.3 |
| Approach                     |    |         | 61   | 4.0  | 61   | 4.0  | 0.529 | 65.7  | LOS F | 1.2 | 9.3 | 0.95 | 1.02 | 1.11 | 14.9 |
| All Vehicles                 |    |         | 1804 | 6.0  | 1804 | 6.0  | 0.552 | 3.7   | NA    | 1.3 | 9.3 | 0.05 | 0.07 | 0.05 | 45.0 |

### ITA Scenario 1D - PM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|-------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | 95% Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.            | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    | v/c       | sec         |                  | veh               | m      |            |                |                            | km/h        |
| SouthEast: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 21                           | L2   | All MCs   | 79           | 0.0  | 79            | 0.0  | 0.428     | 4.7         | LOS A            | 0.0               | 0.0    | 0.00       | 0.05           | 0.00                       | 46.6        |
| 22                           | T1   | All MCs   | 740          | 4.4  | 740           | 4.4  | 0.428     | 0.1         | LOS A            | 0.0               | 0.0    | 0.00       | 0.05           | 0.00                       | 49.1        |
| Approach                     |      |           | 819          | 4.0  | 819           | 4.0  | 0.428     | 0.6         | NA               | 0.0               | 0.0    | 0.00       | 0.05           | 0.00                       | 48.9        |
| NorthWest: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 28                           | T1   | All MCs   | 1087         | 2.2  | 1087          | 2.2  | 0.560     | 0.1         | LOS A            | 0.0               | 0.0    | 0.00       | 0.00           | 0.00                       | 49.6        |
| 29                           | R2   | All MCs   | 27           | 5.3  | 27            | 5.3  | 0.278     | 45.1        | LOS E            | 0.8               | 6.1    | 0.90       | 0.99           | 1.02                       | 12.9        |
| Approach                     |      |           | 1114         | 2.3  | 1114          | 2.3  | 0.560     | 1.2         | NA               | 0.8               | 6.1    | 0.02       | 0.02           | 0.03                       | 48.0        |
| SouthWest: Resthill Crescent |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 30                           | L2   | All MCs   | 46           | 0.0  | 46            | 0.0  | 0.678     | 95.1        | LOS F            | 2.7               | 19.0   | 0.96       | 1.13           | 1.51                       | 7.3         |
| 32                           | R2   | All MCs   | 68           | 2.0  | 68            | 2.0  | 0.544     | 45.7        | LOS E            | 1.7               | 12.1   | 0.96       | 1.06           | 1.27                       | 20.9        |
| Approach                     |      |           | 114          | 1.2  | 114           | 1.2  | 0.678     | 65.7        | LOS F            | 2.7               | 19.0   | 0.96       | 1.09           | 1.37                       | 14.2        |
| All Vehicles                 |      |           | 2048         | 2.9  | 2048          | 2.9  | 0.678     | 4.6         | NA               | 2.7               | 19.0   | 0.07       | 0.10           | 0.09                       | 43.9        |

### ITA Scenario 1E - AM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|-------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | 95% Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.            | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    | v/c       | sec         |                  | veh               | m      |            |                |                            | km/h        |
| SouthEast: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 21                           | L2   | All MCs   | 77           | 4.7  | 77            | 4.7  | 0.553     | 4.8         | LOS A            | 0.0               | 0.0    | 0.00       | 0.04           | 0.00                       | 46.4        |

|                              |    |         |      |      |      |      |       |       |       |     |     |      |      |      |      |
|------------------------------|----|---------|------|------|------|------|-------|-------|-------|-----|-----|------|------|------|------|
| 22                           | T1 | All MCs | 981  | 3.8  | 981  | 3.8  | 0.553 | 0.2   | LOS A | 0.0 | 0.0 | 0.00 | 0.04 | 0.00 | 49.2 |
| Approach                     |    |         | 1058 | 3.8  | 1058 | 3.8  | 0.553 | 0.6   | NA    | 0.0 | 0.0 | 0.00 | 0.04 | 0.00 | 49.0 |
| NorthWest: Ohaupo Road       |    |         |      |      |      |      |       |       |       |     |     |      |      |      |      |
| 28                           | T1 | All MCs | 667  | 9.7  | 667  | 9.7  | 0.360 | 0.1   | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 49.8 |
| 29                           | R2 | All MCs | 26   | 0.0  | 26   | 0.0  | 0.418 | 77.3  | LOS F | 1.3 | 9.0 | 0.96 | 1.03 | 1.13 | 8.6  |
| Approach                     |    |         | 693  | 9.3  | 693  | 9.3  | 0.418 | 2.9   | NA    | 1.3 | 9.0 | 0.04 | 0.04 | 0.04 | 46.0 |
| SouthWest: Resthill Crescent |    |         |      |      |      |      |       |       |       |     |     |      |      |      |      |
| 30                           | L2 | All MCs | 17   | 14.3 | 17   | 14.3 | 0.529 | 140.4 | LOS F | 1.2 | 9.3 | 0.97 | 1.05 | 1.21 | 5.2  |
| 32                           | R2 | All MCs | 48   | 0.0  | 48   | 0.0  | 0.365 | 37.8  | LOS E | 1.1 | 8.0 | 0.94 | 1.02 | 1.10 | 22.9 |
| Approach                     |    |         | 65   | 3.8  | 65   | 3.8  | 0.529 | 65.1  | LOS F | 1.2 | 9.3 | 0.95 | 1.03 | 1.13 | 15.1 |
| All Vehicles                 |    |         | 1816 | 5.9  | 1816 | 5.9  | 0.553 | 3.8   | NA    | 1.3 | 9.3 | 0.05 | 0.07 | 0.06 | 44.9 |

### ITA Scenario 1E - PM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|-------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | 95% Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.            | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    | v/c       | sec         |                  | veh               | m      |            |                |                            | km/h        |
| SouthEast: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 21                           | L2   | All MCs   | 83           | 0.0  | 83            | 0.0  | 0.432     | 4.7         | LOS A            | 0.0               | 0.0    | 0.00       | 0.06           | 0.00                       | 46.6        |
| 22                           | T1   | All MCs   | 742          | 4.4  | 742           | 4.4  | 0.432     | 0.1         | LOS A            | 0.0               | 0.0    | 0.00       | 0.06           | 0.00                       | 49.1        |
| Approach                     |      |           | 825          | 3.9  | 825           | 3.9  | 0.432     | 0.6         | NA               | 0.0               | 0.0    | 0.00       | 0.06           | 0.00                       | 48.8        |
| NorthWest: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 28                           | T1   | All MCs   | 1089         | 2.2  | 1089          | 2.2  | 0.561     | 0.1         | LOS A            | 0.0               | 0.0    | 0.00       | 0.00           | 0.00                       | 49.6        |
| 29                           | R2   | All MCs   | 27           | 5.3  | 27            | 5.3  | 0.286     | 46.4        | LOS E            | 0.9               | 6.3    | 0.90       | 0.99           | 1.03                       | 12.7        |
| Approach                     |      |           | 1117         | 2.2  | 1117          | 2.2  | 0.561     | 1.3         | NA               | 0.9               | 6.3    | 0.02       | 0.02           | 0.03                       | 48.0        |
| SouthWest: Resthill Crescent |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 30                           | L2   | All MCs   | 46           | 0.0  | 46            | 0.0  | 0.685     | 96.8        | LOS F            | 2.7               | 19.2   | 0.96       | 1.13           | 1.52                       | 7.2         |
| 32                           | R2   | All MCs   | 70           | 1.9  | 70            | 1.9  | 0.570     | 47.3        | LOS E            | 1.8               | 12.8   | 0.96       | 1.07           | 1.30                       | 20.5        |
| Approach                     |      |           | 117          | 1.1  | 117           | 1.1  | 0.685     | 67.0        | LOS F            | 2.7               | 19.2   | 0.96       | 1.10           | 1.39                       | 14.1        |
| All Vehicles                 |      |           | 2059         | 2.9  | 2059          | 2.9  | 0.685     | 4.7         | NA               | 2.7               | 19.2   | 0.07       | 0.10           | 0.09                       | 43.7        |



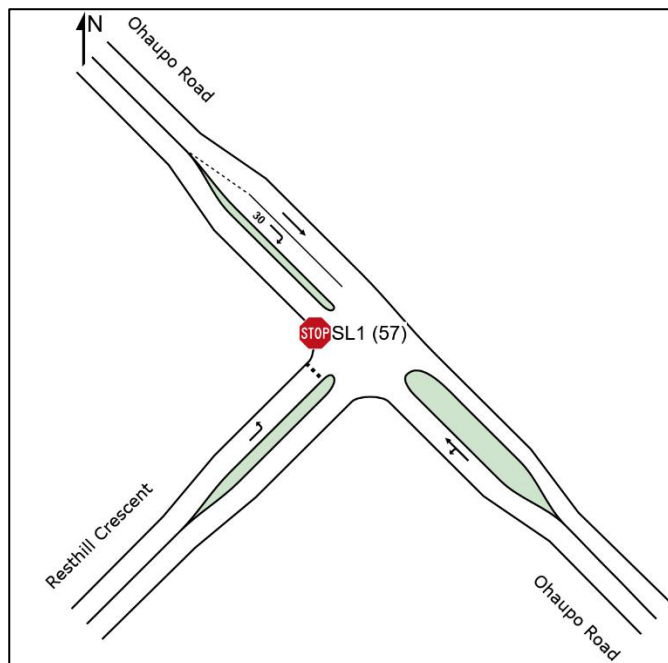


Figure: Proposed Ohaupo Rd / Resthill Cres Intersection Upgrade – Scenarios 2 to 5

### ITA Scenario 2 - AM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|---------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | Aver. Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.              | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    | v/c       | sec         |                  | veh                 | m      |            |                |                            | km/h        |
| SouthEast: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 21                           | L2   | All MCs   | 66           | 6.2  | 66            | 6.2  | 0.538     | 4.8         | LOS A            | 0.0                 | 0.0    | 0.00       | 0.04           | 0.00                       | 46.4        |
| 22                           | T1   | All MCs   | 958          | 4.6  | 958           | 4.6  | 0.538     | 0.2         | LOS A            | 0.0                 | 0.0    | 0.00       | 0.04           | 0.00                       | 49.1        |
| Approach                     |      |           | 1024         | 4.7  | 1024          | 4.7  | 0.538     | 0.5         | NA               | 0.0                 | 0.0    | 0.00       | 0.04           | 0.00                       | 48.9        |
| NorthWest: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 28                           | T1   | All MCs   | 676          | 11.3 | <b>673</b>    | 11.4 | 0.367     | 0.1         | LOS A            | 0.0                 | 0.0    | 0.00       | 0.00           | 0.00                       | 49.8        |
| 29                           | R2   | All MCs   | 20           | 0.0  | 20            | 0.0  | 0.258     | 56.2        | LOS F            | 0.3                 | 1.9    | 0.93       | 0.99           | 1.00                       | 17.5        |
| Approach                     |      |           | 696          | 11.0 | <b>693</b>    | 11.0 | 0.367     | 1.7         | NA               | 0.3                 | 1.9    | 0.03       | 0.03           | 0.03                       | 46.7        |

|                              |    |         |      |      |      |      |       |       |       |     |     |      |      |      |      |
|------------------------------|----|---------|------|------|------|------|-------|-------|-------|-----|-----|------|------|------|------|
| SouthWest: Resthill Crescent |    |         |      |      |      |      |       |       |       |     |     |      |      |      |      |
| 30                           | L2 | All MCs | 4    | 14.3 | 4    | 14.3 | 0.194 | 168.2 | LOS F | 0.2 | 1.3 | 0.96 | 0.99 | 1.00 | 2.2  |
| Approach                     |    |         | 4    | 14.3 | 4    | 14.3 | 0.194 | 168.2 | LOS F | 0.2 | 1.3 | 0.96 | 0.99 | 1.00 | 2.2  |
| All Vehicles                 |    |         | 1724 | 7.3  | 1722 | 7.3  | 0.538 | 1.4   | NA    | 0.3 | 1.9 | 0.01 | 0.03 | 0.01 | 47.3 |

### ITA Scenario 2 - PM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|---------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | Aver. Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.              | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    | v/c       | sec         |                  | veh                 | m      |            |                |                            | km/h        |
| SouthEast: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 21                           | L2   | All MCs   | 98           | 0.0  | 98            | 0.0  | 0.506     | 4.7         | LOS A            | 0.0                 | 0.0    | 0.00       | 0.06           | 0.00                       | 46.5        |
| 22                           | T1   | All MCs   | 863          | 5.4  | 863           | 5.4  | 0.506     | 0.2         | LOS A            | 0.0                 | 0.0    | 0.00       | 0.06           | 0.00                       | 48.8        |
| Approach                     |      |           | 961          | 4.8  | 961           | 4.8  | 0.506     | 0.6         | NA               | 0.0                 | 0.0    | 0.00       | 0.06           | 0.00                       | 48.5        |
| NorthWest: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 28                           | T1   | All MCs   | 1112         | 2.9  | 1112          | 2.9  | 0.575     | 0.2         | LOS A            | 0.0                 | 0.0    | 0.00       | 0.00           | 0.00                       | 49.6        |
| 29                           | R2   | All MCs   | 35           | 5.3  | 35            | 5.3  | 0.412     | 57.2        | LOS F            | 0.4                 | 3.2    | 0.93       | 1.02           | 1.10                       | 17.3        |
| Approach                     |      |           | 1146         | 3.0  | 1146          | 3.0  | 0.575     | 1.9         | NA               | 0.4                 | 3.2    | 0.03       | 0.03           | 0.03                       | 46.3        |
| SouthWest: Resthill Crescent |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 30                           | L2   | All MCs   | 7            | 0.0  | 7             | 0.0  | 0.120     | 62.5        | LOS F            | 0.1                 | 1.0    | 0.91       | 0.96           | 0.91                       | 5.5         |
| Approach                     |      |           | 7            | 0.0  | 7             | 0.0  | 0.120     | 62.5        | LOS F            | 0.1                 | 1.0    | 0.91       | 0.96           | 0.91                       | 5.5         |
| All Vehicles                 |      |           | 2115         | 3.8  | 2115          | 3.8  | 0.575     | 1.6         | NA               | 0.4                 | 3.2    | 0.02       | 0.05           | 0.02                       | 46.9        |

### ITA Scenario 3 - AM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|---------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | Aver. Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.              | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    | v/c       | sec         |                  | veh                 | m      |            |                |                            | km/h        |
| SouthEast: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 21                           | L2   | All MCs   | 80           | 6.2  | 80            | 6.2  | 0.349     | 4.7         | LOS A            | 0.0                 | 0.0    | 0.00       | 0.07           | 0.00                       | 46.2        |
| 22                           | T1   | All MCs   | 585          | 3.8  | 585           | 3.8  | 0.349     | 0.1         | LOS A            | 0.0                 | 0.0    | 0.00       | 0.07           | 0.00                       | 48.9        |
| Approach                     |      |           | 665          | 4.1  | 665           | 4.1  | 0.349     | 0.6         | NA               | 0.0                 | 0.0    | 0.00       | 0.07           | 0.00                       | 48.4        |

|                              |    |         |      |      |      |      |       |      |       |     |     |      |      |      |      |
|------------------------------|----|---------|------|------|------|------|-------|------|-------|-----|-----|------|------|------|------|
| NorthWest: Ohaupo Road       |    |         |      |      |      |      |       |      |       |     |     |      |      |      |      |
| 28                           | T1 | All MCs | 457  | 10.2 | 457  | 10.2 | 0.247 | 0.1  | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 49.9 |
| 29                           | R2 | All MCs | 16   | 0.0  | 16   | 0.0  | 0.065 | 17.7 | LOS C | 0.1 | 0.5 | 0.72 | 0.81 | 0.72 | 30.7 |
| Approach                     |    |         | 473  | 9.9  | 473  | 9.9  | 0.247 | 0.6  | NA    | 0.1 | 0.5 | 0.02 | 0.03 | 0.02 | 48.6 |
| SouthWest: Resthill Crescent |    |         |      |      |      |      |       |      |       |     |     |      |      |      |      |
| 30                           | L2 | All MCs | 3    | 14.3 | 3    | 14.3 | 0.024 | 29.7 | LOS D | 0.0 | 0.2 | 0.77 | 0.77 | 0.77 | 10.4 |
| Approach                     |    |         | 3    | 14.3 | 3    | 14.3 | 0.024 | 29.7 | LOS D | 0.0 | 0.2 | 0.77 | 0.77 | 0.77 | 10.4 |
| All Vehicles                 |    |         | 1141 | 6.5  | 1141 | 6.5  | 0.349 | 0.7  | NA    | 0.1 | 0.5 | 0.01 | 0.05 | 0.01 | 48.4 |

### ITA Scenario 3 - PM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|---------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | Aver. Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.              | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    | v/c       | sec         |                  | veh                 | m      |            |                |                            | km/h        |
| SouthEast: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 21                           | L2   | All MCs   | 132          | 0.0  | 132           | 0.0  | 0.366     | 4.6         | LOS A            | 0.0                 | 0.0    | 0.00       | 0.10           | 0.00                       | 46.1        |
| 22                           | T1   | All MCs   | 562          | 5.9  | 562           | 5.9  | 0.366     | 0.1         | LOS A            | 0.0                 | 0.0    | 0.00       | 0.10           | 0.00                       | 48.2        |
| Approach                     |      |           | 694          | 4.8  | 694           | 4.8  | 0.366     | 1.0         | NA               | 0.0                 | 0.0    | 0.00       | 0.10           | 0.00                       | 47.7        |
| NorthWest: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 28                           | T1   | All MCs   | 685          | 3.4  | 685           | 3.4  | 0.355     | 0.1         | LOS A            | 0.0                 | 0.0    | 0.00       | 0.00           | 0.00                       | 49.8        |
| 29                           | R2   | All MCs   | 28           | 5.3  | 28            | 5.3  | 0.134     | 20.8        | LOS C            | 0.2                 | 1.1    | 0.76       | 0.88           | 0.76                       | 28.9        |
| Approach                     |      |           | 714          | 3.4  | 714           | 3.4  | 0.355     | 0.9         | NA               | 0.2                 | 1.1    | 0.03       | 0.04           | 0.03                       | 48.1        |
| SouthWest: Resthill Crescent |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 30                           | L2   | All MCs   | 6            | 0.0  | 6             | 0.0  | 0.035     | 21.8        | LOS C            | 0.0                 | 0.3    | 0.72       | 0.77           | 0.72                       | 13.2        |
| Approach                     |      |           | 6            | 0.0  | 6             | 0.0  | 0.035     | 21.8        | LOS C            | 0.0                 | 0.3    | 0.72       | 0.77           | 0.72                       | 13.2        |
| All Vehicles                 |      |           | 1414         | 4.1  | 1414          | 4.1  | 0.366     | 1.0         | NA               | 0.2                 | 1.1    | 0.02       | 0.07           | 0.02                       | 47.7        |

## ITA Scenario 4 - AM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|---------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | Aver. Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.              | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    |           |             |                  | veh                 | m      |            |                |                            |             |
| SouthEast: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 21                           | L2   | All MCs   | 102          | 6.3  | 102           | 6.3  | 0.443     | 4.7         | LOS A            | 0.0                 | 0.0    | 0.00       | 0.07           | 0.00                       | 46.1        |
| 22                           | T1   | All MCs   | 735          | 5.4  | 735           | 5.4  | 0.443     | 0.1         | LOS A            | 0.0                 | 0.0    | 0.00       | 0.07           | 0.00                       | 48.7        |
| Approach                     |      |           | 837          | 5.5  | 837           | 5.5  | 0.443     | 0.7         | NA               | 0.0                 | 0.0    | 0.00       | 0.07           | 0.00                       | 48.3        |
| NorthWest: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 28                           | T1   | All MCs   | 580          | 12.2 | 574           | 12.2 | 0.315     | 0.1         | LOS A            | 0.0                 | 0.0    | 0.00       | 0.00           | 0.00                       | 49.8        |
| 29                           | R2   | All MCs   | 7            | 0.0  | 7             | 0.0  | 0.046     | 26.4        | LOS D            | 0.1                 | 0.4    | 0.82       | 0.85           | 0.82                       | 26.2        |
| Approach                     |      |           | 587          | 12.0 | 581           | 12.1 | 0.315     | 0.4         | NA               | 0.1                 | 0.4    | 0.01       | 0.01           | 0.01                       | 49.1        |
| SouthWest: Resthill Crescent |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 30                           | L2   | All MCs   | 3            | 14.3 | 3             | 14.3 | 0.041     | 49.8        | LOS E            | 0.0                 | 0.4    | 0.86       | 0.85           | 0.86                       | 6.8         |
| Approach                     |      |           | 3            | 14.3 | 3             | 14.3 | 0.041     | 49.8        | LOS E            | 0.0                 | 0.4    | 0.86       | 0.85           | 0.86                       | 6.8         |
| All Vehicles                 |      |           | 1427         | 8.2  | 1421          | 8.3  | 0.443     | 0.7         | NA               | 0.1                 | 0.4    | 0.01       | 0.05           | 0.01                       | 48.4        |

