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Sustainable Transport. Safe Solutions

Abernethy Road Traffic Study

Option 7 Assessment

Supplementary Technical Note 1



Prepared for:

City of Belmont

March 2025

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1 Introduction

This Supplementary Technical Note has been prepared by Urbii on behalf of City of Belmont as part of Option 7 Assessment for the Abernethy Road Traffic Study.

The City of Belmont has completed a stakeholder consultation regarding the findings of the Abernethy Road Traffic Study. The preferred road upgrade scenario (Option 6) entails conversion of the intersection of Abernethy Rd / Kew St to left-in/left-out only. Feedback from stakeholders indicates a preference to retain the existing right turn movement from Abernethy Road into Kew Street.

Urbii has been engaged to undertake supplementary traffic analysis, to assess the traffic impact of retaining the right turn movement. The findings of the analysis are summarised in this technical note.



Figure 1: Existing intersection of Abernethy Road / Kew Street

2 Model coding

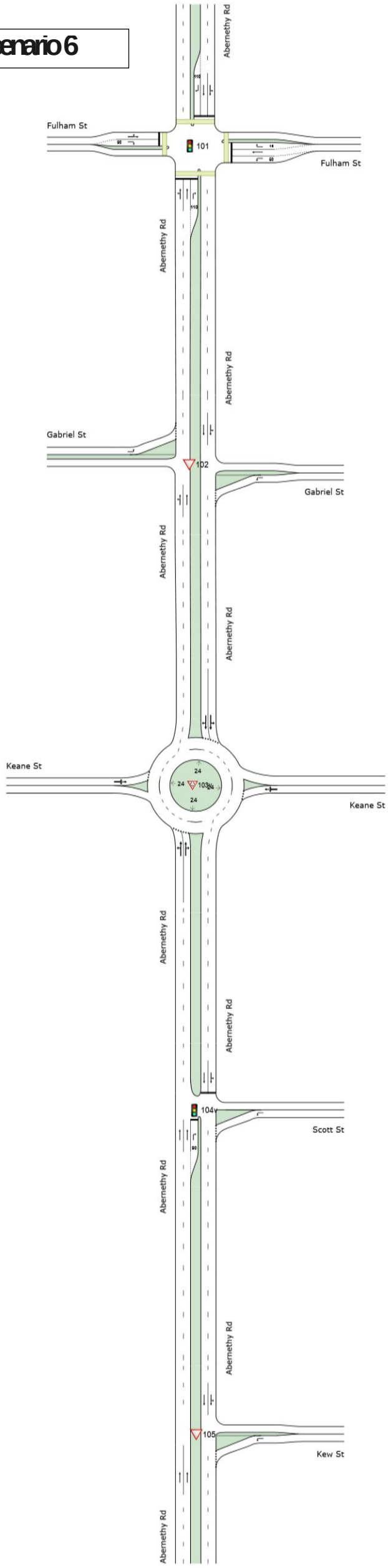
The Scenario 6 model network was cloned and modified to create a new Scenario 7 model network.

The network models are presented in Figure 2. Scenario 7 features retention of the existing right turn pocket on Abernethy Road at Kew Street.

The modelled traffic volumes are presented in Figure 3.

