

Technical note

Project	Roddinglaw Road	Date	9 September 2005
Note	Road Safety Audit - Traffic	Ref	5118/aktechnote01_Rev
Author	Alan Kerr		

1 *Introduction*

1.1 As part of the Edinburgh Airport Rail Link Project, Roddinglaw Road will be severed by construction of a new rail line. Two options are being considered.

1.2 Option 1 consists of severing Roddinglaw Road and introducing a link between Roddinglaw Road and Freelands Road.

1.3 Option 2 consists only of the severing of Roddinglaw Road.

1.4 This note presents a capacity assessment determining the potential changes in traffic flows as a result of the closure of Roddinglaw Road. Also presented are comments on the existing and proposed network.

2 *Traffic Distribution*

2.1 The vehicle turning movements at the existing Gogarstone Road/Freelands Road/Roddinglaw Road priority junction are as shown in Figure 2-1. Traffic flow data was collected on 22 June 2005.



Photo 2-1: Existing Junction



Photo 2-2: Existing Junction

2.2 For Option 1, the existing traffic flows have been redistributed on the basis of the following network changes and the re-distributed vehicle turning movements are shown in Figure 2-2:

- closure of Roddinglaw Road
- re-design of the existing Gogarstone Road/Freelands Road/Roddinglaw Road priority junction
- provision of the new road between Roddinglaw Road and Freelands Road

2.3 For Option 2, the existing traffic flows have also been re-distributed on the basis of the following network changes and the re-distributed vehicle turning movements are shown in Figure 2-3:

- closure of Roddinglaw Road
- re-prioritisation of the existing Gogarstone Road/Freelands Road/Roddinglaw Road priority junction

2.4 A nominal amount of traffic has been assumed to continue using Roddinglaw Road to access the Golf Course.

3 *Network*

3.1 Freelands road (Photo 3-1) in the vicinity of the Lodge has a 60 miles-per-hour speed limit and is generally 7.30 metres wide in the environs of the proposed new junction (Photo 3-2) while narrowing when proceeding under the railway bridge (Photo 3-3).

3.2 The bridge has a height limit of 13'0". At present only one direction of traffic can pass under the railway bridge at any one time and therefore it may be worth considering introducing signalised shuttle working here. This would be consistent with other narrow bridges in the surrounding area.



Photo 3-1: Freelands Road



Photo 3-2: Proposed New Junction Location



Photo 3-3: Railway Bridge

3.3

Roddinglaw Road (Photo 3-4) was closed at the time of the site appraisal; however, it was possible to determine the width of Roddinglaw Road and it was determined to be generally 5.50 metres. This road width is sub-standard and would ideally be 6.0 metres or 7.3 metres wide. The proposed new link will provide this.



Photo 3-4: Roddinglaw Road

3.4

There are several locations throughout the surrounding road network that require consideration due to narrow road widths and poor visibility and are highlighted on Figure 3-1 and illustrated in Photo 3-5 and 3-6. It is unlikely that the traffic volume increases on the surrounding network due to the closure of Roddinglaw Road would be sufficient that these constraints would cause any considerable problems.



Photo 3-5: Narrow Bridge



Photo 3-6: Narrow Bridge

3.5 The proposed new link design and the design of the new and re-designed priority junctions will be designed in accordance with the current standards as outlined in the Design Manual for Roads and Bridges Volume 6.

4 ***Junction Capacity Assessment (Option 1)***

4.1 The industry standard analysis tool, PICADY 4.1, was used to assess the capacities of the proposed junctions and the results are summarised in the following tables.

Table 4-1: Gogarstone Road/Freelands Road/Roddinglaw Road

	AM Peak		PM Peak	
	RFC	Queue	RFC	Queue
B-AC	0.000	0.0	0.000	0.0
C-AB	0.011	0.0	0.006	0.0

Note: A – Gogarstone Road, B – Roddinglaw Road, C – Freelands Road

Table 4-2: Freelands Road/Proposed Road

	AM Peak		PM Peak	
	RFC	Queue	RFC	Queue
B-AC	0.141	0.2	0.173	0.2
C-AB	0.064	0.1	0.028	0.0

Note: A - Freelands Road (N), B – Proposed Road, C – Freelands Road (S)

Table 4-3: Roddinglaw Road/Proposed Road

	AM Peak		PM Peak	
	RFC	Queue	RFC	Queue
B-AC	0.121	0.1	0.050	0.1
C-AB	0.000	0.0	0.000	0.0

Note: A - Roddinglaw Road (S), B – Proposed Road, C – Roddinglaw Road (N)

4.2 The analysis summarised in the tables above highlight that the junctions can operate satisfactorily with no queues anticipated on any of the junctions' arms during either of the morning and evening peak periods.

5 *Junction Capacity Assessment (Option 2)*

5.1 The introduction of Option 2 would mean the re-distribution of some of the existing traffic throughout the surrounding network. A potential re-distribution of traffic in the vicinity of the Gogarstone Road/Freelands Road/Roddinglaw Road is shown in Figure 2-3 and the changes in volumes to the surrounding network links would be as illustrated on Figure 5-1. However, it should be noted that there are several alternative routes that drivers could adopt.

5.2 Given the potential variation in routes that drivers may adopt, no detailed capacity assessment has been undertaken on the wider network. However, observations of the network during peak periods suggest that the junctions concerned are unlikely to have any capacity issues as a result of the additional traffic, due the low levels of flow involved.

6 *Conclusion*

6.1 The severing of Roddinglaw Road and the introduction of a link between Roddinglaw Road and Freelands Road (Option 1) would re-distribute the traffic along the new link. Capacity assessments demonstrate that the proposed new priority junction at either end of the proposed new link would operate satisfactorily at all times. There are no other significant network constraints.

6.2 The severing of Roddinglaw Road alone (Option 2) would mean the re-distribution of some of the existing traffic throughout the surrounding network in volumes that are not likely to affect the network in a detrimental manner.

6.3 In traffic terms it can be recommended that either of the proposed scenarios would be acceptable. This was confirmed by the fact that Roddinglaw Road was closed during the site visits and no significant issues were observed.