## ITA Scenario 4 - PM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|---------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | Aver. Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.              | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    |           |             |                  | veh                 | m      |            |                |                            |             |
| SouthEast: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 21                           | L2   | All MCs   | 177          | 0.0  | 177           | 0.0  | 0.458     | 4.7         | LOS A            | 0.0                 | 0.0    | 0.00       | 0.11           | 0.00                       | 45.9        |
| 22                           | T1   | All MCs   | 688          | 6.2  | 688           | 6.2  | 0.458     | 0.2         | LOS A            | 0.0                 | 0.0    | 0.00       | 0.11           | 0.00                       | 48.0        |
| Approach                     |      |           | 865          | 4.9  | 865           | 4.9  | 0.458     | 1.1         | NA               | 0.0                 | 0.0    | 0.00       | 0.11           | 0.00                       | 47.5        |
| NorthWest: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 28                           | T1   | All MCs   | 913          | 3.5  | 913           | 3.5  | 0.474     | 0.1         | LOS A            | 0.0                 | 0.0    | 0.00       | 0.00           | 0.00                       | 49.7        |
| 29                           | R2   | All MCs   | 14           | 5.3  | 14            | 5.3  | 0.107     | 32.5        | LOS D            | 0.1                 | 0.8    | 0.85       | 0.92           | 0.85                       | 23.7        |
| Approach                     |      |           | 926          | 3.5  | 926           | 3.5  | 0.474     | 0.6         | NA               | 0.1                 | 0.8    | 0.01       | 0.01           | 0.01                       | 48.7        |
| SouthWest: Resthill Crescent |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |

|              |    |         |      |     |      |     |       |      |       |     |     |      |      |      |      |
|--------------|----|---------|------|-----|------|-----|-------|------|-------|-----|-----|------|------|------|------|
| 30           | L2 | All MCs | 6    | 0.0 | 6    | 0.0 | 0.051 | 32.0 | LOS D | 0.1 | 0.5 | 0.81 | 0.85 | 0.81 | 9.8  |
| Approach     |    |         | 6    | 0.0 | 6    | 0.0 | 0.051 | 32.0 | LOS D | 0.1 | 0.5 | 0.81 | 0.85 | 0.81 | 9.8  |
| All Vehicles |    |         | 1798 | 4.2 | 1798 | 4.2 | 0.474 | 1.0  | NA    | 0.1 | 0.8 | 0.01 | 0.06 | 0.01 | 47.9 |

### ITA Scenario 5 - AM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|---------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | Aver. Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.              | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    | v/c       | sec         |                  | veh                 | m      |            |                |                            | km/h        |
| SouthEast: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 21                           | L2   | All MCs   | 79           | 6.2  | 79            | 6.2  | 0.411     | 4.7         | LOS A            | 0.0                 | 0.0    | 0.00       | 0.05           | 0.00                       | 46.3        |
| 22                           | T1   | All MCs   | 706          | 3.8  | 706           | 3.8  | 0.411     | 0.1         | LOS A            | 0.0                 | 0.0    | 0.00       | 0.05           | 0.00                       | 49.0        |
| Approach                     |      |           | 785          | 4.0  | 785           | 4.0  | 0.411     | 0.6         | NA               | 0.0                 | 0.0    | 0.00       | 0.05           | 0.00                       | 48.6        |
| NorthWest: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 28                           | T1   | All MCs   | 413          | 10.2 | <b>409</b>    | 10.3 | 0.222     | 0.0         | LOS A            | 0.0                 | 0.0    | 0.00       | 0.00           | 0.00                       | 49.9        |
| 29                           | R2   | All MCs   | 7            | 0.0  | 7             | 0.0  | 0.039     | 22.7        | LOS C            | 0.0                 | 0.3    | 0.79       | 0.82           | 0.79                       | 20.0        |
| Approach                     |      |           | 420          | 10.0 | <b>417</b>    | 10.1 | 0.222     | 0.4         | NA               | 0.0                 | 0.3    | 0.01       | 0.01           | 0.01                       | 47.8        |
| SouthWest: Resthill Crescent |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 30                           | L2   | All MCs   | 3            | 14.3 | 3             | 14.3 | 0.036     | 43.8        | LOS E            | 0.0                 | 0.3    | 0.84       | 0.83           | 0.84                       | 7.6         |
| Approach                     |      |           | 3            | 14.3 | 3             | 14.3 | 0.036     | 43.8        | LOS E            | 0.0                 | 0.3    | 0.84       | 0.83           | 0.84                       | 7.6         |
| All Vehicles                 |      |           | 1208         | 6.1  | <b>1205</b>   | 6.2  | 0.411     | 0.6         | NA               | 0.0                 | 0.3    | 0.01       | 0.04           | 0.01                       | 48.2        |

### ITA Scenario 5 - PM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|---------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | Aver. Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.              | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    | v/c       | sec         |                  | veh                 | m      |            |                |                            | km/h        |
| SouthEast: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 21                           | L2   | All MCs   | 93           | 0.0  | 93            | 0.0  | 0.359     | 4.6         | LOS A            | 0.0                 | 0.0    | 0.00       | 0.07           | 0.00                       | 46.4        |
| 22                           | T1   | All MCs   | 594          | 4.5  | 594           | 4.5  | 0.359     | 0.1         | LOS A            | 0.0                 | 0.0    | 0.00       | 0.07           | 0.00                       | 48.7        |
| Approach                     |      |           | 686          | 3.9  | 686           | 3.9  | 0.359     | 0.7         | NA               | 0.0                 | 0.0    | 0.00       | 0.07           | 0.00                       | 48.3        |
| NorthWest: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |

|                              |    |         |      |     |      |     |       |      |       |     |     |      |      |      |      |
|------------------------------|----|---------|------|-----|------|-----|-------|------|-------|-----|-----|------|------|------|------|
| 28                           | T1 | All MCs | 1082 | 2.2 | 1082 | 2.2 | 0.557 | 0.2  | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 49.6 |
| 29                           | R2 | All MCs | 18   | 5.3 | 18   | 5.3 | 0.082 | 19.8 | LOS C | 0.1 | 0.7 | 0.74 | 0.83 | 0.74 | 29.4 |
| Approach                     |    |         | 1100 | 2.2 | 1100 | 2.2 | 0.557 | 0.5  | NA    | 0.1 | 0.7 | 0.01 | 0.01 | 0.01 | 48.9 |
| SouthWest: Resthill Crescent |    |         |      |     |      |     |       |      |       |     |     |      |      |      |      |
| 30                           | L2 | All MCs | 6    | 0.0 | 6    | 0.0 | 0.037 | 23.6 | LOS C | 0.1 | 0.4 | 0.74 | 0.79 | 0.74 | 12.4 |
| Approach                     |    |         | 6    | 0.0 | 6    | 0.0 | 0.037 | 23.6 | LOS C | 0.1 | 0.4 | 0.74 | 0.79 | 0.74 | 12.4 |
| All Vehicles                 |    |         | 1793 | 2.8 | 1793 | 2.8 | 0.557 | 0.7  | NA    | 0.1 | 0.7 | 0.01 | 0.04 | 0.01 | 48.5 |



## Ohaupo Rd / Houchens Rd Intersection

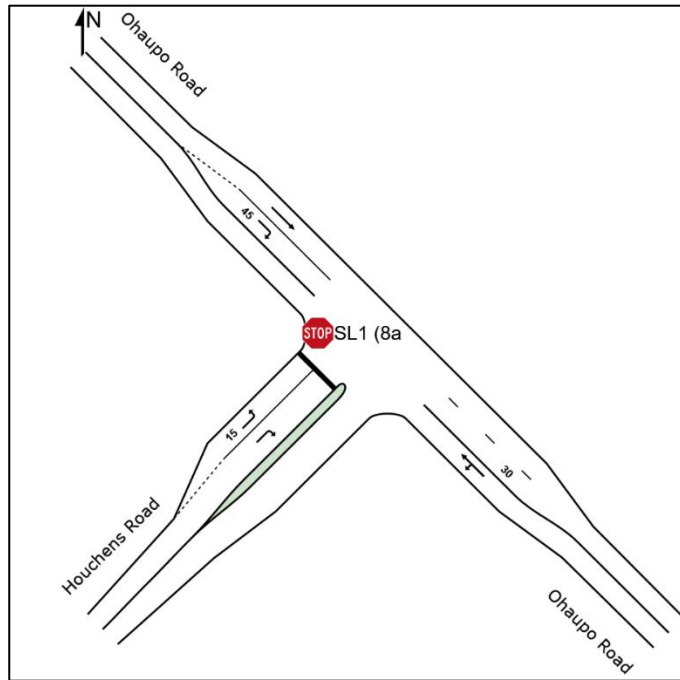


Figure: Existing Ohaupo Rd / Houchens Rd Intersection Layout – Scenarios 1A and 1B

### 2030 Baseline - AM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|-------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | 95% Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.            | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    |           |             |                  | veh               | m      |            |                |                            |             |
| SouthEast: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 21                           | L2   | All MCs   | 23           | 0.0  | 23            | 0.0  | 0.469     | 4.6         | LOS A            | 0.0               | 0.0    | 0.00       | 0.01           | 0.00                       | 44.8        |
| 22                           | T1   | All MCs   | 878          | 3.9  | 878           | 3.9  | 0.469     | 0.1         | LOS A            | 0.0               | 0.0    | 0.00       | 0.01           | 0.00                       | 49.6        |
| Approach                     |      |           | 901          | 3.8  | 901           | 3.8  | 0.469     | 0.2         | NA               | 0.0               | 0.0    | 0.00       | 0.01           | 0.00                       | 49.5        |
| NorthWest: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 28                           | T1   | All MCs   | 633          | 9.5  | 633           | 9.5  | 0.341     | 0.1         | LOS A            | 0.0               | 0.0    | 0.00       | 0.00           | 0.00                       | 49.8        |

|                          |    |         |      |      |      |      |       |      |       |     |      |      |      |      |      |
|--------------------------|----|---------|------|------|------|------|-------|------|-------|-----|------|------|------|------|------|
| 29                       | R2 | All MCs | 41   | 20.0 | 41   | 20.0 | 0.473 | 58.3 | LOS F | 1.4 | 11.1 | 0.93 | 1.05 | 1.22 | 17.7 |
| Approach                 |    |         | 674  | 10.2 | 674  | 10.2 | 0.473 | 3.6  | NA    | 1.4 | 11.1 | 0.06 | 0.06 | 0.07 | 45.4 |
| SouthWest: Houchens Road |    |         |      |      |      |      |       |      |       |     |      |      |      |      |      |
| 30                       | L2 | All MCs | 173  | 3.9  | 173  | 3.9  | 0.702 | 34.2 | LOS D | 3.6 | 25.8 | 0.92 | 1.25 | 1.76 | 24.7 |
| 32                       | R2 | All MCs | 73   | 3.4  | 73   | 3.4  | 0.668 | 61.2 | LOS F | 2.3 | 16.6 | 0.97 | 1.14 | 1.48 | 11.2 |
| Approach                 |    |         | 246  | 3.7  | 246  | 3.7  | 0.702 | 42.2 | LOS E | 3.6 | 25.8 | 0.94 | 1.22 | 1.68 | 20.2 |
| All Vehicles             |    |         | 1821 | 6.1  | 1821 | 6.1  | 0.702 | 7.2  | NA    | 3.6 | 25.8 | 0.15 | 0.20 | 0.25 | 41.6 |

## 2030 Baseline - PM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|-------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | 95% Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.            | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    | v/c       | sec         |                  | veh               | m      |            |                |                            | km/h        |
| SouthEast: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 21                           | L2   | All MCs   | 78           | 1.6  | 78            | 1.6  | 0.379     | 4.6         | LOS A            | 0.0               | 0.0    | 0.00       | 0.06           | 0.00                       | 43.9        |
| 22                           | T1   | All MCs   | 646          | 4.4  | 646           | 4.4  | 0.379     | 0.0         | LOS A            | 0.0               | 0.0    | 0.00       | 0.06           | 0.00                       | 49.1        |
| Approach                     |      |           | 724          | 4.1  | 724           | 4.1  | 0.379     | 0.5         | NA               | 0.0               | 0.0    | 0.00       | 0.06           | 0.00                       | 48.8        |
| NorthWest: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 28                           | T1   | All MCs   | 979          | 2.2  | 979           | 2.2  | 0.504     | 0.2         | LOS A            | 0.0               | 0.0    | 0.00       | 0.00           | 0.00                       | 49.7        |
| 29                           | R2   | All MCs   | 160          | 3.5  | 160           | 3.5  | 0.633     | 28.1        | LOS D            | 3.3               | 23.6   | 0.89       | 1.16           | 1.56                       | 26.3        |
| Approach                     |      |           | 1139         | 2.3  | 1139          | 2.3  | 0.633     | 4.1         | NA               | 3.3               | 23.6   | 0.12       | 0.16           | 0.22                       | 44.7        |
| SouthWest: Houchens Road     |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 30                           | L2   | All MCs   | 115          | 5.1  | 115           | 5.1  | 0.550     | 33.0        | LOS D            | 2.5               | 18.6   | 0.87       | 1.16           | 1.36                       | 25.1        |
| 32                           | R2   | All MCs   | 28           | 0.0  | 28            | 0.0  | 0.549     | 106.6       | LOS F            | 1.6               | 11.5   | 0.98       | 1.06           | 1.21                       | 7.1         |
| Approach                     |      |           | 143          | 4.1  | 143           | 4.1  | 0.550     | 47.6        | LOS E            | 2.5               | 18.6   | 0.89       | 1.14           | 1.33                       | 19.4        |
| All Vehicles                 |      |           | 2006         | 3.1  | 2006          | 3.1  | 0.633     | 5.9         | NA               | 3.3               | 23.6   | 0.13       | 0.19           | 0.22                       | 42.7        |



## ITA Scenario 1A - AM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|-------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | 95% Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.            | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    | v/c       | sec         |                  | veh               | m      |            |                |                            | km/h        |
| SouthEast: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 21                           | L2   | All MCs   | 23           | 0.0  | 23            | 0.0  | 0.470     | 4.6         | LOS A            | 0.0               | 0.0    | 0.00       | 0.01           | 0.00                       | 44.8        |
| 22                           | T1   | All MCs   | 880          | 3.9  | 880           | 3.9  | 0.470     | 0.1         | LOS A            | 0.0               | 0.0    | 0.00       | 0.01           | 0.00                       | 49.6        |
| Approach                     |      |           | 903          | 3.8  | 903           | 3.8  | 0.470     | 0.2         | NA               | 0.0               | 0.0    | 0.00       | 0.01           | 0.00                       | 49.5        |
| NorthWest: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 28                           | T1   | All MCs   | 645          | 9.6  | 645           | 9.6  | 0.348     | 0.1         | LOS A            | 0.0               | 0.0    | 0.00       | 0.00           | 0.00                       | 49.8        |
| 29                           | R2   | All MCs   | 41           | 20.0 | 41            | 20.0 | 0.478     | 59.0        | LOS F            | 1.4               | 11.2   | 0.94       | 1.05           | 1.23                       | 17.6        |
| Approach                     |      |           | 685          | 10.2 | 685           | 10.2 | 0.478     | 3.6         | NA               | 1.4               | 11.2   | 0.06       | 0.06           | 0.07                       | 45.4        |
| SouthWest: Houchens Road     |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 30                           | L2   | All MCs   | 173          | 3.9  | 173           | 3.9  | 0.706     | 34.5        | LOS D            | 3.6               | 26.0   | 0.92       | 1.26           | 1.77                       | 24.5        |
| 32                           | R2   | All MCs   | 73           | 3.4  | 73            | 3.4  | 0.688     | 64.4        | LOS F            | 2.4               | 17.2   | 0.97       | 1.15           | 1.52                       | 10.8        |
| Approach                     |      |           | 246          | 3.7  | 246           | 3.7  | 0.706     | 43.4        | LOS E            | 3.6               | 26.0   | 0.94       | 1.23           | 1.70                       | 19.9        |
| All Vehicles                 |      |           | 1835         | 6.2  | 1835          | 6.2  | 0.706     | 7.3         | NA               | 3.6               | 26.0   | 0.15       | 0.19           | 0.26                       | 41.5        |

## ITA Scenario 1A - PM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|-------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | 95% Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.            | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    | v/c       | sec         |                  | veh               | m      |            |                |                            | km/h        |
| SouthEast: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 21                           | L2   | All MCs   | 78           | 1.6  | 78            | 1.6  | 0.383     | 4.6         | LOS A            | 0.0               | 0.0    | 0.00       | 0.06           | 0.00                       | 43.9        |
| 22                           | T1   | All MCs   | 652          | 4.4  | 652           | 4.4  | 0.383     | 0.0         | LOS A            | 0.0               | 0.0    | 0.00       | 0.06           | 0.00                       | 49.1        |
| Approach                     |      |           | 731          | 4.1  | 731           | 4.1  | 0.383     | 0.5         | NA               | 0.0               | 0.0    | 0.00       | 0.06           | 0.00                       | 48.8        |
| NorthWest: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 28                           | T1   | All MCs   | 981          | 2.2  | 981           | 2.2  | 0.505     | 0.2         | LOS A            | 0.0               | 0.0    | 0.00       | 0.00           | 0.00                       | 49.7        |
| 29                           | R2   | All MCs   | 160          | 3.5  | 160           | 3.5  | 0.645     | 29.0        | LOS D            | 3.4               | 24.2   | 0.89       | 1.17           | 1.59                       | 26.0        |
| Approach                     |      |           | 1141         | 2.4  | 1141          | 2.4  | 0.645     | 4.2         | NA               | 3.4               | 24.2   | 0.13       | 0.16           | 0.22                       | 44.6        |

|                          |    |         |      |     |      |     |       |       |       |     |      |      |      |      |      |
|--------------------------|----|---------|------|-----|------|-----|-------|-------|-------|-----|------|------|------|------|------|
| SouthWest: Houchens Road |    |         |      |     |      |     |       |       |       |     |      |      |      |      |      |
| 30                       | L2 | All MCs | 115  | 5.1 | 115  | 5.1 | 0.562 | 33.9  | LOS D | 2.6 | 19.0 | 0.87 | 1.16 | 1.38 | 24.7 |
| 32                       | R2 | All MCs | 28   | 0.0 | 28   | 0.0 | 0.561 | 110.0 | LOS F | 1.7 | 11.8 | 0.98 | 1.06 | 1.21 | 7.0  |
| Approach                 |    |         | 143  | 4.1 | 143  | 4.1 | 0.562 | 49.0  | LOS E | 2.6 | 19.0 | 0.89 | 1.14 | 1.35 | 19.1 |
| All Vehicles             |    |         | 2015 | 3.1 | 2015 | 3.1 | 0.645 | 6.1   | NA    | 3.4 | 24.2 | 0.13 | 0.19 | 0.22 | 42.5 |

### ITA Scenario 1B - AM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|-------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | 95% Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.            | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    | v/c       | sec         |                  | veh               | m      |            |                |                            | km/h        |
| SouthEast: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 21                           | L2   | All MCs   | 23           | 0.0  | 23            | 0.0  | 0.471     | 4.6         | LOS A            | 0.0               | 0.0    | 0.00       | 0.01           | 0.00                       | 44.8        |
| 22                           | T1   | All MCs   | 882          | 3.8  | 882           | 3.8  | 0.471     | 0.1         | LOS A            | 0.0               | 0.0    | 0.00       | 0.01           | 0.00                       | 49.6        |
| Approach                     |      |           | 905          | 3.7  | 905           | 3.7  | 0.471     | 0.2         | NA               | 0.0               | 0.0    | 0.00       | 0.01           | 0.00                       | 49.5        |
| NorthWest: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 28                           | T1   | All MCs   | 656          | 9.6  | 656           | 9.6  | 0.354     | 0.1         | LOS A            | 0.0               | 0.0    | 0.00       | 0.00           | 0.00                       | 49.8        |
| 29                           | R2   | All MCs   | 41           | 20.0 | 41            | 20.0 | 0.483     | 59.7        | LOS F            | 1.4               | 11.3   | 0.94       | 1.06           | 1.23                       | 17.5        |
| Approach                     |      |           | 697          | 10.2 | 697           | 10.2 | 0.483     | 3.6         | NA               | 1.4               | 11.3   | 0.05       | 0.06           | 0.07                       | 45.5        |
| SouthWest: Houchens Road     |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 30                           | L2   | All MCs   | 173          | 3.9  | 173           | 3.9  | 0.711     | 34.9        | LOS D            | 3.6               | 26.3   | 0.93       | 1.26           | 1.79                       | 24.4        |
| 32                           | R2   | All MCs   | 73           | 3.4  | 73            | 3.4  | 0.709     | 67.9        | LOS F            | 2.5               | 17.9   | 0.97       | 1.16           | 1.56                       | 10.3        |
| Approach                     |      |           | 246          | 3.7  | 246           | 3.7  | 0.711     | 44.7        | LOS E            | 3.6               | 26.3   | 0.94       | 1.23           | 1.72                       | 19.5        |
| All Vehicles                 |      |           | 1848         | 6.2  | 1848          | 6.2  | 0.711     | 7.4         | NA               | 3.6               | 26.3   | 0.15       | 0.19           | 0.26                       | 41.4        |