N

Scenario 6



Scenario 7

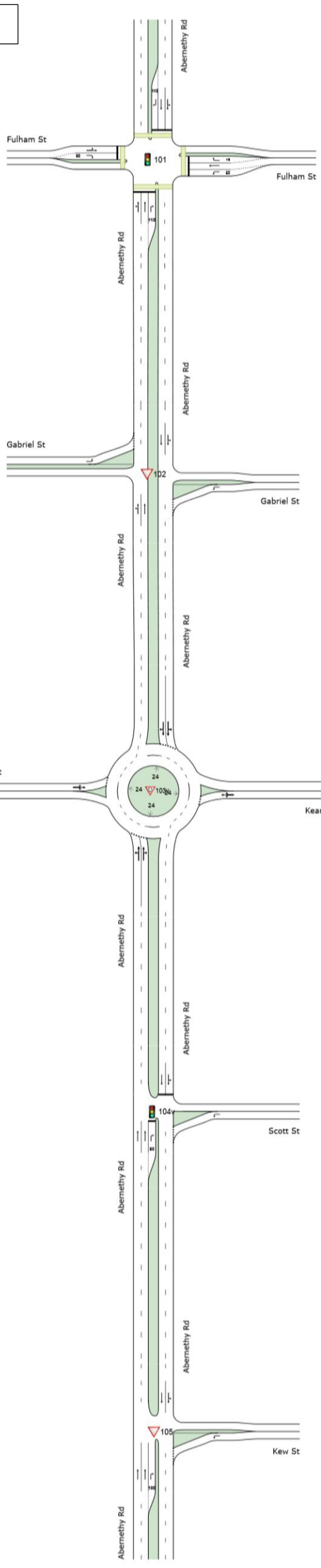
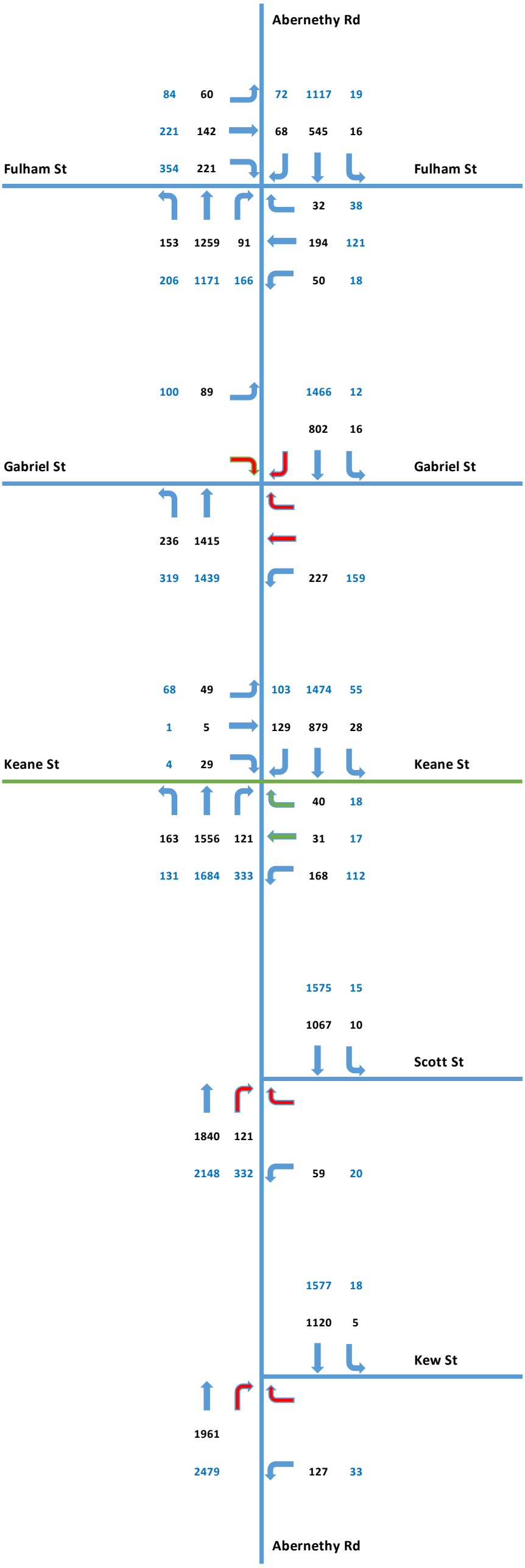