### ITA Scenario 1B - PM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|-------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | 95% Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.            | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    | v/c       | sec         |                  | veh               | m      |            |                |                            | km/h        |
| SouthEast: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 21                           | L2   | All MCs   | 78           | 1.6  | 78            | 1.6  | 0.386     | 4.6         | LOS A            | 0.0               | 0.0    | 0.00       | 0.06           | 0.00                       | 43.9        |

|                          |    |         |      |     |      |     |       |       |       |     |      |      |      |      |      |
|--------------------------|----|---------|------|-----|------|-----|-------|-------|-------|-----|------|------|------|------|------|
| 22                       | T1 | All MCs | 659  | 4.4 | 659  | 4.4 | 0.386 | 0.0   | LOS A | 0.0 | 0.0  | 0.00 | 0.06 | 0.00 | 49.2 |
| Approach                 |    |         | 737  | 4.1 | 737  | 4.1 | 0.386 | 0.5   | NA    | 0.0 | 0.0  | 0.00 | 0.06 | 0.00 | 48.8 |
| NorthWest: Ohaupo Road   |    |         |      |     |      |     |       |       |       |     |      |      |      |      |      |
| 28                       | T1 | All MCs | 986  | 2.2 | 986  | 2.2 | 0.508 | 0.2   | LOS A | 0.0 | 0.0  | 0.00 | 0.00 | 0.00 | 49.7 |
| 29                       | R2 | All MCs | 160  | 3.5 | 160  | 3.5 | 0.657 | 30.0  | LOS D | 3.4 | 24.8 | 0.90 | 1.18 | 1.63 | 25.6 |
| Approach                 |    |         | 1146 | 2.3 | 1146 | 2.3 | 0.657 | 4.4   | NA    | 3.4 | 24.8 | 0.13 | 0.16 | 0.23 | 44.4 |
| SouthWest: Houchens Road |    |         |      |     |      |     |       |       |       |     |      |      |      |      |      |
| 30                       | L2 | All MCs | 115  | 5.1 | 115  | 5.1 | 0.573 | 34.8  | LOS D | 2.7 | 19.5 | 0.88 | 1.17 | 1.41 | 24.4 |
| 32                       | R2 | All MCs | 28   | 0.0 | 28   | 0.0 | 0.578 | 115.1 | LOS F | 1.7 | 12.2 | 0.98 | 1.06 | 1.23 | 6.7  |
| Approach                 |    |         | 143  | 4.1 | 143  | 4.1 | 0.578 | 50.8  | LOS F | 2.7 | 19.5 | 0.90 | 1.15 | 1.37 | 18.6 |
| All Vehicles             |    |         | 2026 | 3.1 | 2026 | 3.1 | 0.657 | 6.2   | NA    | 3.4 | 24.8 | 0.13 | 0.19 | 0.23 | 42.4 |

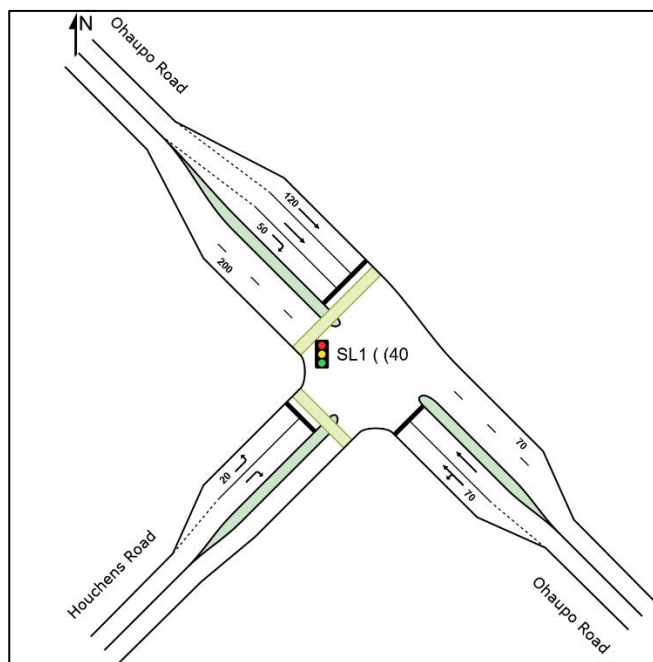


Figure: Proposed Ohaupo Rd / Houchens Rd Signalised Intersection Layout – Scenarios 1C to 5

## ITA Scenario 1C - AM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|-------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | 95% Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.            | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    | v/c       | sec         |                  | veh               | m      |            |                |                            | km/h        |
| SouthEast: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 21                           | L2   | All MCs   | 14           | 0.0  | 14            | 0.0  | 0.419     | 15.8        | LOS B            | 9.6               | 69.0   | 0.64       | 0.56           | 0.64                       | 28.6        |
| 22                           | T1   | All MCs   | 854          | 3.8  | 854           | 3.8  | * 0.419   | 11.4        | LOS B            | 9.6               | 69.1   | 0.64       | 0.56           | 0.64                       | 38.5        |
| Approach                     |      |           | 867          | 3.8  | 867           | 3.8  | 0.419     | 11.5        | LOS B            | 9.6               | 69.1   | 0.64       | 0.56           | 0.64                       | 38.4        |
| NorthWest: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 28                           | T1   | All MCs   | 606          | 9.6  | 606           | 9.6  | 0.333     | 4.7         | LOS A            | 6.2               | 47.3   | 0.40       | 0.35           | 0.40                       | 44.5        |
| 29                           | R2   | All MCs   | 26           | 20.0 | 26            | 20.0 | * 0.203   | 42.7        | LOS D            | 1.0               | 8.1    | 0.97       | 0.71           | 0.97                       | 21.3        |
| Approach                     |      |           | 633          | 10.0 | 633           | 10.0 | 0.333     | 6.3         | LOS A            | 6.2               | 47.3   | 0.43       | 0.37           | 0.43                       | 42.8        |
| SouthWest: Houchens Road     |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 30                           | L2   | All MCs   | 136          | 3.9  | 136           | 3.9  | 0.245     | 26.5        | LOS C            | 3.8               | 27.8   | 0.79       | 0.75           | 0.79                       | 27.0        |
| 32                           | R2   | All MCs   | 62           | 3.4  | 62            | 3.4  | * 0.233   | 36.8        | LOS D            | 2.1               | 15.3   | 0.92       | 0.74           | 0.92                       | 15.7        |
| Approach                     |      |           | 198          | 3.7  | 198           | 3.7  | 0.245     | 29.7        | LOS C            | 3.8               | 27.8   | 0.83       | 0.75           | 0.83                       | 23.6        |
| All Vehicles                 |      |           | 1698         | 6.1  | 1698          | 6.1  | 0.419     | 11.7        | LOS B            | 9.6               | 69.1   | 0.58       | 0.51           | 0.58                       | 37.7        |

## ITA Scenario 1C - PM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|-------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | 95% Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.            | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    | v/c       | sec         |                  | veh               | m      |            |                |                            | km/h        |
| SouthEast: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 21                           | L2   | All MCs   | 65           | 1.6  | 65            | 1.6  | 0.531     | 20.7        | LOS C            | 8.1               | 58.9   | 0.85       | 0.74           | 0.85                       | 24.1        |
| 22                           | T1   | All MCs   | 655          | 4.4  | 655           | 4.4  | * 0.531   | 16.3        | LOS B            | 8.2               | 59.4   | 0.85       | 0.73           | 0.85                       | 34.8        |
| Approach                     |      |           | 720          | 4.1  | 720           | 4.1  | 0.531     | 16.7        | LOS B            | 8.2               | 59.4   | 0.85       | 0.73           | 0.85                       | 34.1        |
| NorthWest: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 28                           | T1   | All MCs   | 980          | 2.2  | 980           | 2.2  | 0.581     | 6.8         | LOS A            | 11.6              | 83.0   | 0.60       | 0.53           | 0.60                       | 42.6        |
| 29                           | R2   | All MCs   | 152          | 3.5  | 152           | 3.5  | * 0.531   | 30.0        | LOS C            | 4.1               | 29.8   | 0.97       | 0.79           | 0.97                       | 25.7        |
| Approach                     |      |           | 1132         | 2.3  | 1132          | 2.3  | 0.581     | 9.9         | LOS A            | 11.6              | 83.0   | 0.65       | 0.56           | 0.65                       | 39.4        |

|                          |    |         |      |     |      |     |         |      |       |      |      |      |      |      |      |
|--------------------------|----|---------|------|-----|------|-----|---------|------|-------|------|------|------|------|------|------|
| SouthWest: Houchens Road |    |         |      |     |      |     |         |      |       |      |      |      |      |      |      |
| 30                       | L2 | All MCs | 82   | 5.1 | 82   | 5.1 | 0.104   | 15.0 | LOS B | 1.4  | 9.9  | 0.62 | 0.69 | 0.62 | 33.1 |
| 32                       | R2 | All MCs | 22   | 0.0 | 22   | 0.0 | * 0.068 | 26.6 | LOS C | 0.5  | 3.7  | 0.86 | 0.69 | 0.86 | 19.3 |
| Approach                 |    |         | 104  | 4.0 | 104  | 4.0 | 0.104   | 17.5 | LOS B | 1.4  | 9.9  | 0.67 | 0.69 | 0.67 | 30.4 |
| All Vehicles             |    |         | 1956 | 3.1 | 1956 | 3.1 | 0.581   | 12.8 | LOS B | 11.6 | 83.0 | 0.72 | 0.63 | 0.72 | 36.8 |

### ITA Scenario 1D - AM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|-------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | 95% Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.            | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    | v/c       | sec         |                  | veh               | m      |            |                |                            | km/h        |
| SouthEast: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 21                           | L2   | All MCs   | 14           | 0.0  | 14            | 0.0  | 0.421     | 15.8        | LOS B            | 9.6               | 69.3   | 0.64       | 0.57           | 0.64                       | 28.6        |
| 22                           | T1   | All MCs   | 857          | 3.8  | 857           | 3.8  | * 0.421   | 11.4        | LOS B            | 9.6               | 69.5   | 0.64       | 0.56           | 0.64                       | 38.5        |
| Approach                     |      |           | 871          | 3.8  | 871           | 3.8  | 0.421     | 11.5        | LOS B            | 9.6               | 69.5   | 0.64       | 0.56           | 0.64                       | 38.4        |
| NorthWest: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 28                           | T1   | All MCs   | 619          | 8.9  | 619           | 8.9  | 0.338     | 4.7         | LOS A            | 6.4               | 48.2   | 0.41       | 0.35           | 0.41                       | 44.5        |
| 29                           | R2   | All MCs   | 26           | 20.0 | 26            | 20.0 | * 0.203   | 42.7        | LOS D            | 1.0               | 8.1    | 0.97       | 0.71           | 0.97                       | 21.3        |
| Approach                     |      |           | 645          | 9.4  | 645           | 9.4  | 0.338     | 6.3         | LOS A            | 6.4               | 48.2   | 0.43       | 0.37           | 0.43                       | 42.8        |
| SouthWest: Houchens Road     |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 30                           | L2   | All MCs   | 136          | 3.9  | 136           | 3.9  | 0.245     | 26.5        | LOS C            | 3.8               | 27.8   | 0.79       | 0.75           | 0.79                       | 27.0        |
| 32                           | R2   | All MCs   | 62           | 3.4  | 62            | 3.4  | * 0.233   | 36.8        | LOS D            | 2.1               | 15.3   | 0.92       | 0.74           | 0.92                       | 15.7        |
| Approach                     |      |           | 198          | 3.7  | 198           | 3.7  | 0.245     | 29.7        | LOS C            | 3.8               | 27.8   | 0.83       | 0.75           | 0.83                       | 23.6        |
| All Vehicles                 |      |           | 1714         | 5.9  | 1714          | 5.9  | 0.421     | 11.6        | LOS B            | 9.6               | 69.5   | 0.58       | 0.51           | 0.58                       | 37.8        |

### ITA Scenario 1D - PM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|-------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | 95% Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.            | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    | v/c       | sec         |                  | veh               | m      |            |                |                            | km/h        |
| SouthEast: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 21                           | L2   | All MCs   | 65           | 1.6  | 65            | 1.6  | 0.534     | 20.7        | LOS C            | 8.2               | 59.3   | 0.85       | 0.74           | 0.85                       | 24.1        |

|                          |    |         |      |     |      |     |         |      |       |      |      |      |      |      |      |
|--------------------------|----|---------|------|-----|------|-----|---------|------|-------|------|------|------|------|------|------|
| 22                       | T1 | All MCs | 661  | 4.2 | 661  | 4.2 | * 0.534 | 16.2 | LOS B | 8.3  | 59.9 | 0.85 | 0.73 | 0.85 | 34.8 |
| Approach                 |    |         | 726  | 3.9 | 726  | 3.9 | 0.534   | 16.6 | LOS B | 8.3  | 59.9 | 0.85 | 0.73 | 0.85 | 34.1 |
| NorthWest: Ohaupo Road   |    |         |      |     |      |     |         |      |       |      |      |      |      |      |      |
| 28                       | T1 | All MCs | 982  | 2.1 | 982  | 2.1 | 0.582   | 6.8  | LOS A | 11.7 | 83.2 | 0.60 | 0.53 | 0.60 | 42.6 |
| 29                       | R2 | All MCs | 152  | 3.5 | 152  | 3.5 | * 0.534 | 30.0 | LOS C | 4.1  | 29.8 | 0.97 | 0.79 | 0.97 | 25.6 |
| Approach                 |    |         | 1134 | 2.3 | 1134 | 2.3 | 0.582   | 9.9  | LOS A | 11.7 | 83.2 | 0.65 | 0.56 | 0.65 | 39.4 |
| SouthWest: Houchens Road |    |         |      |     |      |     |         |      |       |      |      |      |      |      |      |
| 30                       | L2 | All MCs | 82   | 5.1 | 82   | 5.1 | 0.104   | 15.1 | LOS B | 1.4  | 10.0 | 0.62 | 0.69 | 0.62 | 33.1 |
| 32                       | R2 | All MCs | 22   | 0.0 | 22   | 0.0 | * 0.068 | 26.6 | LOS C | 0.5  | 3.7  | 0.86 | 0.69 | 0.86 | 19.3 |
| Approach                 |    |         | 104  | 4.0 | 104  | 4.0 | 0.104   | 17.5 | LOS B | 1.4  | 10.0 | 0.67 | 0.69 | 0.67 | 30.4 |
| All Vehicles             |    |         | 1964 | 3.0 | 1964 | 3.0 | 0.582   | 12.8 | LOS B | 11.7 | 83.2 | 0.72 | 0.63 | 0.72 | 36.8 |

### ITA Scenario 1E - AM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|-------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | 95% Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.            | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    | v/c       | sec         |                  | veh               | m      |            |                |                            | km/h        |
| SouthEast: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 21                           | L2   | All MCs   | 14           | 0.0  | 14            | 0.0  | 0.237     | 15.8        | LOS B            | 4.7               | 33.6   | 0.57       | 0.50           | 0.57                       | 29.5        |
| 22                           | T1   | All MCs   | 857          | 3.8  | 857           | 3.8  | * 0.647   | 13.9        | LOS B            | 16.4              | 118.5  | 0.72       | 0.64           | 0.72                       | 37.4        |
| Approach                     |      |           | 871          | 3.8  | 871           | 3.8  | 0.647     | 14.0        | LOS B            | 16.4              | 118.5  | 0.72       | 0.64           | 0.72                       | 36.5        |
| NorthWest: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 28                           | T1   | All MCs   | 620          | 8.9  | 620           | 8.9  | 0.353     | 4.9         | LOS A            | 6.7               | 50.2   | 0.42       | 0.36           | 0.42                       | 44.4        |
| 29                           | R2   | All MCs   | 26           | 20.0 | 26            | 20.0 | * 0.198   | 41.5        | LOS D            | 1.0               | 7.8    | 0.97       | 0.71           | 0.97                       | 21.7        |
| Approach                     |      |           | 646          | 9.4  | 646           | 9.4  | 0.353     | 6.4         | LOS A            | 6.7               | 50.2   | 0.44       | 0.38           | 0.44                       | 42.7        |
| SouthWest: Houchens Road     |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 30                           | L2   | All MCs   | 136          | 3.9  | 136           | 3.9  | 0.240     | 25.7        | LOS C            | 3.7               | 26.8   | 0.78       | 0.75           | 0.78                       | 27.4        |
| 32                           | R2   | All MCs   | 62           | 3.4  | 62            | 3.4  | * 0.229   | 35.8        | LOS D            | 2.1               | 14.8   | 0.92       | 0.74           | 0.92                       | 16.0        |
| Approach                     |      |           | 198          | 3.7  | 198           | 3.7  | 0.240     | 28.9        | LOS C            | 3.7               | 26.8   | 0.83       | 0.75           | 0.83                       | 24.0        |
| All Vehicles                 |      |           | 1715         | 5.9  | 1715          | 5.9  | 0.647     | 12.8        | LOS B            | 16.4              | 118.5  | 0.63       | 0.55           | 0.63                       | 36.9        |

## ITA Scenario 1E - PM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|-------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | 95% Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.            | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    | v/c       | sec         |                  | veh               | m      |            |                |                            | km/h        |
| SouthEast: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 21                           | L2   | All MCs   | 65           | 1.6  | 65            | 1.6  | 0.245     | 17.2        | LOS B            | 3.8               | 27.2   | 0.69       | 0.63           | 0.69                       | 26.1        |
| 22                           | T1   | All MCs   | 662          | 4.2  | 662           | 4.2  | * 0.671   | 15.3        | LOS B            | 13.1              | 95.2   | 0.83       | 0.74           | 0.83                       | 35.4        |
| Approach                     |      |           | 727          | 3.9  | 727           | 3.9  | 0.671     | 15.5        | LOS B            | 13.1              | 95.2   | 0.82       | 0.73           | 0.82                       | 34.9        |
| NorthWest: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 28                           | T1   | All MCs   | 983          | 2.1  | 983           | 2.1  | 0.590     | 7.1         | LOS A            | 12.4              | 88.7   | 0.58       | 0.51           | 0.58                       | 42.7        |
| 29                           | R2   | All MCs   | 152          | 3.5  | 152           | 3.5  | * 0.671   | 35.7        | LOS D            | 4.8               | 34.3   | 1.00       | 0.86           | 1.13                       | 23.8        |
| Approach                     |      |           | 1135         | 2.3  | 1135          | 2.3  | 0.671     | 10.9        | LOS B            | 12.4              | 88.7   | 0.63       | 0.56           | 0.65                       | 38.6        |
| SouthWest: Houchens Road     |      |           |              |      |               |      |           |             |                  |                   |        |            |                |                            |             |
| 30                           | L2   | All MCs   | 82           | 5.1  | 82            | 5.1  | 0.117     | 17.7        | LOS B            | 1.6               | 11.5   | 0.67       | 0.70           | 0.67                       | 31.5        |
| 32                           | R2   | All MCs   | 22           | 0.0  | 22            | 0.0  | * 0.071   | 28.5        | LOS C            | 0.6               | 4.0    | 0.87       | 0.69           | 0.87                       | 18.5        |
| Approach                     |      |           | 104          | 4.0  | 104           | 4.0  | 0.117     | 20.0        | LOS C            | 1.6               | 11.5   | 0.71       | 0.70           | 0.71                       | 28.9        |
| All Vehicles                 |      |           | 1966         | 3.0  | 1966          | 3.0  | 0.671     | 13.1        | LOS B            | 13.1              | 95.2   | 0.71       | 0.63           | 0.72                       | 36.6        |

## ITA Scenario 2 - AM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|---------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | Aver. Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.              | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    | v/c       | sec         |                  | veh                 | m      |            |                |                            | km/h        |
| SouthEast: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 21                           | L2   | All MCs   | 39           | 0.0  | 39            | 0.0  | 0.503     | 17.8        | LOS B            | 6.3                 | 45.1   | 0.74       | 0.66           | 0.74                       | 26.6        |
| 22                           | T1   | All MCs   | 865          | 3.9  | 865           | 3.9  | * 0.503   | 13.4        | LOS B            | 6.3                 | 45.3   | 0.74       | 0.65           | 0.74                       | 23.2        |
| Approach                     |      |           | 904          | 3.7  | 904           | 3.7  | 0.503     | 13.6        | LOS B            | 6.3                 | 45.3   | 0.74       | 0.66           | 0.74                       | 23.4        |
| NorthWest: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 28                           | T1   | All MCs   | 606          | 9.5  | <b>604</b>    | 9.5  | 0.350     | 0.4         | LOS A            | 0.3                 | 2.1    | 0.03       | 0.03           | 0.03                       | 49.5        |
| 29                           | R2   | All MCs   | 83           | 20.0 | 83            | 20.0 | * 0.503   | 27.2        | LOS C            | 1.4                 | 11.2   | 0.80       | 0.72           | 0.80                       | 26.6        |
| Approach                     |      |           | 689          | 10.8 | <b>687</b>    | 10.8 | 0.503     | 3.6         | LOS A            | 1.4                 | 11.2   | 0.13       | 0.11           | 0.13                       | 44.0        |

|                          |    |         |      |     |      |     |         |      |       |     |      |      |      |      |      |
|--------------------------|----|---------|------|-----|------|-----|---------|------|-------|-----|------|------|------|------|------|
| SouthWest: Houchens Road |    |         |      |     |      |     |         |      |       |     |      |      |      |      |      |
| 30                       | L2 | All MCs | 152  | 3.9 | 152  | 3.9 | 0.237   | 21.3 | LOS C | 2.1 | 15.5 | 0.75 | 0.74 | 0.75 | 12.6 |
| 32                       | R2 | All MCs | 65   | 3.4 | 65   | 3.4 | * 0.224 | 31.9 | LOS C | 1.2 | 8.5  | 0.91 | 0.74 | 0.91 | 9.2  |
| Approach                 |    |         | 217  | 3.7 | 217  | 3.7 | 0.237   | 24.5 | LOS C | 2.1 | 15.5 | 0.80 | 0.74 | 0.80 | 11.3 |
| All Vehicles             |    |         | 1811 | 6.4 | 1808 | 6.4 | 0.503   | 11.1 | LOS B | 6.3 | 45.3 | 0.52 | 0.46 | 0.52 | 30.5 |

### ITA Scenario 2 - PM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|---------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | Aver. Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.              | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    |           |             |                  | veh                 | m      |            |                |                            |             |
| SouthEast: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 21                           | L2   | All MCs   | 63           | 1.6  | 63            | 1.6  | 0.551     | 20.5        | LOS C            | 7.5                 | 54.1   | 0.79       | 0.70           | 0.79                       | 24.4        |
| 22                           | T1   | All MCs   | 877          | 4.4  | 877           | 4.4  | * 0.551   | 16.0        | LOS B            | 7.5                 | 54.5   | 0.79       | 0.70           | 0.79                       | 20.9        |
| Approach                     |      |           | 940          | 4.2  | 940           | 4.2  | 0.551     | 16.3        | LOS B            | 7.5                 | 54.5   | 0.79       | 0.70           | 0.79                       | 21.2        |
| NorthWest: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 28                           | T1   | All MCs   | 1082         | 2.2  | 1082          | 2.2  | 0.578     | 0.8         | LOS A            | 1.4                 | 9.8    | 0.08       | 0.07           | 0.08                       | 49.1        |
| 29                           | R2   | All MCs   | 155          | 3.5  | 155           | 3.5  | * 0.551   | 28.6        | LOS C            | 2.8                 | 20.3   | 0.84       | 0.76           | 0.84                       | 26.2        |
| Approach                     |      |           | 1237         | 2.3  | 1237          | 2.3  | 0.578     | 4.2         | LOS A            | 2.8                 | 20.3   | 0.17       | 0.16           | 0.17                       | 43.4        |
| SouthWest: Houchens Road     |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 30                           | L2   | All MCs   | 76           | 5.1  | 76            | 5.1  | 0.108     | 20.0        | LOS B            | 1.0                 | 7.6    | 0.67       | 0.70           | 0.67                       | 13.2        |
| 32                           | R2   | All MCs   | 41           | 0.0  | 41            | 0.0  | * 0.145   | 34.3        | LOS C            | 0.8                 | 5.6    | 0.90       | 0.72           | 0.90                       | 8.7         |
| Approach                     |      |           | 117          | 3.3  | 117           | 3.3  | 0.145     | 25.0        | LOS C            | 1.0                 | 7.6    | 0.75       | 0.71           | 0.75                       | 11.2        |
| All Vehicles                 |      |           | 2294         | 3.1  | 2294          | 3.1  | 0.578     | 10.3        | LOS B            | 7.5                 | 54.5   | 0.45       | 0.41           | 0.45                       | 33.3        |

### ITA Scenario 3 - AM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|---------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | Aver. Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.              | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    |           |             |                  | v/c                 | sec    |            |                |                            | veh         |
| SouthEast: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 21                           | L2   | All MCs   | 78           | 0.0  | 78            | 0.0  | 0.419     | 24.2        | LOS C            | 4.6                 | 33.1   | 0.81       | 0.71           | 0.81                       | 17.8        |

|                          |    |         |      |      |      |      |         |      |       |     |      |      |      |      |      |
|--------------------------|----|---------|------|------|------|------|---------|------|-------|-----|------|------|------|------|------|
| 22                       | T1 | All MCs | 477  | 3.9  | 477  | 3.9  | * 0.419 | 19.8 | LOS B | 4.6 | 33.6 | 0.81 | 0.70 | 0.81 | 18.3 |
| Approach                 |    |         | 555  | 3.3  | 555  | 3.3  | 0.419   | 20.4 | LOS C | 4.6 | 33.6 | 0.81 | 0.70 | 0.81 | 18.2 |
| NorthWest: Ohaupo Road   |    |         |      |      |      |      |         |      |       |     |      |      |      |      |      |
| 28                       | T1 | All MCs | 306  | 9.5  | 306  | 9.5  | 0.171   | 0.4  | LOS A | 0.2 | 1.4  | 0.04 | 0.03 | 0.04 | 49.3 |
| 29                       | R2 | All MCs | 175  | 20.0 | 175  | 20.0 | * 0.419 | 19.1 | LOS B | 2.2 | 18.4 | 0.61 | 0.70 | 0.61 | 29.6 |
| Approach                 |    |         | 481  | 13.3 | 481  | 13.3 | 0.419   | 7.2  | LOS A | 2.2 | 18.4 | 0.25 | 0.27 | 0.25 | 39.6 |
| SouthWest: Houchens Road |    |         |      |      |      |      |         |      |       |     |      |      |      |      |      |
| 30                       | L2 | All MCs | 188  | 3.9  | 188  | 3.9  | 0.212   | 16.0 | LOS B | 2.3 | 16.7 | 0.61 | 0.71 | 0.61 | 35.0 |
| 32                       | R2 | All MCs | 98   | 3.4  | 98   | 3.4  | * 0.355 | 35.5 | LOS D | 2.0 | 14.3 | 0.94 | 0.77 | 0.94 | 25.6 |
| Approach                 |    |         | 286  | 3.7  | 286  | 3.7  | 0.355   | 22.7 | LOS C | 2.3 | 16.7 | 0.72 | 0.73 | 0.72 | 31.1 |
| All Vehicles             |    |         | 1322 | 7.0  | 1322 | 7.0  | 0.419   | 16.1 | LOS B | 4.6 | 33.6 | 0.59 | 0.55 | 0.59 | 29.4 |

### ITA Scenario 3 - PM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|---------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | Aver. Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.              | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    | v/c       | sec         |                  | veh                 | m      |            |                |                            | km/h        |
| SouthEast: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 21                           | L2   | All MCs   | 76           | 1.6  | 76            | 1.6  | 0.595     | 24.4        | LOS C            | 4.3                 | 30.9   | 0.93       | 0.79           | 0.93                       | 17.8        |
| 22                           | T1   | All MCs   | 505          | 4.4  | 505           | 4.4  | * 0.595   | 19.9        | LOS B            | 4.3                 | 31.3   | 0.93       | 0.78           | 0.93                       | 18.2        |
| Approach                     |      |           | 581          | 4.0  | 581           | 4.0  | 0.595     | 20.5        | LOS C            | 4.3                 | 31.3   | 0.93       | 0.78           | 0.93                       | 18.2        |
| NorthWest: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 28                           | T1   | All MCs   | 562          | 2.2  | 562           | 2.2  | 0.361     | 5.0         | LOS A            | 2.8                 | 20.2   | 0.44       | 0.38           | 0.44                       | 42.4        |
| 29                           | R2   | All MCs   | 219          | 3.5  | 219           | 3.5  | * 0.595   | 31.7        | LOS C            | 3.7                 | 26.7   | 1.00       | 0.83           | 1.01                       | 23.2        |
| Approach                     |      |           | 781          | 2.5  | 781           | 2.5  | 0.595     | 12.5        | LOS B            | 3.7                 | 26.7   | 0.60       | 0.50           | 0.60                       | 34.4        |
| SouthWest: Houchens Road     |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 30                           | L2   | All MCs   | 179          | 5.1  | 179           | 5.1  | 0.189     | 12.8        | LOS B            | 1.5                 | 11.3   | 0.56       | 0.69           | 0.56                       | 37.8        |
| 32                           | R2   | All MCs   | 221          | 0.0  | 221           | 0.0  | * 0.600   | 27.5        | LOS C            | 3.4                 | 24.1   | 0.95       | 0.82           | 0.98                       | 29.1        |
| Approach                     |      |           | 400          | 2.3  | 400           | 2.3  | 0.600     | 21.0        | LOS C            | 3.4                 | 24.1   | 0.78       | 0.76           | 0.79                       | 32.0        |
| All Vehicles                 |      |           | 1762         | 3.0  | 1762          | 3.0  | 0.600     | 17.0        | LOS B            | 4.3                 | 31.3   | 0.75       | 0.66           | 0.75                       | 29.5        |

## ITA Scenario 4 - AM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|---------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | Aver. Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.              | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    |           |             |                  | v/c                 | sec    |            |                |                            |             |
| SouthEast: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 21                           | L2   | All MCs   | 54           | 0.0  | 54            | 0.0  | 0.613     | 21.5        | LOS C            | 5.0                 | 36.1   | 0.90       | 0.78           | 0.90                       | 19.9        |
| 22                           | T1   | All MCs   | 680          | 3.9  | 680           | 3.9  | * 0.613   | 17.1        | LOS B            | 5.0                 | 36.4   | 0.90       | 0.77           | 0.90                       | 20.1        |
| Approach                     |      |           | 734          | 3.6  | 734           | 3.6  | 0.613     | 17.4        | LOS B            | 5.0                 | 36.4   | 0.90       | 0.77           | 0.90                       | 20.1        |
| NorthWest: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 28                           | T1   | All MCs   | 434          | 9.5  | 429           | 9.6  | 0.281     | 3.8         | LOS A            | 1.7                 | 12.8   | 0.36       | 0.31           | 0.36                       | 44.0        |
| 29                           | R2   | All MCs   | 160          | 20.0 | 158           | 20.1 | * 0.613   | 32.5        | LOS C            | 2.7                 | 21.8   | 1.00       | 0.82           | 1.04                       | 22.9        |
| Approach                     |      |           | 594          | 12.3 | 588           | 12.4 | 0.613     | 11.5        | LOS B            | 2.7                 | 21.8   | 0.53       | 0.45           | 0.55                       | 35.2        |
| SouthWest: Houchens Road     |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 30                           | L2   | All MCs   | 145          | 3.9  | 145           | 3.9  | 0.174     | 13.8        | LOS B            | 1.3                 | 9.7    | 0.62       | 0.70           | 0.62                       | 36.6        |
| 32                           | R2   | All MCs   | 94           | 3.4  | 94            | 3.4  | * 0.277   | 25.3        | LOS C            | 1.3                 | 9.5    | 0.90       | 0.75           | 0.90                       | 29.8        |
| Approach                     |      |           | 239          | 3.7  | 239           | 3.7  | 0.277     | 18.3        | LOS B            | 1.3                 | 9.7    | 0.73       | 0.72           | 0.73                       | 33.6        |
| All Vehicles                 |      |           | 1566         | 6.9  | 1560          | 6.9  | 0.613     | 15.3        | LOS B            | 5.0                 | 36.4   | 0.74       | 0.64           | 0.74                       | 29.2        |

## ITA Scenario 4 - PM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|---------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | Aver. Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.              | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    |           |             |                  | v/c                 | sec    |            |                |                            |             |
| SouthEast: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 21                           | L2   | All MCs   | 72           | 1.6  | 72            | 1.6  | 0.664     | 25.6        | LOS C            | 6.2                 | 44.6   | 0.93       | 0.82           | 0.96                       | 17.4        |
| 22                           | T1   | All MCs   | 679          | 4.4  | 679           | 4.4  | * 0.664   | 21.1        | LOS C            | 6.2                 | 45.0   | 0.93       | 0.82           | 0.96                       | 17.6        |
| Approach                     |      |           | 751          | 4.1  | 751           | 4.1  | 0.664     | 21.5        | LOS C            | 6.2                 | 45.0   | 0.93       | 0.82           | 0.96                       | 17.6        |
| NorthWest: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 28                           | T1   | All MCs   | 815          | 2.2  | 815           | 2.2  | 0.518     | 2.5         | LOS A            | 2.7                 | 19.0   | 0.25       | 0.22           | 0.25                       | 46.2        |
| 29                           | R2   | All MCs   | 217          | 3.5  | 217           | 3.5  | * 0.664   | 35.1        | LOS D            | 4.1                 | 29.4   | 1.00       | 0.84           | 1.04                       | 22.0        |
| Approach                     |      |           | 1032         | 2.4  | 1032          | 2.4  | 0.664     | 9.3         | LOS A            | 4.1                 | 29.4   | 0.41       | 0.35           | 0.42                       | 37.4        |

|                          |    |         |      |     |      |     |         |      |       |     |      |      |      |      |      |
|--------------------------|----|---------|------|-----|------|-----|---------|------|-------|-----|------|------|------|------|------|
| SouthWest: Houchens Road |    |         |      |     |      |     |         |      |       |     |      |      |      |      |      |
| 30                       | L2 | All MCs | 174  | 5.1 | 174  | 5.1 | 0.190   | 17.2 | LOS B | 1.7 | 12.5 | 0.58 | 0.70 | 0.58 | 36.8 |
| 32                       | R2 | All MCs | 235  | 0.0 | 235  | 0.0 | * 0.667 | 33.3 | LOS C | 4.2 | 29.2 | 0.96 | 0.86 | 1.05 | 27.9 |
| Approach                 |    |         | 408  | 2.2 | 408  | 2.2 | 0.667   | 26.5 | LOS C | 4.2 | 29.2 | 0.80 | 0.79 | 0.85 | 29.3 |
| All Vehicles             |    |         | 2191 | 3.0 | 2191 | 3.0 | 0.667   | 16.7 | LOS B | 6.2 | 45.0 | 0.66 | 0.59 | 0.68 | 29.5 |

### ITA Scenario 5 - AM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|---------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | Aver. Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.              | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    |           |             |                  | v/c                 | sec    |            |                |                            | veh         |
| SouthEast: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 21                           | L2   | All MCs   | 159          | 0.0  | 159           | 0.0  | 0.607     | 20.3        | LOS C            | 4.9                 | 35.2   | 0.89       | 0.79           | 0.89                       | 19.9        |
| 22                           | T1   | All MCs   | 603          | 3.9  | 603           | 3.9  | * 0.607   | 15.8        | LOS B            | 5.0                 | 36.0   | 0.89       | 0.77           | 0.89                       | 20.7        |
| Approach                     |      |           | 762          | 3.1  | 762           | 3.1  | 0.607     | 16.8        | LOS B            | 5.0                 | 36.0   | 0.89       | 0.77           | 0.89                       | 20.6        |
| NorthWest: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 28                           | T1   | All MCs   | 317          | 9.5  | 314           | 9.6  | 0.211     | 0.5         | LOS A            | 0.2                 | 1.3    | 0.05       | 0.04           | 0.05                       | 49.2        |
| 29                           | R2   | All MCs   | 123          | 20.0 | 122           | 20.1 | * 0.607   | 18.3        | LOS B            | 1.4                 | 11.8   | 0.74       | 0.73           | 0.77                       | 30.1        |
| Approach                     |      |           | 440          | 12.5 | 437           | 12.5 | 0.607     | 5.5         | LOS A            | 1.4                 | 11.8   | 0.24       | 0.23           | 0.25                       | 41.7        |
| SouthWest: Houchens Road     |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 30                           | L2   | All MCs   | 182          | 3.9  | 182           | 3.9  | 0.231     | 14.5        | LOS B            | 1.7                 | 12.7   | 0.67       | 0.72           | 0.67                       | 16.5        |
| 32                           | R2   | All MCs   | 168          | 3.4  | 168           | 3.4  | * 0.486   | 25.3        | LOS C            | 2.4                 | 17.2   | 0.94       | 0.79           | 0.94                       | 11.1        |
| Approach                     |      |           | 351          | 3.6  | 351           | 3.6  | 0.486     | 19.7        | LOS B            | 2.4                 | 17.2   | 0.80       | 0.75           | 0.80                       | 13.3        |
| All Vehicles                 |      |           | 1553         | 5.9  | 1549          | 5.9  | 0.607     | 14.3        | LOS B            | 5.0                 | 36.0   | 0.69       | 0.62           | 0.69                       | 25.7        |

### ITA Scenario 5 - PM Peak

| Vehicle Movement Performance |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
|------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|---------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                       | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | Aver. Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                              |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.              | Dist ] |            |                |                            |             |
|                              |      |           | veh/h        | %    | veh/h         | %    |           |             |                  | v/c                 | sec    |            |                |                            | veh         |
| SouthEast: Ohaupo Road       |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 21                           | L2   | All MCs   | 163          | 1.6  | 163           | 1.6  | 0.608     | 30.9        | LOS C            | 7.5                 | 54.0   | 0.91       | 0.80           | 0.91                       | 14.5        |

|                          |    |         |      |     |      |     |         |      |       |     |      |      |      |      |      |
|--------------------------|----|---------|------|-----|------|-----|---------|------|-------|-----|------|------|------|------|------|
| 22                       | T1 | All MCs | 552  | 4.4 | 552  | 4.4 | * 0.608 | 26.4 | LOS C | 7.6 | 55.4 | 0.91 | 0.79 | 0.91 | 15.0 |
| Approach                 |    |         | 715  | 3.8 | 715  | 3.8 | 0.608   | 27.5 | LOS C | 7.6 | 55.4 | 0.91 | 0.79 | 0.91 | 14.9 |
| NorthWest: Ohaupo Road   |    |         |      |     |      |     |         |      |       |     |      |      |      |      |      |
| 28                       | T1 | All MCs | 913  | 2.2 | 913  | 2.2 | 0.510   | 2.4  | LOS A | 3.4 | 24.5 | 0.21 | 0.19 | 0.21 | 46.4 |
| 29                       | R2 | All MCs | 301  | 3.5 | 301  | 3.5 | * 0.608 | 23.0 | LOS C | 5.3 | 38.3 | 0.75 | 0.76 | 0.75 | 27.2 |
| Approach                 |    |         | 1214 | 2.5 | 1214 | 2.5 | 0.608   | 7.5  | LOS A | 5.3 | 38.3 | 0.35 | 0.33 | 0.35 | 39.4 |
| SouthWest: Houchens Road |    |         |      |     |      |     |         |      |       |     |      |      |      |      |      |
| 30                       | L2 | All MCs | 135  | 5.1 | 135  | 5.1 | 0.137   | 21.7 | LOS C | 1.6 | 11.8 | 0.52 | 0.68 | 0.52 | 36.1 |
| 32                       | R2 | All MCs | 186  | 0.0 | 186  | 0.0 | * 0.610 | 45.5 | LOS D | 4.4 | 30.5 | 0.96 | 0.81 | 0.98 | 24.7 |
| Approach                 |    |         | 321  | 2.2 | 321  | 2.2 | 0.610   | 35.5 | LOS D | 4.4 | 30.5 | 0.78 | 0.76 | 0.78 | 25.6 |
| All Vehicles             |    |         | 2249 | 2.8 | 2249 | 2.8 | 0.610   | 17.8 | LOS B | 7.6 | 55.4 | 0.59 | 0.54 | 0.59 | 28.6 |