Figure 2: Network models – Scenario 6 & 7

2031 Scenario 6



2031 Scenario 7

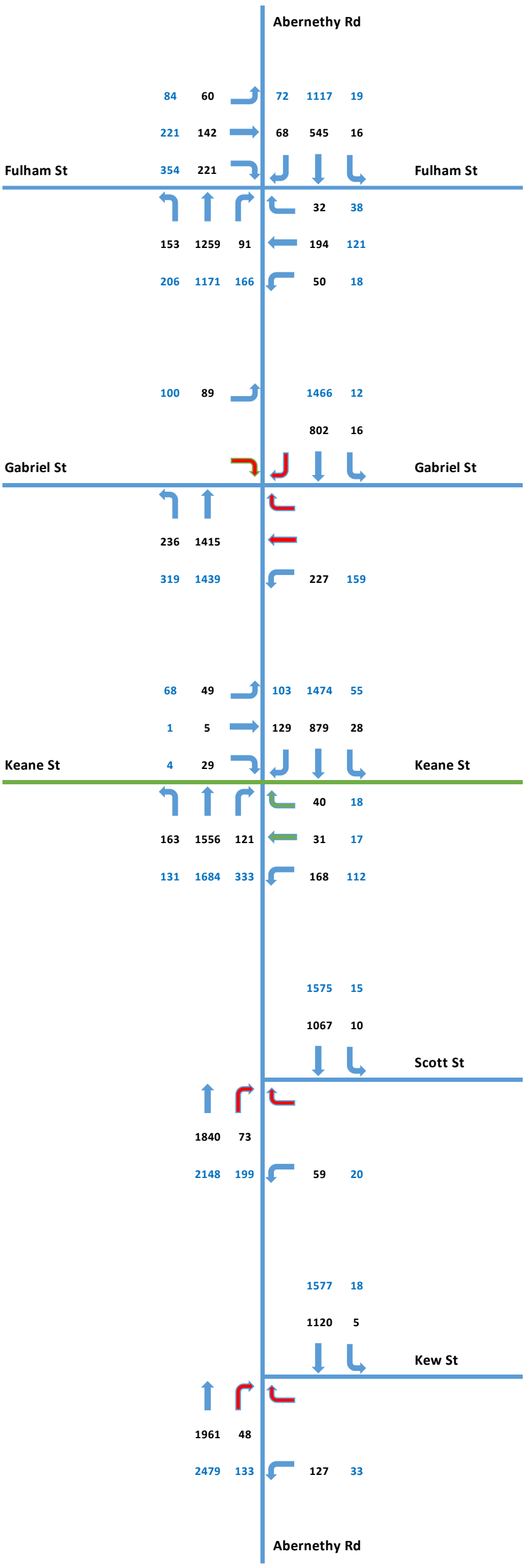


Figure 3: Modelled traffic volumes – Scenario 6 & 7

3 Model analysis results

3.1 Network analysis results

Selected key network performance statistics are summarised in Table 1 for the AM peak hour and Table 2 for the PM peak hour.

During the AM peak hour, Scenarios 6 and 7 exhibited similar overall network performance.

During the PM peak hour, the overall network performance was slightly better for Scenario 7. Retaining the right turn pocket from Abernethy Road to Kew Street resulted in overall slightly lower average delay in the network.

Table 1: Global network performance statistics – AM peak hour

Network Statistic	Existing	Scenario 6	Scenario 7
Network LOS	E	C	C
Congestion Coefficient	2.4	1.33	1.33
Average Travel Speed (km/h)	24	43.3	43.3
Desired speed – Program (km/h)	57.6	57.6	57.6
Demand flows – Entry Total (veh/h)	3837	4117	4165
Degree of Saturation	5.333	0.883	0.883
Control Delay – Average (seconds)	39.9	10.1	10.1

Table 2: Global network performance statistics – PM peak hour

Network Statistic	Existing	Scenario 6	Scenario 7
Network LOS	E	D	C
Congestion Coefficient	2.36	1.45	1.42
Average Travel Speed (km/h)	24.5	39.9	40.7
Desired speed – Program (km/h)	57.8	57.8	57.8
Demand flows – Entry Total (veh/h)	4714	5057	5190
Degree of Saturation	6.833	0.904	0.904
Control Delay – Average (seconds)	39.9	13.4	12.7

3.2 Intersection analysis results

3.2.1 Abernethy Road / Fulham Street – Keane Street

Scenarios 6 and 7 performed the same for the Abernethy Road intersections with Fulham Street, Gabriel Street and Keane Street.