## Future Houchens Rd Full-Diamond Interchange

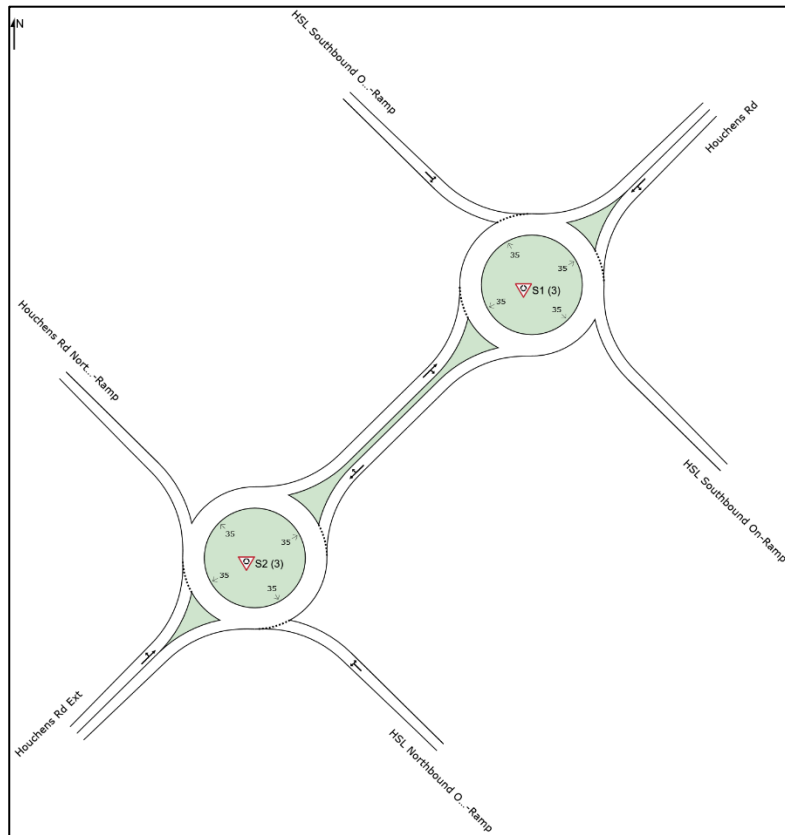


Figure: Future Houchens Rd Full-Diamond Interchange Layout – Scenarios 3 to 5

### ITA Scenario 3 - AM Peak

| Vehicle Movement Performance – Northern Roundabout |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
|----------------------------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|---------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                                             | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | Aver. Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                                                    |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.              | Dist ] |            |                |                            |             |
|                                                    |      |           | veh/h        | %    | veh/h         | %    | v/c       | sec         |                  | veh                 | m      |            |                |                            | km/h        |
| NorthEast: Houchens Rd                             |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 1                                                  | L2   | All MCs   | 193          | 12.0 | 193           | 12.0 | 0.182     | 2.4         | LOS A            | 0.4                 | 2.9    | 0.19       | 0.31           | 0.19                       | 53.8        |
| 2                                                  | T1   | All MCs   | 63           | 12.0 | 63            | 12.0 | 0.182     | 2.2         | LOS A            | 0.4                 | 2.9    | 0.19       | 0.31           | 0.19                       | 46.4        |
| Approach                                           |      |           | 256          | 12.0 | 256           | 12.0 | 0.182     | 2.4         | LOS A            | 0.4                 | 2.9    | 0.19       | 0.31           | 0.19                       | 52.6        |
| NorthWest: HSL Southbound Off-Ramp                 |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 3                                                  | L2   | All MCs   | 51           | 10.0 | 51            | 10.0 | 0.077     | 6.0         | LOS A            | 0.1                 | 1.1    | 0.33       | 0.60           | 0.33                       | 57.4        |
| 4                                                  | R2   | All MCs   | 44           | 10.0 | 44            | 10.0 | 0.077     | 12.9        | LOS B            | 0.1                 | 1.1    | 0.33       | 0.60           | 0.33                       | 57.4        |
| Approach                                           |      |           | 95           | 10.0 | 95            | 10.0 | 0.077     | 9.2         | LOS A            | 0.1                 | 1.1    | 0.33       | 0.60           | 0.33                       | 57.4        |
| SouthWest: Houchens Rd Ext                         |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 5                                                  | T1   | All MCs   | 159          | 10.0 | 159           | 10.0 | 0.104     | 0.0         | LOS A            | 0.0                 | 0.0    | 0.00       | 0.07           | 0.00                       | 38.5        |
| 6                                                  | R2   | All MCs   | 19           | 10.0 | 19            | 10.0 | 0.104     | 5.1         | LOS A            | 0.0                 | 0.0    | 0.00       | 0.07           | 0.00                       | 55.1        |
| Approach                                           |      |           | 178          | 10.0 | 178           | 10.0 | 0.104     | 0.5         | LOS A            | 0.0                 | 0.0    | 0.00       | 0.07           | 0.00                       | 42.9        |
| All Vehicles                                       |      |           | 528          | 11.0 | 528           | 11.0 | 0.182     | 3.0         | LOS A            | 0.4                 | 2.9    | 0.15       | 0.28           | 0.15                       | 52.0        |

| Vehicle Movement Performance – Southern Roundabout |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
|----------------------------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|---------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                                             | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | Aver. Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                                                    |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.              | Dist ] |            |                |                            |             |
|                                                    |      |           | veh/h        | %    | veh/h         | %    | v/c       | sec         |                  | veh                 | m      |            |                |                            | km/h        |
| SouthEast: HSL Northbound Off-Ramp                 |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 1                                                  | L2   | All MCs   | 26           | 10.0 | 26            | 10.0 | 0.135     | 5.7         | LOS A            | 0.3                 | 2.0    | 0.26       | 0.62           | 0.26                       | 52.2        |
| 2                                                  | R2   | All MCs   | 152          | 10.0 | 152           | 10.0 | 0.135     | 12.6        | LOS B            | 0.3                 | 2.0    | 0.26       | 0.62           | 0.26                       | 54.3        |
| Approach                                           |      |           | 178          | 10.0 | 178           | 10.0 | 0.135     | 11.5        | LOS B            | 0.3                 | 2.0    | 0.26       | 0.62           | 0.26                       | 53.9        |
| NorthEast: Houchens Rd Ext                         |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 3                                                  | T1   | All MCs   | 62           | 10.0 | 62            | 10.0 | 0.062     | 0.0         | LOS A            | 0.0                 | 0.0    | 0.00       | 0.25           | 0.00                       | 43.1        |
| 4                                                  | R2   | All MCs   | 44           | 10.0 | 44            | 10.0 | 0.062     | 5.1         | LOS A            | 0.0                 | 0.0    | 0.00       | 0.25           | 0.00                       | 52.9        |
| Approach                                           |      |           | 106          | 10.0 | 106           | 10.0 | 0.062     | 2.1         | LOS A            | 0.0                 | 0.0    | 0.00       | 0.25           | 0.00                       | 47.6        |
| SouthWest: Houchens Rd Ext                         |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 5                                                  | L2   | All MCs   | 56           | 10.0 | 56            | 10.0 | 0.069     | 6.2         | LOS A            | 0.1                 | 1.1    | 0.36       | 0.47           | 0.36                       | 49.5        |
| 6                                                  | T1   | All MCs   | 26           | 12.0 | 26            | 12.0 | 0.069     | 2.8         | LOS A            | 0.1                 | 1.1    | 0.36       | 0.47           | 0.36                       | 49.8        |



|              |     |      |     |      |       |     |       |     |     |      |      |      |      |
|--------------|-----|------|-----|------|-------|-----|-------|-----|-----|------|------|------|------|
| Approach     | 82  | 10.6 | 82  | 10.6 | 0.069 | 5.1 | LOS A | 0.1 | 1.1 | 0.36 | 0.47 | 0.36 | 49.5 |
| All Vehicles | 366 | 10.1 | 366 | 10.1 | 0.135 | 7.4 | LOS A | 0.3 | 2.0 | 0.21 | 0.48 | 0.21 | 51.0 |

### ITA Scenario 3 - PM Peak

| Vehicle Movement Performance – Northern Roundabout |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
|----------------------------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|---------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                                             | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | Aver. Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                                                    |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.              | Dist ] |            |                |                            |             |
|                                                    |      |           | veh/h        | %    | veh/h         | %    |           |             |                  | veh                 | m      |            |                |                            |             |
| NorthEast: Houchens Rd                             |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 1                                                  | L2   | All MCs   | 174          | 12.0 | 174           | 12.0 | 0.158     | 2.4         | LOS A            | 0.3                 | 2.3    | 0.17       | 0.31           | 0.17                       | 53.9        |
| 2                                                  | T1   | All MCs   | 44           | 12.0 | 44            | 12.0 | 0.158     | 2.2         | LOS A            | 0.3                 | 2.3    | 0.17       | 0.31           | 0.17                       | 46.4        |
| Approach                                           |      |           | 218          | 12.0 | 218           | 12.0 | 0.158     | 2.4         | LOS A            | 0.3                 | 2.3    | 0.17       | 0.31           | 0.17                       | 52.9        |
| NorthWest: HSL Southbound Off-Ramp                 |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 3                                                  | L2   | All MCs   | 211          | 10.0 | 211           | 10.0 | 0.220     | 6.4         | LOS A            | 0.5                 | 3.6    | 0.41       | 0.57           | 0.41                       | 59.5        |
| 4                                                  | R2   | All MCs   | 52           | 10.0 | 52            | 10.0 | 0.220     | 13.2        | LOS B            | 0.5                 | 3.6    | 0.41       | 0.57           | 0.41                       | 59.5        |
| Approach                                           |      |           | 262          | 10.0 | 262           | 10.0 | 0.220     | 7.8         | LOS A            | 0.5                 | 3.6    | 0.41       | 0.57           | 0.41                       | 59.5        |
| SouthWest: Houchens Rd Ext                         |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 5                                                  | T1   | All MCs   | 201          | 10.0 | 201           | 10.0 | 0.128     | 0.0         | LOS A            | 0.0                 | 0.0    | 0.00       | 0.05           | 0.00                       | 38.8        |
| 6                                                  | R2   | All MCs   | 18           | 10.0 | 18            | 10.0 | 0.128     | 5.1         | LOS A            | 0.0                 | 0.0    | 0.00       | 0.05           | 0.00                       | 55.3        |
| Approach                                           |      |           | 219          | 10.0 | 219           | 10.0 | 0.128     | 0.4         | LOS A            | 0.0                 | 0.0    | 0.00       | 0.05           | 0.00                       | 42.3        |
| All Vehicles                                       |      |           | 699          | 10.6 | 699           | 10.6 | 0.220     | 3.8         | LOS A            | 0.5                 | 3.6    | 0.21       | 0.33           | 0.21                       | 53.6        |

| Vehicle Movement Performance – Southern Roundabout |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
|----------------------------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|---------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                                             | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | Aver. Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                                                    |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.              | Dist ] |            |                |                            |             |
|                                                    |      |           | veh/h        | %    | veh/h         | %    |           |             |                  | veh                 | m      |            |                |                            |             |
| SouthEast: HSL Northbound Off-Ramp                 |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 1                                                  | L2   | All MCs   | 19           | 10.0 | 19            | 10.0 | 0.162     | 5.7         | LOS A            | 0.3                 | 2.5    | 0.25       | 0.63           | 0.25                       | 52.0        |
| 2                                                  | R2   | All MCs   | 200          | 10.0 | 200           | 10.0 | 0.162     | 12.5        | LOS B            | 0.3                 | 2.5    | 0.25       | 0.63           | 0.25                       | 53.9        |
| Approach                                           |      |           | 219          | 10.0 | 219           | 10.0 | 0.162     | 11.9        | LOS B            | 0.3                 | 2.5    | 0.25       | 0.63           | 0.25                       | 53.6        |
| NorthEast: Houchens Rd Ext                         |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 3                                                  | T1   | All MCs   | 69           | 10.0 | 69            | 10.0 | 0.056     | 0.0         | LOS A            | 0.0                 | 0.0    | 0.00       | 0.17           | 0.00                       | 44.0        |
| 4                                                  | R2   | All MCs   | 26           | 10.0 | 26            | 10.0 | 0.056     | 5.1         | LOS A            | 0.0                 | 0.0    | 0.00       | 0.17           | 0.00                       | 53.9        |



|                            |    |         |     |      |     |      |       |     |       |     |     |      |      |      |      |
|----------------------------|----|---------|-----|------|-----|------|-------|-----|-------|-----|-----|------|------|------|------|
| Approach                   |    |         | 96  | 10.0 | 96  | 10.0 | 0.056 | 1.4 | LOS A | 0.0 | 0.0 | 0.00 | 0.17 | 0.00 | 47.0 |
| SouthWest: Houchens Rd Ext |    |         |     |      |     |      |       |     |       |     |     |      |      |      |      |
| 5                          | L2 | All MCs | 29  | 10.0 | 29  | 10.0 | 0.042 | 6.3 | LOS A | 0.1 | 0.6 | 0.38 | 0.45 | 0.38 | 49.0 |
| 6                          | T1 | All MCs | 19  | 12.0 | 19  | 12.0 | 0.042 | 2.9 | LOS A | 0.1 | 0.6 | 0.38 | 0.45 | 0.38 | 48.7 |
| Approach                   |    |         | 48  | 10.8 | 48  | 10.8 | 0.042 | 4.9 | LOS A | 0.1 | 0.6 | 0.38 | 0.45 | 0.38 | 49.0 |
| All Vehicles               |    |         | 363 | 10.1 | 363 | 10.1 | 0.162 | 8.2 | LOS A | 0.3 | 2.5 | 0.20 | 0.48 | 0.20 | 51.2 |

#### ITA Scenario 4 - AM Peak

| Vehicle Movement Performance – Northern Roundabout |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
|----------------------------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|---------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                                             | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | Aver. Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                                                    |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.              | Dist ] |            |                |                            |             |
|                                                    |      |           | veh/h        | %    | veh/h         | %    |           |             |                  | veh                 | m      |            |                |                            |             |
| NorthEast: Houchens Rd                             |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 1                                                  | L2   | All MCs   | 157          | 12.0 | 157           | 12.0 | 0.153     | 2.4         | LOS A            | 0.3                 | 2.1    | 0.16       | 0.30           | 0.16                       | 53.9        |
| 2                                                  | T1   | All MCs   | 56           | 12.0 | 55            | 12.0 | 0.153     | 2.2         | LOS A            | 0.3                 | 2.1    | 0.16       | 0.30           | 0.16                       | 46.5        |
| Approach                                           |      |           | 213          | 12.0 | 212           | 12.0 | 0.153     | 2.4         | LOS A            | 0.3                 | 2.1    | 0.16       | 0.30           | 0.16                       | 52.6        |
| NorthWest: HSL Southbound Off-Ramp                 |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 3                                                  | L2   | All MCs   | 57           | 10.0 | 57            | 10.0 | 0.079     | 5.7         | LOS A            | 0.2                 | 1.1    | 0.26       | 0.58           | 0.26                       | 58.1        |
| 4                                                  | R2   | All MCs   | 45           | 10.0 | 45            | 10.0 | 0.079     | 12.6        | LOS B            | 0.2                 | 1.1    | 0.26       | 0.58           | 0.26                       | 58.1        |
| Approach                                           |      |           | 102          | 10.0 | 102           | 10.0 | 0.079     | 8.8         | LOS A            | 0.2                 | 1.1    | 0.26       | 0.58           | 0.26                       | 58.1        |
| SouthWest: Houchens Rd Ext                         |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 5                                                  | T1   | All MCs   | 96           | 10.0 | 96            | 10.0 | 0.068     | 0.0         | LOS A            | 0.0                 | 0.0    | 0.00       | 0.11           | 0.00                       | 37.6        |
| 6                                                  | R2   | All MCs   | 20           | 10.0 | 20            | 10.0 | 0.068     | 5.1         | LOS A            | 0.0                 | 0.0    | 0.00       | 0.11           | 0.00                       | 54.6        |
| Approach                                           |      |           | 116          | 10.0 | 116           | 10.0 | 0.068     | 0.9         | LOS A            | 0.0                 | 0.0    | 0.00       | 0.11           | 0.00                       | 44.1        |
| All Vehicles                                       |      |           | 431          | 11.0 | 430           | 11.0 | 0.153     | 3.5         | LOS A            | 0.3                 | 2.1    | 0.14       | 0.32           | 0.14                       | 52.6        |

| Vehicle Movement Performance – Southern Roundabout |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
|----------------------------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|---------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                                             | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | Aver. Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                                                    |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.              | Dist ] |            |                |                            |             |
|                                                    |      |           | veh/h        | %    | veh/h         | %    |           |             |                  | v/c                 | sec    |            |                |                            | veh         |
| SouthEast: HSL Northbound Off-Ramp                 |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 1                                                  | L2   | All MCs   | 25           | 10.0 | 25            | 10.0 | 0.092     | 5.7         | LOS A            | 0.2                 | 1.3    | 0.24       | 0.62           | 0.24                       | 52.6        |
| 2                                                  | R2   | All MCs   | 95           | 10.0 | 95            | 10.0 | 0.092     | 12.5        | LOS B            | 0.2                 | 1.3    | 0.24       | 0.62           | 0.24                       | 55.0        |
| Approach                                           |      |           | 120          | 10.0 | 120           | 10.0 | 0.092     | 11.1        | LOS B            | 0.2                 | 1.3    | 0.24       | 0.62           | 0.24                       | 54.3        |



|                            |    |         |     |      |     |      |       |     |       |     |     |      |      |      |      |
|----------------------------|----|---------|-----|------|-----|------|-------|-----|-------|-----|-----|------|------|------|------|
| NorthEast: Houchens Rd Ext |    |         |     |      |     |      |       |     |       |     |     |      |      |      |      |
| 3                          | T1 | All MCs | 47  | 10.0 | 47  | 10.0 | 0.059 | 0.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.31 | 0.00 | 42.5 |
| 4                          | R2 | All MCs | 54  | 10.0 | 54  | 10.0 | 0.059 | 5.1 | LOS A | 0.0 | 0.0 | 0.00 | 0.31 | 0.00 | 52.1 |
| Approach                   |    |         | 101 | 10.0 | 101 | 10.0 | 0.059 | 2.7 | LOS A | 0.0 | 0.0 | 0.00 | 0.31 | 0.00 | 47.9 |
| SouthWest: Houchens Rd Ext |    |         |     |      |     |      |       |     |       |     |     |      |      |      |      |
| 5                          | L2 | All MCs | 56  | 10.0 | 56  | 10.0 | 0.062 | 5.9 | LOS A | 0.1 | 0.9 | 0.31 | 0.46 | 0.31 | 49.9 |
| 6                          | T1 | All MCs | 21  | 12.0 | 21  | 12.0 | 0.062 | 2.5 | LOS A | 0.1 | 0.9 | 0.31 | 0.46 | 0.31 | 51.0 |
| Approach                   |    |         | 77  | 10.5 | 77  | 10.5 | 0.062 | 5.0 | LOS A | 0.1 | 0.9 | 0.31 | 0.46 | 0.31 | 50.1 |
| All Vehicles               |    |         | 298 | 10.1 | 298 | 10.1 | 0.092 | 6.7 | LOS A | 0.2 | 1.3 | 0.18 | 0.47 | 0.18 | 51.0 |

#### ITA Scenario 4 - PM Peak

| Vehicle Movement Performance – Northern Roundabout |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
|----------------------------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|---------------------|--------|------------|----------------|----------------------------|-------------|
| Mov ID                                             | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | Aver. Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|                                                    |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.              | Dist ] |            |                |                            |             |
|                                                    |      |           | veh/h        | %    | veh/h         | %    |           |             |                  | veh                 | m      |            |                |                            | km/h        |
| NorthEast: Houchens Rd                             |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 1                                                  | L2   | All MCs   | 171          | 12.0 | 171           | 12.0 | 0.155     | 2.5         | LOS A            | 0.3                 | 2.2    | 0.18       | 0.31           | 0.18                       | 53.9        |
| 2                                                  | T1   | All MCs   | 42           | 12.0 | 42            | 12.0 | 0.155     | 2.2         | LOS A            | 0.3                 | 2.2    | 0.18       | 0.31           | 0.18                       | 46.4        |
| Approach                                           |      |           | 213          | 12.0 | 213           | 12.0 | 0.155     | 2.4         | LOS A            | 0.3                 | 2.2    | 0.18       | 0.31           | 0.18                       | 52.9        |
| NorthWest: HSL Southbound Off-Ramp                 |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 3                                                  | L2   | All MCs   | 275          | 10.0 | 275           | 10.0 | 0.259     | 6.1         | LOS A            | 0.6                 | 4.4    | 0.35       | 0.55           | 0.35                       | 60.2        |
| 4                                                  | R2   | All MCs   | 56           | 10.0 | 56            | 10.0 | 0.259     | 12.9        | LOS B            | 0.6                 | 4.4    | 0.35       | 0.55           | 0.35                       | 60.2        |
| Approach                                           |      |           | 331          | 10.0 | 331           | 10.0 | 0.259     | 7.2         | LOS A            | 0.6                 | 4.4    | 0.35       | 0.55           | 0.35                       | 60.2        |
| SouthWest: Houchens Rd Ext                         |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 5                                                  | T1   | All MCs   | 141          | 10.0 | 141           | 10.0 | 0.093     | 0.0         | LOS A            | 0.0                 | 0.0    | 0.00       | 0.07           | 0.00                       | 38.4        |
| 6                                                  | R2   | All MCs   | 18           | 10.0 | 18            | 10.0 | 0.093     | 5.1         | LOS A            | 0.0                 | 0.0    | 0.00       | 0.07           | 0.00                       | 55.1        |
| Approach                                           |      |           | 159          | 10.0 | 159           | 10.0 | 0.093     | 0.6         | LOS A            | 0.0                 | 0.0    | 0.00       | 0.07           | 0.00                       | 43.0        |
| All Vehicles                                       |      |           | 702          | 10.6 | 702           | 10.6 | 0.259     | 4.3         | LOS A            | 0.6                 | 4.4    | 0.22       | 0.37           | 0.22                       | 54.7        |

### Vehicle Movement Performance – Southern Roundabout

| Mov ID                             | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | Aver. Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|------------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|---------------------|--------|------------|----------------|----------------------------|-------------|
|                                    |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.              | Dist ] |            |                |                            |             |
|                                    |      |           | veh/h        | %    | veh/h         | %    |           |             |                  | veh                 | m      |            |                |                            |             |
| SouthEast: HSL Northbound Off-Ramp |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 1                                  | L2   | All MCs   | 20           | 10.0 | 20            | 10.0 | 0.120     | 5.7         | LOS A            | 0.2                 | 1.8    | 0.24       | 0.62           | 0.24                       | 52.2        |
| 2                                  | R2   | All MCs   | 140          | 10.0 | 140           | 10.0 | 0.120     | 12.5        | LOS B            | 0.2                 | 1.8    | 0.24       | 0.62           | 0.24                       | 54.2        |
| Approach                           |      |           | 160          | 10.0 | 160           | 10.0 | 0.120     | 11.6        | LOS B            | 0.2                 | 1.8    | 0.24       | 0.62           | 0.24                       | 53.8        |
| NorthEast: Houchens Rd Ext         |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 3                                  | T1   | All MCs   | 58           | 10.0 | 58            | 10.0 | 0.057     | 0.0         | LOS A            | 0.0                 | 0.0    | 0.00       | 0.24           | 0.00                       | 43.2        |
| 4                                  | R2   | All MCs   | 39           | 10.0 | 39            | 10.0 | 0.057     | 5.1         | LOS A            | 0.0                 | 0.0    | 0.00       | 0.24           | 0.00                       | 53.0        |
| Approach                           |      |           | 97           | 10.0 | 97            | 10.0 | 0.057     | 2.1         | LOS A            | 0.0                 | 0.0    | 0.00       | 0.24           | 0.00                       | 47.5        |
| SouthWest: Houchens Rd Ext         |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 5                                  | L2   | All MCs   | 33           | 10.0 | 33            | 10.0 | 0.043     | 6.1         | LOS A            | 0.1                 | 0.6    | 0.33       | 0.44           | 0.33                       | 49.3        |
| 6                                  | T1   | All MCs   | 19           | 12.0 | 19            | 12.0 | 0.043     | 2.7         | LOS A            | 0.1                 | 0.6    | 0.33       | 0.44           | 0.33                       | 49.5        |
| Approach                           |      |           | 52           | 10.7 | 52            | 10.7 | 0.043     | 4.8         | LOS A            | 0.1                 | 0.6    | 0.33       | 0.44           | 0.33                       | 49.4        |
| All Vehicles                       |      |           | 308          | 10.1 | 308           | 10.1 | 0.120     | 7.5         | LOS A            | 0.2                 | 1.8    | 0.18       | 0.47           | 0.18                       | 51.1        |

### ITA Scenario 5 - AM Peak

### Vehicle Movement Performance – Northern Roundabout

| Mov ID                             | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | Aver. Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|------------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|---------------------|--------|------------|----------------|----------------------------|-------------|
|                                    |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.              | Dist ] |            |                |                            |             |
|                                    |      |           | veh/h        | %    | veh/h         | %    |           |             |                  | veh                 | m      |            |                |                            |             |
| NorthEast: Houchens Rd             |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 1                                  | L2   | All MCs   | 443          | 12.0 | 443           | 12.0 | 0.693     | 2.8         | LOS A            | 3.3                 | 25.6   | 0.40       | 0.33           | 0.40                       | 53.6        |
| 2                                  | T1   | All MCs   | 593          | 12.0 | 592           | 12.0 | 0.693     | 2.5         | LOS A            | 3.3                 | 25.6   | 0.40       | 0.33           | 0.40                       | 42.6        |
| Approach                           |      |           | 1036         | 12.0 | 1035          | 12.0 | 0.693     | 2.6         | LOS A            | 3.3                 | 25.6   | 0.40       | 0.33           | 0.40                       | 49.1        |
| NorthWest: HSL Southbound Off-Ramp |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 3                                  | L2   | All MCs   | 381          | 10.0 | 381           | 10.0 | 0.376     | 7.2         | LOS A            | 0.9                 | 7.1    | 0.54       | 0.60           | 0.54                       | 59.3        |
| 4                                  | R2   | All MCs   | 41           | 10.0 | 41            | 10.0 | 0.376     | 14.1        | LOS B            | 0.9                 | 7.1    | 0.54       | 0.60           | 0.54                       | 59.3        |
| Approach                           |      |           | 422          | 10.0 | 422           | 10.0 | 0.376     | 7.9         | LOS A            | 0.9                 | 7.1    | 0.54       | 0.60           | 0.54                       | 59.3        |
| SouthWest: Houchens Rd Ext         |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 5                                  | T1   | All MCs   | 288          | 10.0 | 288           | 10.0 | 0.179     | 0.0         | LOS A            | 0.0                 | 0.0    | 0.00       | 0.04           | 0.00                       | 39.1        |
| 6                                  | R2   | All MCs   | 19           | 10.0 | 19            | 10.0 | 0.179     | 5.1         | LOS A            | 0.0                 | 0.0    | 0.00       | 0.04           | 0.00                       | 55.4        |



|              |      |      |      |      |       |     |       |     |      |      |      |      |      |
|--------------|------|------|------|------|-------|-----|-------|-----|------|------|------|------|------|
| Approach     | 307  | 10.0 | 307  | 10.0 | 0.179 | 0.3 | LOS A | 0.0 | 0.0  | 0.00 | 0.04 | 0.00 | 41.8 |
| All Vehicles | 1766 | 11.2 | 1765 | 11.2 | 0.693 | 3.5 | LOS A | 3.3 | 25.6 | 0.36 | 0.34 | 0.36 | 50.8 |

#### Vehicle Movement Performance – Southern Roundabout

| Mov ID                             | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | Aver. Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|------------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|---------------------|--------|------------|----------------|----------------------------|-------------|
|                                    |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.              | Dist ] |            |                |                            |             |
|                                    |      |           | veh/h        | %    | veh/h         | %    | v/c       | sec         |                  | veh                 | m      |            |                |                            | km/h        |
| SouthEast: HSL Northbound Off-Ramp |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 1                                  | L2   | All MCs   | 23           | 10.0 | 23            | 10.0 | 0.326     | 9.6         | LOS A            | 0.8                 | 6.1    | 0.70       | 0.74           | 0.70                       | 49.3        |
| 2                                  | R2   | All MCs   | 265          | 10.0 | 265           | 10.0 | 0.326     | 16.4        | LOS B            | 0.8                 | 6.1    | 0.70       | 0.74           | 0.70                       | 49.7        |
| Approach                           |      |           | 288          | 10.0 | 288           | 10.0 | 0.326     | 15.8        | LOS B            | 0.8                 | 6.1    | 0.70       | 0.74           | 0.70                       | 49.7        |
| NorthEast: Houchens Rd Ext         |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 3                                  | T1   | All MCs   | 75           | 10.0 | 75            | 10.0 | 0.369     | 0.0         | LOS A            | 0.0                 | 0.0    | 0.00       | 0.45           | 0.00                       | 40.6        |
| 4                                  | R2   | All MCs   | 558          | 10.0 | 558           | 10.0 | 0.369     | 5.1         | LOS A            | 0.0                 | 0.0    | 0.00       | 0.45           | 0.00                       | 49.9        |
| Approach                           |      |           | 633          | 10.0 | 633           | 10.0 | 0.369     | 4.5         | LOS A            | 0.0                 | 0.0    | 0.00       | 0.45           | 0.00                       | 49.0        |
| SouthWest: Houchens Rd Ext         |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 5                                  | L2   | All MCs   | 58           | 10.0 | 58            | 10.0 | 0.144     | 11.0        | LOS B            | 0.4                 | 2.7    | 0.77       | 0.69           | 0.77                       | 46.1        |
| 6                                  | T1   | All MCs   | 43           | 12.0 | 43            | 12.0 | 0.144     | 7.6         | LOS A            | 0.4                 | 2.7    | 0.77       | 0.69           | 0.77                       | 42.1        |
| Approach                           |      |           | 101          | 10.9 | 101           | 10.9 | 0.144     | 9.5         | LOS A            | 0.4                 | 2.7    | 0.77       | 0.69           | 0.77                       | 45.1        |
| All Vehicles                       |      |           | 1022         | 10.1 | 1022          | 10.1 | 0.369     | 8.2         | LOS A            | 0.8                 | 6.1    | 0.27       | 0.56           | 0.27                       | 48.8        |

#### ITA Scenario 5 - PM Peak

#### Vehicle Movement Performance – Northern Roundabout

| Mov ID                             | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | Aver. Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|------------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|---------------------|--------|------------|----------------|----------------------------|-------------|
|                                    |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.              | Dist ] |            |                |                            |             |
|                                    |      |           | veh/h        | %    | veh/h         | %    | v/c       | sec         |                  | veh                 | m      |            |                |                            | km/h        |
| NorthEast: Houchens Rd             |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 1                                  | L2   | All MCs   | 392          | 12.0 | 392           | 12.0 | 0.414     | 2.4         | LOS A            | 1.2                 | 9.3    | 0.23       | 0.30           | 0.23                       | 53.6        |
| 2                                  | T1   | All MCs   | 219          | 12.0 | 219           | 12.0 | 0.414     | 2.2         | LOS A            | 1.2                 | 9.3    | 0.23       | 0.30           | 0.23                       | 46.1        |
| Approach                           |      |           | 611          | 12.0 | 611           | 12.0 | 0.414     | 2.3         | LOS A            | 1.2                 | 9.3    | 0.23       | 0.30           | 0.23                       | 51.7        |
| NorthWest: HSL Southbound Off-Ramp |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 3                                  | L2   | All MCs   | 573          | 10.0 | 573           | 10.0 | 0.672     | 14.2        | LOS B            | 3.0                 | 22.9   | 0.87       | 0.88           | 1.22                       | 49.4        |
| 4                                  | R2   | All MCs   | 35           | 10.0 | 35            | 10.0 | 0.672     | 21.1        | LOS C            | 3.0                 | 22.9   | 0.87       | 0.88           | 1.22                       | 49.4        |

|                            |    |         |      |      |      |      |       |      |       |     |      |      |      |      |      |
|----------------------------|----|---------|------|------|------|------|-------|------|-------|-----|------|------|------|------|------|
| Approach                   |    |         | 607  | 10.0 | 607  | 10.0 | 0.672 | 14.6 | LOS B | 3.0 | 22.9 | 0.87 | 0.88 | 1.22 | 49.4 |
| SouthWest: Houchens Rd Ext |    |         |      |      |      |      |       |      |       |     |      |      |      |      |      |
| 5                          | T1 | All MCs | 587  | 10.0 | 587  | 10.0 | 0.353 | 0.0  | LOS A | 0.0 | 0.0  | 0.00 | 0.02 | 0.00 | 39.6 |
| 6                          | R2 | All MCs | 18   | 10.0 | 18   | 10.0 | 0.353 | 5.1  | LOS A | 0.0 | 0.0  | 0.00 | 0.02 | 0.00 | 55.7 |
| Approach                   |    |         | 605  | 10.0 | 605  | 10.0 | 0.353 | 0.2  | LOS A | 0.0 | 0.0  | 0.00 | 0.02 | 0.00 | 41.0 |
| All Vehicles               |    |         | 1823 | 10.7 | 1823 | 10.7 | 0.672 | 5.7  | LOS A | 3.0 | 22.9 | 0.37 | 0.40 | 0.49 | 49.6 |

#### Vehicle Movement Performance – Southern Roundabout

| Mov ID                             | Turn | Mov Class | Demand Flows |      | Arrival Flows |      | Deg. Satn | Aver. Delay | Level of Service | Aver. Back Of Queue |        | Prop. Qued | Eff. Stop Rate | Number of Cycles to Depart | Aver. Speed |
|------------------------------------|------|-----------|--------------|------|---------------|------|-----------|-------------|------------------|---------------------|--------|------------|----------------|----------------------------|-------------|
|                                    |      |           | [ Total      | HV ] | [ Total       | HV ] |           |             |                  | [ Veh.              | Dist ] |            |                |                            |             |
|                                    |      |           | veh/h        | %    | veh/h         | %    | v/c       | sec         |                  | veh                 | m      |            |                |                            | km/h        |
| SouthEast: HSL Northbound Off-Ramp |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 1                                  | L2   | All MCs   | 24           | 10.0 | 24            | 10.0 | 0.493     | 7.1         | LOS A            | 1.4                 | 10.6   | 0.55       | 0.66           | 0.55                       | 50.5        |
| 2                                  | R2   | All MCs   | 565          | 10.0 | 565           | 10.0 | 0.493     | 13.9        | LOS B            | 1.4                 | 10.6   | 0.55       | 0.66           | 0.55                       | 51.5        |
| Approach                           |      |           | 589          | 10.0 | 589           | 10.0 | 0.493     | 13.6        | LOS B            | 1.4                 | 10.6   | 0.55       | 0.66           | 0.55                       | 51.4        |
| NorthEast: Houchens Rd Ext         |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 3                                  | T1   | All MCs   | 67           | 10.0 | 67            | 10.0 | 0.147     | 0.0         | LOS A            | 0.0                 | 0.0    | 0.00       | 0.40           | 0.00                       | 41.4        |
| 4                                  | R2   | All MCs   | 185          | 10.0 | 185           | 10.0 | 0.147     | 5.1         | LOS A            | 0.0                 | 0.0    | 0.00       | 0.40           | 0.00                       | 50.8        |
| Approach                           |      |           | 253          | 10.0 | 253           | 10.0 | 0.147     | 3.8         | LOS A            | 0.0                 | 0.0    | 0.00       | 0.40           | 0.00                       | 48.6        |
| SouthWest: Houchens Rd Ext         |      |           |              |      |               |      |           |             |                  |                     |        |            |                |                            |             |
| 5                                  | L2   | All MCs   | 33           | 10.0 | 33            | 10.0 | 0.102     | 10.0        | LOS A            | 0.3                 | 2.0    | 0.75       | 0.65           | 0.75                       | 46.2        |
| 6                                  | T1   | All MCs   | 40           | 12.0 | 40            | 12.0 | 0.102     | 6.6         | LOS A            | 0.3                 | 2.0    | 0.75       | 0.65           | 0.75                       | 42.4        |
| Approach                           |      |           | 73           | 11.1 | 73            | 11.1 | 0.102     | 8.1         | LOS A            | 0.3                 | 2.0    | 0.75       | 0.65           | 0.75                       | 44.9        |
| All Vehicles                       |      |           | 915          | 10.1 | 915           | 10.1 | 0.493     | 10.5        | LOS B            | 1.4                 | 10.6   | 0.42       | 0.59           | 0.42                       | 50.0        |



# Bus Route Modelling

## ITA Scenario 2 - AM Peak – Saxbys Rd to Houchens Rd

| Route Performance - Hourly Values    |          |                   |           |           |       |                  |
|--------------------------------------|----------|-------------------|-----------|-----------|-------|------------------|
| Performance Measure                  |          | Vehicles: All MCs | Light Veh | Heavy Veh | Buses | Persons          |
| Route Level of Service (LOS)         |          | LOS D             | LOS D     | LOS D     | LOS C |                  |
| Speed Efficiency                     |          | 0.70              | 0.70      | 0.70      | 0.72  |                  |
| Travel Time Index                    |          | 6.66              | 6.66      | 6.66      | 6.93  |                  |
| Congestion Coefficient               |          | 1.43              | 1.43      | 1.43      | 1.38  |                  |
| Travel Speed (Average)               | km/h     | 35.0              | 35.0      | 35.0      | 36.2  | 35.0 km/h        |
| Travel Distance (Total)              | veh-km/h | 964.1             | 862.6     | 95.5      | 6.0   | 1330.4 pers-km/h |
| Travel Time (Total)                  | veh-h/h  | 27.8              | 24.9      | 2.7       | 0.2   | 37.8 pers-h/h    |
| Desired Speed                        | km/h     | 50.0              | 50.0      | 50.0      | 50.0  |                  |
| Demand Flows (Total for all Sites)   | veh/h    | 3516              | 3154      | 340       | 21    | 4825 pers/h      |
| Arrival Flows (Total for all Sites)  | veh/h    | 3504              | 3144      | 340       | 21    | 4812 pers/h      |
| Demand Flows (Entry Total)           | veh/h    | 931               | 840       | 86        | 4     |                  |
| Midblock Inflows (Total)             | veh/h    | 41                | 58        | 12        | 0     |                  |
| Midblock Outflows (Total)            | veh/h    | -79               | -77       | -26       | -4    |                  |
| Percent Heavy Vehicles (Demand)      | %        | 10.3              |           |           |       |                  |
| Percent Heavy Vehicles (Arrival)     | %        | 10.3              |           |           |       |                  |
| Degree of Saturation                 |          | 0.811             | 0.811     | 0.811     | 0.811 |                  |
| Control Delay (Total)                | veh-h/h  | 8.41              | 7.38      | 0.98      | 0.05  | 11.42 pers-h/h   |
| Control Delay (Average)              | sec      | 8.6               | 8.5       | 10.4      | 7.9   | 8.5 sec          |
| Control Delay (Worst Lane by MC)     | sec      | 21.0              |           |           |       |                  |
| Control Delay (Worst Movement by MC) | sec      | 26.1              | 21.0      | 24.8      | 26.1  | 26.1 sec         |
| Geometric Delay (Average)            | sec      | 0.5               | 0.5       | 0.5       | 0.6   |                  |
| Stop-Line Delay (Average)            | sec      | 8.1               | 7.9       | 9.9       | 7.3   |                  |
| Ave. Que Storage Ratio (Worst Lane)  |          | 0.58              | 0.36      | 0.36      | 0.36  |                  |
| Effective Stops (Total)              | veh/h    | 1645              | 1479      | 158       | 8     | 2204 pers/h      |
| Effective Stop Rate                  |          | 0.47              | 0.47      | 0.46      | 0.38  | 0.46             |
| Proportion Queued                    |          | 0.50              | 0.50      | 0.49      | 0.37  | 0.48             |
| Performance Index                    |          | 98.8              | 58.5      | 29.4      | 10.9  | 98.8             |
| Cost (Total)                         | \$/h     | 1481.20           | 1325.62   | 145.77    | 9.81  | 2060.03 \$/h     |
| Fuel Consumption (Total)             | L/h      | 137.4             | 123.0     | 13.5      | 1.0   |                  |
| Fuel Economy                         | L/100km  | 14.3              | 14.3      | 14.1      | 15.9  |                  |
| Carbon Dioxide (Total)               | kg/h     | 326.6             | 292.3     | 32.0      | 2.3   |                  |
| Hydrocarbons (Total)                 | kg/h     | 0.028             | 0.025     | 0.003     | 0.000 |                  |
| Carbon Monoxide (Total)              | kg/h     | 0.29              | 0.26      | 0.03      | 0.00  |                  |

|             |      |       |       |       |       |
|-------------|------|-------|-------|-------|-------|
| NOx (Total) | kg/h | 1.038 | 0.928 | 0.102 | 0.008 |
|-------------|------|-------|-------|-------|-------|

## ITA Scenario 2 - AM Peak – Houchens Rd to Saxbys Rd

| Route Performance - Hourly Values     |          |                   |           |           |       |                  |
|---------------------------------------|----------|-------------------|-----------|-----------|-------|------------------|
| Performance Measure                   |          | Vehicles: All MCs | Light Veh | Heavy Veh | Buses | Persons          |
| Route Level of Service (LOS)          |          | LOS D             | LOS D     | LOS D     | LOS D |                  |
| Speed Efficiency                      |          | 0.58              | 0.58      | 0.58      | 0.65  |                  |
| Travel Time Index                     |          | 5.32              | 5.32      | 5.32      | 6.13  |                  |
| Congestion Coefficient                |          | 1.73              | 1.73      | 1.73      | 1.53  |                  |
| Travel Speed (Average)                | km/h     | 28.9              | 28.9      | 28.9      | 32.6  | 28.9 km/h        |
| Travel Distance (Total)               | veh-km/h | 1668.6            | 1591.1    | 70.8      | 6.7   | 2195.8 pers-km/h |
| Travel Time (Total)                   | veh-h/h  | 58.0              | 55.3      | 2.4       | 0.2   | 75.0 pers-h/h    |
| Desired Speed                         | km/h     | 50.0              | 50.0      | 50.0      | 50.0  |                  |
| Demand Flows (Total for all Sites)    | veh/h    | 5860              | 5598      | 241       | 21    | 7638 pers/h      |
| Arrival Flows (Total for all Sites)   | veh/h    | 5811              | 5550      | 240       | 21    | 7579 pers/h      |
| Demand Flows (Entry Total)            |          | NA                | NA        | NA        | NA    |                  |
| Midblock Inflows (Total)              |          | NA                | NA        | NA        | NA    |                  |
| Midblock Outflows (Total)             |          | NA                | NA        | NA        | NA    |                  |
| Percent Heavy Vehicles (Demand)       | %        | 4.5               |           |           |       |                  |
| Percent Heavy Vehicles (Arrival)      | %        | 4.5               |           |           |       |                  |
| Degree of Saturation                  |          | 0.872             | 0.872     | 0.872     | 0.872 |                  |
| Control Delay (Total)                 | veh-h/h  | 23.38             | 22.34     | 0.99      | 0.05  | 29.48 pers-h/h   |
| Control Delay (Average)               | sec      | 14.5              | 14.5      | 14.8      | 8.5   | 14.0 sec         |
| Control Delay (Worst Lane by MC)      | sec      | 29.5              |           |           |       |                  |
| Control Delay (Worst Movement by MC)  | sec      | 29.5              | 29.5      | 29.5      | 20.5  | 29.5 sec         |
| Geometric Delay (Average)             | sec      | 0.6               | 0.6       | 0.8       | 0.6   |                  |
| Stop-Line Delay (Average)             | sec      | 13.8              | 13.9      | 14.1      | 7.9   |                  |
| Ave. Queue Storage Ratio (Worst Lane) |          | 1.00              | 1.00      | 1.00      | 0.64  |                  |
| Effective Stops (Total)               | veh/h    | 4211              | 4022      | 178       | 10    | 5354 pers/h      |
| Effective Stop Rate                   |          | 0.72              | 0.72      | 0.74      | 0.50  | 0.71             |
| Proportion Queued                     |          | 0.72              | 0.72      | 0.73      | 0.43  | 0.69             |
| Performance Index                     |          | 205.7             | 125.0     | 51.9      | 28.8  | 205.7            |
| Cost (Total)                          | \$/h     | 2747.45           | 2622.09   | 115.41    | 9.95  | 3583.44 \$/h     |
| Fuel Consumption (Total)              | L/h      | 238.3             | 227.3     | 10.1      | 0.9   |                  |
| Fuel Economy                          | L/100km  | 14.3              | 14.3      | 14.2      | 12.9  |                  |
| Carbon Dioxide (Total)                | kg/h     | 563.4             | 537.5     | 23.8      | 2.1   |                  |
| Hydrocarbons (Total)                  | kg/h     | 0.052             | 0.049     | 0.002     | 0.000 |                  |
| Carbon Monoxide (Total)               | kg/h     | 0.49              | 0.47      | 0.02      | 0.00  |                  |
| NOx (Total)                           | kg/h     | 1.128             | 1.075     | 0.048     | 0.005 |                  |