Table 3: Abernethy Rd / Fulham St – intersection analysis results summary

Site 101 - Abernethy Rd / Fulham St - Traffic Signals				
Scenario	v/c	Ave Delay (sec)	LoS	95% Queue (m)
2031 AM Peak - Scenario 6	0.883	39.6	D	276.3
2031 AM Peak - Scenario 7	0.883	39.6	D	276.3
2031 PM Peak - Scenario 6	0.904	50.9	D	356
2031 PM Peak - Scenario 7	0.904	50.9	D	356

Table 4: Abernethy Rd / Gabriel St – intersection analysis results summary

Site 102 - Abernethy Rd / Gabriel St - worst approach				
Scenario	v/c	Ave Delay (sec)	LoS	95% Queue (m)
2031 AM Peak - Scenario 6	0.441	8	A	8.3
2031 AM Peak - Scenario 7	0.441	8	A	8.3
2031 PM Peak - Scenario 6	0.542	9.9	A	8.1
2031 PM Peak - Scenario 7	0.542	9.9	A	8.1

Table 5: Abernethy Rd / Keane St – intersection analysis results summary

Site 103 - Abernethy Rd / Keane St - worst approach				
Scenario	v/c	Ave Delay (sec)	LoS	95% Queue (m)
2031 AM Peak - Scenario 6	0.731	6.6	A	60.9
2031 AM Peak - Scenario 7	0.731	6.6	A	60.9
2031 PM Peak - Scenario 6	0.8	8	A	79.9
2031 PM Peak - Scenario 7	0.8	8	A	79.9

3.2.2 Abernethy Road / Scott Street

The results of the intersection analysis are summarised in Table 6. Scenarios 6 and 7 performed the same for the AM peak hour. During the PM peak hour, Scenario 7 performed better. This is because some of the right turn traffic was transferred south to Kew Street.

Table 6: Abernethy Rd / Scott St – intersection analysis results summary

Site 104 - Abernethy Rd / Scott St				
Scenario	**v/c**	**Ave Delay (sec)**	**LoS**	**95% Queue (m)**
2031 AM Peak - Scenario 6	0.715	4.4	A	57.4
2031 AM Peak - Scenario 7	0.715	4.4	A	57.4
2031 PM Peak - Scenario 6	0.867	9.5	A	138
2031 PM Peak - Scenario 7	0.749	5.2	A	97.4

3.2.3 Abernethy Road / Kew Street

The results of the intersection analysis are summarised in Table 7. Average delays and queuing slightly increase at the intersection, due to the retention of the right turn movement. The right turn movement operates at Level of service D during the PM peak hour, with the queuing expected to be contained within the turn pocket.

Table 7: Abernethy Rd / Kew St – intersection analysis results summary

Site 105 - Abernethy Rd / Kew St				
Scenario	**v/c**	**Ave Delay (sec)**	**LoS**	**95% Queue (m)**
2031 AM Peak - Scenario 6	0.504	7.7 (east app)	A	4.9
2031 AM Peak - Scenario 7	0.507	12.5 (south app)	B	4.9
2031 PM Peak - Scenario 6	0.637	9.5 (east app)	A	1.5
2031 PM Peak - Scenario 7	0.640	31.9 (south app)	D	18.6

4 Conclusion

This Supplementary Technical Note has been prepared by Urbii on behalf of City of Belmont as part of Option 7 Assessment of the Abernethy Road Traffic Study.

The City of Belmont has completed a stakeholder consultation regarding the findings of the Abernethy Road Traffic Study. The preferred road upgrade scenario (Option 6) entails conversion of the intersection of Abernethy Rd / Kew St to left-in/left-out only. Feedback from stakeholders indicates a preference to retain the existing right turn movement from Abernethy Road into Kew Street.

Urbii has been engaged to undertake supplementary traffic analysis, to assess the traffic impact of retaining the right turn movement.

Analysis indicates that the overall network will operate similarly between Scenario 6 and 7. The provision of right turn signals and Abernethy Rd / Scott St creates a gap in southbound traffic on Abernethy Road, which improves the performance of the existing right turn movement from Abernethy Road to Kew Street.

If the right turn movement is retained, it is suggested that this be done on a trial basis only, with crashes monitored at the intersection. Should road safety or traffic congestion be an issue then the right turn movement will need to be closed.