## ITA Scenario 2 - PM Peak – Saxbys Rd to Houchens Rd

| Route Performance - Hourly Values    |          |                   |           |           |       |                  |
|--------------------------------------|----------|-------------------|-----------|-----------|-------|------------------|
| Performance Measure                  |          | Vehicles: All MCs | Light Veh | Heavy Veh | Buses | Persons          |
| Route Level of Service (LOS)         |          | LOS D             | LOS D     | LOS D     | LOS C |                  |
| Speed Efficiency                     |          | 0.54              | 0.54      | 0.54      | 0.75  |                  |
| Travel Time Index                    |          | 4.93              | 4.92      | 4.92      | 7.26  |                  |
| Congestion Coefficient               |          | 1.84              | 1.84      | 1.84      | 1.33  |                  |
| Travel Speed (Average)               | km/h     | 27.2              | 27.1      | 27.1      | 37.7  | 27.2 km/h        |
| Travel Distance (Total)              | veh-km/h | 1727.9            | 1685.0    | 36.9      | 6.0   | 2247.2 pers-km/h |
| Travel Time (Total)                  | veh-h/h  | 66.2              | 64.6      | 1.4       | 0.2   | 83.8 pers-h/h    |
| Desired Speed                        | km/h     | 50.0              | 50.0      | 50.0      | 50.0  |                  |
| Demand Flows (Total for all Sites)   | veh/h    | 6576              | 6421      | 134       | 21    | 8497 pers/h      |
| Arrival Flows (Total for all Sites)  | veh/h    | 6576              | 6421      | 134       | 21    | 8497 pers/h      |
| Demand Flows (Entry Total)           | veh/h    | 2052              | 2011      | 37        | 4     |                  |
| Midblock Inflows (Total)             | veh/h    | 73                | 83        | 4         | 0     |                  |
| Midblock Outflows (Total)            | veh/h    | -277              | -265      | -22       | -4    |                  |
| Percent Heavy Vehicles (Demand)      | %        | 2.4               |           |           |       |                  |
| Percent Heavy Vehicles (Arrival)     | %        | 2.4               |           |           |       |                  |
| Degree of Saturation                 |          | 0.972             | 0.972     | 0.972     | 0.576 |                  |
| Control Delay (Total)                | veh-h/h  | 31.28             | 30.54     | 0.70      | 0.04  | 38.61 pers-h/h   |
| Control Delay (Average)              | sec      | 17.1              | 17.1      | 18.8      | 6.4   | 16.4 sec         |
| Control Delay (Worst Lane by MC)     | sec      | 66.5              |           |           |       |                  |
| Control Delay (Worst Movement by MC) | sec      | 66.5              | 66.5      | 66.5      | 16.4  | 66.5 sec         |
| Geometric Delay (Average)            | sec      | 0.5               | 0.5       | 0.5       | 0.6   |                  |
| Stop-Line Delay (Average)            | sec      | 16.6              | 16.6      | 18.3      | 5.8   |                  |
| Ave. Que Storage Ratio (Worst Lane)  |          | 1.05              | 1.05      | 1.05      | 1.05  |                  |
| Effective Stops (Total)              | veh/h    | 3382              | 3306      | 70        | 6     | 4235 pers/h      |
| Effective Stop Rate                  |          | 0.51              | 0.51      | 0.52      | 0.29  | 0.50             |
| Proportion Queued                    |          | 0.52              | 0.52      | 0.52      | 0.27  | 0.50             |
| Performance Index                    |          | 256.9             | 162.2     | 81.4      | 13.4  | 256.9            |
| Cost (Total)                         | \$/h     | 2795.87           | 2726.23   | 60.06     | 9.58  | 3630.88 \$/h     |
| Fuel Consumption (Total)             | L/h      | 218.7             | 213.3     | 4.6       | 0.8   |                  |
| Fuel Economy                         | L/100km  | 12.7              | 12.7      | 12.5      | 12.6  |                  |
| Carbon Dioxide (Total)               | kg/h     | 515.3             | 502.5     | 10.9      | 1.8   |                  |
| Hydrocarbons (Total)                 | kg/h     | 0.047             | 0.045     | 0.001     | 0.000 |                  |
| Carbon Monoxide (Total)              | kg/h     | 0.43              | 0.42      | 0.01      | 0.00  |                  |
| NOx (Total)                          | kg/h     | 0.606             | 0.589     | 0.013     | 0.005 |                  |

## ITA Scenario 2 - PM Peak – Houchens Rd to Saxbys Rd

| Route Performance - Hourly Values     |          |                   |           |           |       |                  |
|---------------------------------------|----------|-------------------|-----------|-----------|-------|------------------|
| Performance Measure                   |          | Vehicles: All MCs | Light Veh | Heavy Veh | Buses | Persons          |
| Route Level of Service (LOS)          |          | LOS D             | LOS D     | LOS D     | LOS D |                  |
| Speed Efficiency                      |          | 0.54              | 0.54      | 0.54      | 0.61  |                  |
| Travel Time Index                     |          | 4.85              | 4.85      | 4.85      | 5.63  |                  |
| Congestion Coefficient                |          | 1.86              | 1.86      | 1.86      | 1.65  |                  |
| Travel Speed (Average)                | km/h     | 26.8              | 26.8      | 26.8      | 30.4  | 26.8 km/h        |
| Travel Distance (Total)               | veh-km/h | 1283.8            | 1222.2    | 54.9      | 6.7   | 1734.0 pers-km/h |
| Travel Time (Total)                   | veh-h/h  | 46.8              | 44.6      | 2.0       | 0.2   | 62.1 pers-h/h    |
| Desired Speed                         | km/h     | 50.0              | 50.0      | 50.0      | 50.0  |                  |
| Demand Flows (Total for all Sites)    | veh/h    | 4452              | 4238      | 192       | 21    | 5948 pers/h      |
| Arrival Flows (Total for all Sites)   | veh/h    | 4452              | 4238      | 192       | 21    | 5948 pers/h      |
| Demand Flows (Entry Total)            |          | NA                | NA        | NA        | NA    |                  |
| Midblock Inflows (Total)              |          | NA                | NA        | NA        | NA    |                  |
| Midblock Outflows (Total)             |          | NA                | NA        | NA        | NA    |                  |
| Percent Heavy Vehicles (Demand)       | %        | 4.8               |           |           |       |                  |
| Percent Heavy Vehicles (Arrival)      | %        | 4.8               |           |           |       |                  |
| Degree of Saturation                  |          | 0.935             | 0.935     | 0.935     | 0.935 |                  |
| Control Delay (Total)                 | veh-h/h  | 20.71             | 19.68     | 0.96      | 0.07  | 26.89 pers-h/h   |
| Control Delay (Average)               | sec      | 16.7              | 16.7      | 17.9      | 12.1  | 16.3 sec         |
| Control Delay (Worst Lane by MC)      | sec      | 23.5              |           |           |       |                  |
| Control Delay (Worst Movement by MC)  | sec      | 23.5              | 23.5      | 23.5      | 19.9  | 23.5 sec         |
| Geometric Delay (Average)             | sec      | 0.7               | 0.7       | 0.7       | 0.6   |                  |
| Stop-Line Delay (Average)             | sec      | 16.1              | 16.1      | 17.2      | 11.5  |                  |
| Ave. Queue Storage Ratio (Worst Lane) |          | 1.00              | 1.00      | 1.00      | 0.34  |                  |
| Effective Stops (Total)               | veh/h    | 2921              | 2786      | 124       | 11    | 3819 pers/h      |
| Effective Stop Rate                   |          | 0.66              | 0.66      | 0.64      | 0.52  | 0.64             |
| Proportion Queued                     |          | 0.64              | 0.64      | 0.63      | 0.42  | 0.62             |
| Performance Index                     |          | 145.3             | 94.2      | 37.4      | 13.6  | 145.3            |
| Cost (Total)                          | \$/h     | 2179.87           | 2076.91   | 92.61     | 10.34 | 2913.70 \$/h     |
| Fuel Consumption (Total)              | L/h      | 177.9             | 169.5     | 7.6       | 0.9   |                  |
| Fuel Economy                          | L/100km  | 13.9              | 13.9      | 13.8      | 12.7  |                  |
| Carbon Dioxide (Total)                | kg/h     | 420.6             | 400.6     | 17.9      | 2.0   |                  |
| Hydrocarbons (Total)                  | kg/h     | 0.039             | 0.037     | 0.002     | 0.000 |                  |
| Carbon Monoxide (Total)               | kg/h     | 0.36              | 0.34      | 0.02      | 0.00  |                  |
| NOx (Total)                           | kg/h     | 0.809             | 0.770     | 0.035     | 0.004 |                  |

### ITA Scenario 3 - AM Peak – Saxbys Rd to Houchens Rd

| Route Performance - Hourly Values    |          |                  |           |           |       |                 |
|--------------------------------------|----------|------------------|-----------|-----------|-------|-----------------|
| Performance Measure                  |          | Vehicles:All MCs | Light Veh | Heavy Veh | Buses | Persons         |
| Route Level of Service (LOS)         |          | LOS C            | LOS C     | LOS C     | LOS D |                 |
| Speed Efficiency                     |          | 0.71             | 0.71      | 0.71      | 0.63  |                 |
| Travel Time Index                    |          | 6.80             | 6.80      | 6.80      | 5.84  |                 |
| Congestion Coefficient               |          | 1.40             | 1.40      | 1.40      | 1.60  |                 |
| Travel Speed (Average)               | km/h     | 35.6             | 35.6      | 35.6      | 31.3  | 35.6 km/h       |
| Travel Distance (Total)              | veh-km/h | 580.2            | 519.6     | 57.5      | 3.1   | 786.4 pers-km/h |
| Travel Time (Total)                  | veh-h/h  | 16.6             | 14.9      | 1.6       | 0.1   | 22.8 pers-h/h   |
| Desired Speed                        | km/h     | 50.0             | 50.0      | 50.0      | 50.0  |                 |
| Demand Flows (Total for all Sites)   | veh/h    | 2169             | 1947      | 210       | 13    | 2967 pers/h     |
| Arrival Flows (Total for all Sites)  | veh/h    | 2169             | 1947      | 210       | 13    | 2967 pers/h     |
| Demand Flows (Entry Total)           | veh/h    | 634              | 571       | 59        | 4     |                 |
| Midblock Inflows (Total)             | veh/h    | 47               | 43        | 21        | 4     |                 |
| Midblock Outflows (Total)            | veh/h    | -54              | -45       | -20       | -8    |                 |
| Percent Heavy Vehicles (Demand)      | %        | 10.3             |           |           |       |                 |
| Percent Heavy Vehicles (Arrival)     | %        | 10.3             |           |           |       |                 |
| Degree of Saturation                 |          | 0.656            | 0.656     | 0.656     | 0.656 |                 |
| Control Delay (Total)                | veh-h/h  | 4.91             | 4.30      | 0.56      | 0.05  | 7.25 pers-h/h   |
| Control Delay (Average)              | sec      | 8.1              | 8.0       | 9.7       | 13.4  | 8.8 sec         |
| Control Delay (Worst Lane by MC)     | sec      | 17.2             |           |           |       |                 |
| Control Delay (Worst Movement by MC) | sec      | 22.1             | 17.2      | 21.4      | 22.1  | 22.1 sec        |
| Geometric Delay (Average)            | sec      | 0.5              | 0.5       | 0.5       | 0.9   |                 |
| Stop-Line Delay (Average)            | sec      | 7.6              | 7.4       | 9.2       | 12.5  |                 |
| Ave. Que Storage Ratio (Worst Lane)  |          | 0.40             | 0.32      | 0.32      | 0.32  |                 |
| Effective Stops (Total)              | veh/h    | 1003             | 899       | 96        | 8     | 1427 pers/h     |
| Effective Stop Rate                  |          | 0.46             | 0.46      | 0.46      | 0.61  | 0.48            |
| Proportion Queued                    |          | 0.53             | 0.53      | 0.53      | 0.68  | 0.55            |
| Performance Index                    |          | 60.2             | 34.8      | 17.4      | 8.0   | 60.2            |
| Cost (Total)                         | \$/h     | 927.83           | 829.47    | 91.19     | 7.17  | 1319.96 \$/h    |
| Fuel Consumption (Total)             | L/h      | 86.0             | 76.8      | 8.4       | 0.8   |                 |
| Fuel Economy                         | L/100km  | 14.8             | 14.8      | 14.6      | 24.2  |                 |
| Carbon Dioxide (Total)               | kg/h     | 204.4            | 182.5     | 20.0      | 1.9   |                 |
| Hydrocarbons (Total)                 | kg/h     | 0.018            | 0.016     | 0.002     | 0.000 |                 |
| Carbon Monoxide (Total)              | kg/h     | 0.18             | 0.16      | 0.02      | 0.00  |                 |
| NOx (Total)                          | kg/h     | 0.649            | 0.578     | 0.064     | 0.007 |                 |

### ITA Scenario 3 - AM Peak – Houchens Rd to Saxbys Rd

| Route Performance - Hourly Values    |          |                   |           |           |       |                  |
|--------------------------------------|----------|-------------------|-----------|-----------|-------|------------------|
| Performance Measure                  |          | Vehicles: All MCs | Light Veh | Heavy Veh | Buses | Persons          |
| Route Level of Service (LOS)         |          | LOS D             | LOS D     | LOS D     | LOS D |                  |
| Speed Efficiency                     |          | 0.64              | 0.64      | 0.64      | 0.66  |                  |
| Travel Time Index                    |          | 5.98              | 5.98      | 5.98      | 6.25  |                  |
| Congestion Coefficient               |          | 1.57              | 1.57      | 1.57      | 1.51  |                  |
| Travel Speed (Average)               | km/h     | 31.9              | 31.9      | 31.9      | 33.1  | 31.9 km/h        |
| Travel Distance (Total)              | veh-km/h | 1329.6            | 1269.4    | 55.7      | 4.6   | 1726.6 pers-km/h |
| Travel Time (Total)                  | veh-h/h  | 43.0              | 41.1      | 1.8       | 0.1   | 55.5 pers-h/h    |
| Desired Speed                        | km/h     | 50.0              | 50.0      | 50.0      | 50.0  |                  |
| Demand Flows (Total for all Sites)   | veh/h    | 4037              | 3858      | 166       | 13    | 5208 pers/h      |
| Arrival Flows (Total for all Sites)  | veh/h    | 4037              | 3858      | 166       | 13    | 5208 pers/h      |
| Demand Flows (Entry Total)           |          | NA                | NA        | NA        | NA    |                  |
| Midblock Inflows (Total)             |          | NA                | NA        | NA        | NA    |                  |
| Midblock Outflows (Total)            |          | NA                | NA        | NA        | NA    |                  |
| Percent Heavy Vehicles (Demand)      | %        | 4.4               |           |           |       |                  |
| Percent Heavy Vehicles (Arrival)     | %        | 4.4               |           |           |       |                  |
| Degree of Saturation                 |          | 0.816             | 0.816     | 0.816     | 0.791 |                  |
| Control Delay (Total)                | veh-h/h  | 15.54             | 14.85     | 0.64      | 0.04  | 19.83 pers-h/h   |
| Control Delay (Average)              | sec      | 13.9              | 13.9      | 13.9      | 11.8  | 13.7 sec         |
| Control Delay (Worst Lane by MC)     | sec      | 22.8              |           |           |       |                  |
| Control Delay (Worst Movement by MC) | sec      | 21.6              | 21.6      | 21.6      | 21.6  | 21.6 sec         |
| Geometric Delay (Average)            | sec      | 0.6               | 0.6       | 0.8       | 1.0   |                  |
| Stop-Line Delay (Average)            | sec      | 13.2              | 13.2      | 13.2      | 10.8  |                  |
| Ave. Que Storage Ratio (Worst Lane)  |          | 0.58              | 0.58      | 0.58      | 0.58  |                  |
| Effective Stops (Total)              | veh/h    | 2844              | 2716      | 118       | 9     | 3682 pers/h      |
| Effective Stop Rate                  |          | 0.70              | 0.70      | 0.71      | 0.74  | 0.71             |
| Proportion Queued                    |          | 0.71              | 0.71      | 0.71      | 0.68  | 0.71             |
| Performance Index                    |          | 134.1             | 84.8      | 31.9      | 17.4  | 134.1            |
| Cost (Total)                         | \$/h     | 2079.05           | 1984.94   | 86.41     | 7.70  | 2716.55 \$/h     |
| Fuel Consumption (Total)             | L/h      | 178.9             | 170.7     | 7.5       | 0.8   |                  |
| Fuel Economy                         | L/100km  | 13.5              | 13.4      | 13.4      | 16.8  |                  |
| Carbon Dioxide (Total)               | kg/h     | 422.9             | 403.5     | 17.6      | 1.8   |                  |
| Hydrocarbons (Total)                 | kg/h     | 0.038             | 0.036     | 0.002     | 0.000 |                  |
| Carbon Monoxide (Total)              | kg/h     | 0.37              | 0.35      | 0.02      | 0.00  |                  |
| NOx (Total)                          | kg/h     | 0.826             | 0.786     | 0.035     | 0.005 |                  |

### ITA Scenario 3 - PM Peak – Saxbys Rd to Houchens Rd

| Route Performance - Hourly Values     |          |                   |           |           |       |                  |
|---------------------------------------|----------|-------------------|-----------|-----------|-------|------------------|
| Performance Measure                   |          | Vehicles: All MCs | Light Veh | Heavy Veh | Buses | Persons          |
| Route Level of Service (LOS)          |          | LOS D             | LOS D     | LOS D     | LOS C |                  |
| Speed Efficiency                      |          | 0.65              | 0.65      | 0.65      | 0.70  |                  |
| Travel Time Index                     |          | 6.07              | 6.06      | 6.06      | 6.68  |                  |
| Congestion Coefficient                |          | 1.55              | 1.55      | 1.55      | 1.43  |                  |
| Travel Speed (Average)                | km/h     | 32.3              | 32.3      | 32.3      | 35.1  | 32.3 km/h        |
| Travel Distance (Total)               | veh-km/h | 1060.0            | 1031.4    | 22.5      | 6.0   | 1445.5 pers-km/h |
| Travel Time (Total)                   | veh-h/h  | 36.3              | 35.4      | 0.8       | 0.2   | 48.2 pers-h/h    |
| Desired Speed                         | km/h     | 50.0              | 50.0      | 50.0      | 50.0  |                  |
| Demand Flows (Total for all Sites)    | veh/h    | 4260              | 4153      | 86        | 21    | 5718 pers/h      |
| Arrival Flows (Total for all Sites)   | veh/h    | 4260              | 4153      | 86        | 21    | 5718 pers/h      |
| Demand Flows (Entry Total)            | veh/h    | 1541              | 1509      | 28        | 4     |                  |
| Midblock Inflows (Total)              | veh/h    | 145               | 154       | 5         | 0     |                  |
| Midblock Outflows (Total)             | veh/h    | -231              | -218      | -22       | -4    |                  |
| Percent Heavy Vehicles (Demand)       | %        | 2.5               |           |           |       |                  |
| Percent Heavy Vehicles (Arrival)      | %        | 2.5               |           |           |       |                  |
| Degree of Saturation                  |          | 0.862             | 0.862     | 0.862     | 0.488 |                  |
| Control Delay (Total)                 | veh-h/h  | 14.91             | 14.56     | 0.31      | 0.04  | 19.00 pers-h/h   |
| Control Delay (Average)               | sec      | 12.6              | 12.6      | 12.9      | 6.6   | 12.0 sec         |
| Control Delay (Worst Lane by MC)      | sec      | 30.4              |           |           |       |                  |
| Control Delay (Worst Movement by MC)  | sec      | 30.4              | 30.4      | 30.4      | 17.2  | 30.4 sec         |
| Geometric Delay (Average)             | sec      | 0.5               | 0.5       | 0.5       | 0.6   |                  |
| Stop-Line Delay (Average)             | sec      | 12.1              | 12.1      | 12.4      | 6.0   |                  |
| Ave. Queue Storage Ratio (Worst Lane) |          | 1.01              | 1.01      | 1.01      | 1.01  |                  |
| Effective Stops (Total)               | veh/h    | 2321              | 2268      | 47        | 7     | 2977 pers/h      |
| Effective Stop Rate                   |          | 0.54              | 0.55      | 0.55      | 0.32  | 0.52             |
| Proportion Queued                     |          | 0.55              | 0.55      | 0.55      | 0.32  | 0.53             |
| Performance Index                     |          | 116.6             | 75.8      | 29.0      | 11.8  | 116.6            |
| Cost (Total)                          | \$/h     | 1687.58           | 1642.94   | 35.26     | 9.38  | 2295.18 \$/h     |
| Fuel Consumption (Total)              | L/h      | 136.6             | 133.0     | 2.8       | 0.8   |                  |
| Fuel Economy                          | L/100km  | 12.9              | 12.9      | 12.6      | 13.6  |                  |
| Carbon Dioxide (Total)                | kg/h     | 322.0             | 313.3     | 6.7       | 2.0   |                  |
| Hydrocarbons (Total)                  | kg/h     | 0.029             | 0.028     | 0.001     | 0.000 |                  |
| Carbon Monoxide (Total)               | kg/h     | 0.28              | 0.27      | 0.01      | 0.00  |                  |
| NOx (Total)                           | kg/h     | 0.395             | 0.381     | 0.008     | 0.006 |                  |

### ITA Scenario 3 - PM Peak – Houchens Rd to Saxbys Rd

| Route Performance - Hourly Values     |          |                   |           |           |       |                  |
|---------------------------------------|----------|-------------------|-----------|-----------|-------|------------------|
| Performance Measure                   |          | Vehicles: All MCs | Light Veh | Heavy Veh | Buses | Persons          |
| Route Level of Service (LOS)          |          | LOS D             | LOS D     | LOS D     | LOS D |                  |
| Speed Efficiency                      |          | 0.56              | 0.56      | 0.56      | 0.69  |                  |
| Travel Time Index                     |          | 5.13              | 5.12      | 5.12      | 6.52  |                  |
| Congestion Coefficient                |          | 1.78              | 1.78      | 1.78      | 1.46  |                  |
| Travel Speed (Average)                | km/h     | 28.1              | 28.1      | 28.1      | 34.4  | 28.1 km/h        |
| Travel Distance (Total)               | veh-km/h | 992.7             | 941.6     | 43.4      | 7.7   | 1413.1 pers-km/h |
| Travel Time (Total)                   | veh-h/h  | 35.2              | 33.4      | 1.5       | 0.2   | 48.3 pers-h/h    |
| Desired Speed                         | km/h     | 50.0              | 50.0      | 50.0      | 50.0  |                  |
| Demand Flows (Total for all Sites)    | veh/h    | 3025              | 2873      | 131       | 21    | 4237 pers/h      |
| Arrival Flows (Total for all Sites)   | veh/h    | 3025              | 2873      | 131       | 21    | 4237 pers/h      |
| Demand Flows (Entry Total)            |          | NA                | NA        | NA        | NA    |                  |
| Midblock Inflows (Total)              |          | NA                | NA        | NA        | NA    |                  |
| Midblock Outflows (Total)             |          | NA                | NA        | NA        | NA    |                  |
| Percent Heavy Vehicles (Demand)       | %        | 5.0               |           |           |       |                  |
| Percent Heavy Vehicles (Arrival)      | %        | 5.0               |           |           |       |                  |
| Degree of Saturation                  |          | 0.787             | 0.787     | 0.787     | 0.673 |                  |
| Control Delay (Total)                 | veh-h/h  | 14.86             | 14.13     | 0.68      | 0.05  | 19.38 pers-h/h   |
| Control Delay (Average)               | sec      | 17.7              | 17.7      | 18.7      | 9.2   | 16.5 sec         |
| Control Delay (Worst Lane by MC)      | sec      | 33.2              |           |           |       |                  |
| Control Delay (Worst Movement by MC)  | sec      | 33.2              | 33.2      | 33.2      | 23.8  | 33.2 sec         |
| Geometric Delay (Average)             | sec      | 0.7               | 0.7       | 0.7       | 0.6   |                  |
| Stop-Line Delay (Average)             | sec      | 17.0              | 17.0      | 18.0      | 8.6   |                  |
| Ave. Queue Storage Ratio (Worst Lane) |          | 0.30              | 0.30      | 0.30      | 0.30  |                  |
| Effective Stops (Total)               | veh/h    | 2088              | 1988      | 90        | 10    | 2790 pers/h      |
| Effective Stop Rate                   |          | 0.69              | 0.69      | 0.69      | 0.47  | 0.66             |
| Proportion Queued                     |          | 0.72              | 0.72      | 0.71      | 0.40  | 0.67             |
| Performance Index                     |          | 103.8             | 67.7      | 25.8      | 10.3  | 103.8            |
| Cost (Total)                          | \$/h     | 1736.21           | 1648.77   | 75.33     | 12.11 | 2432.22 \$/h     |
| Fuel Consumption (Total)              | L/h      | 139.4             | 132.4     | 6.1       | 1.0   |                  |
| Fuel Economy                          | L/100km  | 14.0              | 14.1      | 14.0      | 12.5  |                  |
| Carbon Dioxide (Total)                | kg/h     | 329.7             | 313.1     | 14.3      | 2.3   |                  |
| Hydrocarbons (Total)                  | kg/h     | 0.031             | 0.029     | 0.001     | 0.000 |                  |
| Carbon Monoxide (Total)               | kg/h     | 0.29              | 0.28      | 0.01      | 0.00  |                  |
| NOx (Total)                           | kg/h     | 0.645             | 0.612     | 0.028     | 0.005 |                  |

## ITA Scenario 4 - AM Peak – Saxbys Rd to Houchens Rd

| Route Performance - Hourly Values    |          |                   |           |           |       |                  |
|--------------------------------------|----------|-------------------|-----------|-----------|-------|------------------|
| Performance Measure                  |          | Vehicles: All MCs | Light Veh | Heavy Veh | Buses | Persons          |
| Route Level of Service (LOS)         |          | LOS D             | LOS D     | LOS D     | LOS C |                  |
| Speed Efficiency                     |          | 0.70              | 0.70      | 0.70      | 0.72  |                  |
| Travel Time Index                    |          | 6.66              | 6.65      | 6.65      | 6.85  |                  |
| Congestion Coefficient               |          | 1.43              | 1.43      | 1.43      | 1.40  |                  |
| Travel Speed (Average)               | km/h     | 35.0              | 34.9      | 34.9      | 35.8  | 35.0 km/h        |
| Travel Distance (Total)              | veh-km/h | 727.5             | 646.6     | 71.8      | 9.0   | 1132.9 pers-km/h |
| Travel Time (Total)                  | veh-h/h  | 20.9              | 18.6      | 2.1       | 0.2   | 31.9 pers-h/h    |
| Desired Speed                        | km/h     | 50.0              | 50.0      | 50.0      | 50.0  |                  |
| Demand Flows (Total for all Sites)   | veh/h    | 2651              | 2363      | 256       | 32    | 4090 pers/h      |
| Arrival Flows (Total for all Sites)  | veh/h    | 2635              | 2349      | 255       | 32    | 4072 pers/h      |
| Demand Flows (Entry Total)           | veh/h    | 694               | 623       | 64        | 6     |                  |
| Midblock Inflows (Total)             | veh/h    | 43                | 50        | 20        | 0     |                  |
| Midblock Outflows (Total)            | veh/h    | -40               | -42       | -19       | -6    |                  |
| Percent Heavy Vehicles (Demand)      | %        | 10.8              |           |           |       |                  |
| Percent Heavy Vehicles (Arrival)     | %        | 10.9              |           |           |       |                  |
| Degree of Saturation                 |          | 0.717             | 0.717     | 0.717     | 0.639 |                  |
| Control Delay (Total)                | veh-h/h  | 6.26              | 5.48      | 0.71      | 0.07  | 9.50 pers-h/h    |
| Control Delay (Average)              | sec      | 8.6               | 8.4       | 10.0      | 7.9   | 8.4 sec          |
| Control Delay (Worst Lane by MC)     | sec      | 21.0              |           |           |       |                  |
| Control Delay (Worst Movement by MC) | sec      | 21.0              | 21.0      | 21.0      | 20.4  | 21.0 sec         |
| Geometric Delay (Average)            | sec      | 0.5               | 0.5       | 0.5       | 0.6   |                  |
| Stop-Line Delay (Average)            | sec      | 8.0               | 7.9       | 9.6       | 7.3   |                  |
| Ave. Que Storage Ratio (Worst Lane)  |          | 0.47              | 0.37      | 0.37      | 0.37  |                  |
| Effective Stops (Total)              | veh/h    | 1211              | 1083      | 117       | 11    | 1773 pers/h      |
| Effective Stop Rate                  |          | 0.46              | 0.46      | 0.46      | 0.35  | 0.44             |
| Proportion Queued                    |          | 0.52              | 0.52      | 0.52      | 0.40  | 0.50             |
| Performance Index                    |          | 73.2              | 42.9      | 21.2      | 9.2   | 73.2             |
| Cost (Total)                         | \$/h     | 1238.64           | 1099.96   | 121.82    | 16.86 | 1971.85 \$/h     |
| Fuel Consumption (Total)             | L/h      | 107.4             | 95.3      | 10.5      | 1.6   |                  |
| Fuel Economy                         | L/100km  | 14.8              | 14.7      | 14.6      | 17.4  |                  |
| Carbon Dioxide (Total)               | kg/h     | 255.4             | 226.6     | 25.0      | 3.9   |                  |
| Hydrocarbons (Total)                 | kg/h     | 0.023             | 0.020     | 0.002     | 0.001 |                  |
| Carbon Monoxide (Total)              | kg/h     | 0.23              | 0.20      | 0.02      | 0.00  |                  |
| NOx (Total)                          | kg/h     | 0.816             | 0.722     | 0.080     | 0.014 |                  |

## ITA Scenario 4 - AM Peak – Houchens Rd to Saxbys Rd

| Route Performance - Hourly Values    |          |                   |           |           |       |                  |
|--------------------------------------|----------|-------------------|-----------|-----------|-------|------------------|
| Performance Measure                  |          | Vehicles: All MCs | Light Veh | Heavy Veh | Buses | Persons          |
| Route Level of Service (LOS)         |          | LOS D             | LOS D     | LOS D     | LOS D |                  |
| Speed Efficiency                     |          | 0.59              | 0.59      | 0.59      | 0.70  |                  |
| Travel Time Index                    |          | 5.47              | 5.47      | 5.47      | 6.66  |                  |
| Congestion Coefficient               |          | 1.69              | 1.69      | 1.69      | 1.43  |                  |
| Travel Speed (Average)               | km/h     | 29.6              | 29.6      | 29.6      | 35.0  | 29.6 km/h        |
| Travel Distance (Total)              | veh-km/h | 1475.4            | 1402.1    | 61.7      | 11.6  | 2103.3 pers-km/h |
| Travel Time (Total)                  | veh-h/h  | 51.4              | 49.0      | 2.1       | 0.3   | 70.7 pers-h/h    |
| Desired Speed                        | km/h     | 50.0              | 50.0      | 50.0      | 50.0  |                  |
| Demand Flows (Total for all Sites)   | veh/h    | 4618              | 4398      | 188       | 32    | 6451 pers/h      |
| Arrival Flows (Total for all Sites)  | veh/h    | 4550              | 4331      | 188       | 32    | 6370 pers/h      |
| Demand Flows (Entry Total)           |          | NA                | NA        | NA        | NA    |                  |
| Midblock Inflows (Total)             |          | NA                | NA        | NA        | NA    |                  |
| Midblock Outflows (Total)            |          | NA                | NA        | NA        | NA    |                  |
| Percent Heavy Vehicles (Demand)      | %        | 4.8               |           |           |       |                  |
| Percent Heavy Vehicles (Arrival)     | %        | 4.8               |           |           |       |                  |
| Degree of Saturation                 |          | 0.921             | 0.921     | 0.921     | 0.837 |                  |
| Control Delay (Total)                | veh-h/h  | 21.03             | 20.08     | 0.88      | 0.07  | 27.29 pers-h/h   |
| Control Delay (Average)              | sec      | 16.6              | 16.7      | 16.8      | 8.1   | 15.4 sec         |
| Control Delay (Worst Lane by MC)     | sec      | 29.4              |           |           |       |                  |
| Control Delay (Worst Movement by MC) | sec      | 29.4              | 29.4      | 29.4      | 24.8  | 29.4 sec         |
| Geometric Delay (Average)            | sec      | 0.6               | 0.6       | 0.7       | 0.6   |                  |
| Stop-Line Delay (Average)            | sec      | 16.1              | 16.1      | 16.2      | 7.5   |                  |
| Ave. Que Storage Ratio (Worst Lane)  |          | 0.64              | 0.64      | 0.64      | 0.64  |                  |
| Effective Stops (Total)              | veh/h    | 3481              | 3320      | 146       | 15    | 4617 pers/h      |
| Effective Stop Rate                  |          | 0.77              | 0.77      | 0.78      | 0.48  | 0.72             |
| Proportion Queued                    |          | 0.74              | 0.74      | 0.75      | 0.40  | 0.69             |
| Performance Index                    |          | 166.1             | 105.0     | 41.4      | 19.7  | 166.1            |
| Cost (Total)                         | \$/h     | 2552.00           | 2427.63   | 106.04    | 18.32 | 3590.11 \$/h     |
| Fuel Consumption (Total)             | L/h      | 208.6             | 198.3     | 8.7       | 1.6   |                  |
| Fuel Economy                         | L/100km  | 14.1              | 14.1      | 14.1      | 13.6  |                  |
| Carbon Dioxide (Total)               | kg/h     | 493.2             | 468.9     | 20.6      | 3.8   |                  |
| Hydrocarbons (Total)                 | kg/h     | 0.046             | 0.043     | 0.002     | 0.000 |                  |
| Carbon Monoxide (Total)              | kg/h     | 0.43              | 0.41      | 0.02      | 0.00  |                  |
| NOx (Total)                          | kg/h     | 0.976             | 0.925     | 0.041     | 0.010 |                  |

## ITA Scenario 4 - PM Peak – Saxbys Rd to Houchens Rd

| Route Performance - Hourly Values    |          |                   |           |           |       |                  |
|--------------------------------------|----------|-------------------|-----------|-----------|-------|------------------|
| Performance Measure                  |          | Vehicles: All MCs | Light Veh | Heavy Veh | Buses | Persons          |
| Route Level of Service (LOS)         |          | LOS D             | LOS D     | LOS D     | LOS C |                  |
| Speed Efficiency                     |          | 0.57              | 0.57      | 0.57      | 0.70  |                  |
| Travel Time Index                    |          | 5.27              | 5.26      | 5.26      | 6.67  |                  |
| Congestion Coefficient               |          | 1.74              | 1.74      | 1.74      | 1.43  |                  |
| Travel Speed (Average)               | km/h     | 28.7              | 28.7      | 28.7      | 35.0  | 28.7 km/h        |
| Travel Distance (Total)              | veh-km/h | 1380.5            | 1342.0    | 29.4      | 9.0   | 1917.0 pers-km/h |
| Travel Time (Total)                  | veh-h/h  | 51.4              | 50.1      | 1.1       | 0.2   | 68.6 pers-h/h    |
| Desired Speed                        | km/h     | 50.0              | 50.0      | 50.0      | 50.0  |                  |
| Demand Flows (Total for all Sites)   | veh/h    | 5294              | 5155      | 107       | 32    | 7262 pers/h      |
| Arrival Flows (Total for all Sites)  | veh/h    | 5294              | 5155      | 107       | 32    | 7262 pers/h      |
| Demand Flows (Entry Total)           | veh/h    | 1703              | 1666      | 31        | 6     |                  |
| Midblock Inflows (Total)             | veh/h    | 172               | 181       | 7         | 0     |                  |
| Midblock Outflows (Total)            | veh/h    | -246              | -233      | -24       | -6    |                  |
| Percent Heavy Vehicles (Demand)      | %        | 2.6               |           |           |       |                  |
| Percent Heavy Vehicles (Arrival)     | %        | 2.6               |           |           |       |                  |
| Degree of Saturation                 |          | 0.945             | 0.945     | 0.945     | 0.542 |                  |
| Control Delay (Total)                | veh-h/h  | 23.55             | 22.98     | 0.51      | 0.06  | 30.10 pers-h/h   |
| Control Delay (Average)              | sec      | 16.0              | 16.1      | 17.0      | 7.3   | 14.9 sec         |
| Control Delay (Worst Lane by MC)     | sec      | 53.2              |           |           |       |                  |
| Control Delay (Worst Movement by MC) | sec      | 53.2              | 53.2      | 53.2      | 18.1  | 53.2 sec         |
| Geometric Delay (Average)            | sec      | 0.5               | 0.5       | 0.5       | 0.6   |                  |
| Stop-Line Delay (Average)            | sec      | 15.5              | 15.6      | 16.5      | 6.7   |                  |
| Ave. Que Storage Ratio (Worst Lane)  |          | 1.16              | 1.16      | 1.16      | 1.16  |                  |
| Effective Stops (Total)              | veh/h    | 2846              | 2778      | 58        | 10    | 3697 pers/h      |
| Effective Stop Rate                  |          | 0.54              | 0.54      | 0.54      | 0.31  | 0.51             |
| Proportion Queued                    |          | 0.51              | 0.51      | 0.51      | 0.31  | 0.49             |
| Performance Index                    |          | 167.7             | 108.9     | 45.1      | 13.7  | 167.7            |
| Cost (Total)                         | \$/h     | 2321.69           | 2256.96   | 49.18     | 15.55 | 3233.88 \$/h     |
| Fuel Consumption (Total)             | L/h      | 176.3             | 171.3     | 3.7       | 1.3   |                  |
| Fuel Economy                         | L/100km  | 12.8              | 12.8      | 12.5      | 14.0  |                  |
| Carbon Dioxide (Total)               | kg/h     | 415.6             | 403.8     | 8.7       | 3.1   |                  |
| Hydrocarbons (Total)                 | kg/h     | 0.038             | 0.037     | 0.001     | 0.000 |                  |
| Carbon Monoxide (Total)              | kg/h     | 0.35              | 0.34      | 0.01      | 0.00  |                  |
| NOx (Total)                          | kg/h     | 0.499             | 0.480     | 0.010     | 0.009 |                  |

## ITA Scenario 4 - PM Peak – Houchens Rd to Saxbys Rd

| Route Performance - Hourly Values    |          |                   |           |           |       |                  |
|--------------------------------------|----------|-------------------|-----------|-----------|-------|------------------|
| Performance Measure                  |          | Vehicles: All MCs | Light Veh | Heavy Veh | Buses | Persons          |
| Route Level of Service (LOS)         |          | LOS D             | LOS D     | LOS D     | LOS D |                  |
| Speed Efficiency                     |          | 0.53              | 0.53      | 0.53      | 0.61  |                  |
| Travel Time Index                    |          | 4.79              | 4.78      | 4.78      | 5.71  |                  |
| Congestion Coefficient               |          | 1.88              | 1.89      | 1.89      | 1.63  |                  |
| Travel Speed (Average)               | km/h     | 26.5              | 26.5      | 26.5      | 30.7  | 26.5 km/h        |
| Travel Distance (Total)              | veh-km/h | 1150.1            | 1088.2    | 50.4      | 11.6  | 1712.8 pers-km/h |
| Travel Time (Total)                  | veh-h/h  | 43.2              | 40.9      | 1.9       | 0.3   | 61.8 pers-h/h    |
| Desired Speed                        | km/h     | 50.0              | 50.0      | 50.0      | 50.0  |                  |
| Demand Flows (Total for all Sites)   | veh/h    | 3546              | 3361      | 154       | 32    | 5165 pers/h      |
| Arrival Flows (Total for all Sites)  | veh/h    | 3546              | 3361      | 154       | 32    | 5165 pers/h      |
| Demand Flows (Entry Total)           |          | NA                | NA        | NA        | NA    |                  |
| Midblock Inflows (Total)             |          | NA                | NA        | NA        | NA    |                  |
| Midblock Outflows (Total)            |          | NA                | NA        | NA        | NA    |                  |
| Percent Heavy Vehicles (Demand)      | %        | 5.2               |           |           |       |                  |
| Percent Heavy Vehicles (Arrival)     | %        | 5.2               |           |           |       |                  |
| Degree of Saturation                 |          | 0.756             | 0.756     | 0.756     | 0.756 |                  |
| Control Delay (Total)                | veh-h/h  | 19.65             | 18.63     | 0.90      | 0.11  | 26.83 pers-h/h   |
| Control Delay (Average)              | sec      | 19.9              | 20.0      | 21.1      | 12.9  | 18.7 sec         |
| Control Delay (Worst Lane by MC)     | sec      | 38.9              |           |           |       |                  |
| Control Delay (Worst Movement by MC) | sec      | 38.9              | 38.9      | 38.9      | 25.4  | 38.9 sec         |
| Geometric Delay (Average)            | sec      | 0.6               | 0.6       | 0.7       | 0.6   |                  |
| Stop-Line Delay (Average)            | sec      | 19.3              | 19.3      | 20.4      | 12.3  |                  |
| Ave. Que Storage Ratio (Worst Lane)  |          | 0.37              | 0.37      | 0.37      | 0.35  |                  |
| Effective Stops (Total)              | veh/h    | 2452              | 2330      | 106       | 16    | 3393 pers/h      |
| Effective Stop Rate                  |          | 0.69              | 0.69      | 0.69      | 0.50  | 0.66             |
| Proportion Queued                    |          | 0.73              | 0.73      | 0.72      | 0.50  | 0.69             |
| Performance Index                    |          | 134.2             | 86.1      | 35.3      | 12.8  | 134.2            |
| Cost (Total)                         | \$/h     | 2159.02           | 2045.06   | 94.06     | 19.89 | 3163.79 \$/h     |
| Fuel Consumption (Total)             | L/h      | 165.6             | 156.8     | 7.2       | 1.6   |                  |
| Fuel Economy                         | L/100km  | 14.4              | 14.4      | 14.3      | 13.8  |                  |
| Carbon Dioxide (Total)               | kg/h     | 391.6             | 370.8     | 17.1      | 3.8   |                  |
| Hydrocarbons (Total)                 | kg/h     | 0.037             | 0.035     | 0.002     | 0.000 |                  |
| Carbon Monoxide (Total)              | kg/h     | 0.34              | 0.33      | 0.01      | 0.00  |                  |
| NOx (Total)                          | kg/h     | 0.764             | 0.721     | 0.033     | 0.010 |                  |