

**C APPENDIX C**

Safety Assessment





## C.1 General

The safety objective covers two sub-objectives:

- Accidents (including a review of existing accidents and an assessment of accident impacts)
- Security (including impacts on personal security)

## C.2 Accidents

A road safety assessment has been carried out in the study area, using the modelled traffic flows and accident data provided by Aberdeen City Council over a five year period to identify any specific accident issues. This has enabled SIAS to assess which user groups are affected by the proposals. Assessment of the received accident data has also enabled SIAS to identify where and how incidents have occurred.

As will be described below, accidents have generally been grouped together based on location.

### C.2.1 Severity of Accidents by Street

The locations of all recorded accidents between 1 January 2002 and 31 December 2006 are shown in Table C.1. It is noted that the largest proportion of accidents occurred on the busiest routes through the area, namely North Anderson Drive, Great Northern Road, Auchmill Road and Muggiemoss Road.

Table C.1 : Accidents by Street (01/01/2002 – 31/12/2006)

Severity of accidents by street				
	slight	serious	fatal	total
Auchmill Road	8	1	0	<b>9</b>
Clifton Road	1	0	0	<b>1</b>
Fowler Avenue	2	0	0	<b>2</b>
Great Northern Road	11	1	0	<b>12</b>
Hilton Drive	2	0	0	<b>2</b>
Logie Place	1	0	0	<b>1</b>
Manor Avenue	2	1	0	<b>3</b>
Muggiemoss Road	7	1	0	<b>8</b>
Murray Court	0	1	0	<b>1</b>
North Anderson Drive	16	5	2	<b>23</b>
Provost Rust Drive	6	0	0	<b>6</b>
Rosehill Drive	1	0	0	<b>1</b>
Stewart Park Place	0	1	0	<b>1</b>
Stewart Place	0	1	0	<b>1</b>
The Parkway	1	0	0	<b>1</b>
	<b>58</b>	<b>12</b>	<b>2</b>	<b>72</b>

**Auchmill Road:** There were a total of nine personal injury accidents on Auchmill Road – one serious and eight slight. Four of the accidents occurred at or near the Haudigan Roundabout. Three occurred at or near to the junction with Manor Drive, with one each at the junction with Auchmill Terrace and in front of 402 Auchmill Road. Five of the accidents resulted in pedestrian injuries, one resulted in a motorcyclist injury and the remaining three solely involved cars or larger vehicles.



**Clifton Road:** There was one slight personal injury accident on Clifton Road. This resulted in a pedestrian injury and occurred near to the junction with North Anderson Drive. The accident occurred when a pedestrian stepped out in front of a car travelling at excessive speed for the road conditions.

**Fowler Avenue:** There were two slight personal injury accidents on Fowler Avenue both of which occurred away from junctions. There was one motorcyclist injury and one vehicle occupant injury.

**Great Northern Road and Murray Court:** There were a total of twelve personal injury accidents on Great Northern Road – one serious and eleven slight. There was a further slight injury in the car park at Murray Court off Great Northern Road. Six of the casualties were pedestrians, three were cyclists, one was a motorcyclist and two were vehicle occupants. The majority of the pedestrian casualties resulted from people walking into the road without due care, or at locations away from formal crossings. The serious injury was to a pedestrian due to a car reversing without due care. The vehicular only accidents all occurred within 160m of Haudagain Roundabout. The pedestrian accidents generally occurred to the east of Smithfield Lane.

**Hilton Drive:** There were two slight personal injury accidents on Hilton Drive. One occurred at the junction with North Anderson Drive as a result of poor driver observation while turning right. The other was due to a pedestrian stepping out in front of a vehicle.

**Logie Place:** There was one accident involving a slight injury to a cyclist which took place away from any junctions.

**Manor Avenue:** There were three pedestrian casualties on Manor Avenue – two slight and one serious. All of the accidents resulted from the pedestrian stepping onto the road carelessly or unnecessarily.

**Muggiemoss Road and Persley Bridge (The Parkway):** There were eight personal injury accidents on Muggiemoss Road (one serious and seven slight) and one slight injury accident on Persley Bridge. None of the accidents involved pedestrians. Four of the eight accidents occurred at the junction between Muggiemoss Road and the accesses to the nursing home and the small industrial estate. One accident involved a motorcycle and this occurred at the approach to Haudagain Roundabout.

**North Anderson Drive:** There were a total of 23 personal injury accidents on North Anderson Drive. Of these, there were two fatal, five serious and sixteen slight injury accidents. The largest concentration of accidents occurred at the junctions with Hilton Drive (five) and Manor Avenue (seven). Between these two junctions there were four instances of motorcycles being hit by vehicles emerging from the side roads. There were also a number of pedestrians injured while crossing North Anderson Drive. The accident data suggests that a significant proportion of these were due to trying to cross away from signalised pedestrian crossings. There were four accidents at, or on the approaches to, Haudagain Roundabout.

**Provost Rust Drive:** There were a total of six accidents resulting in slight personal injury on Provost Rust Drive. Of these, four vehicle occupants were injured and one cyclist and motorcyclist were injured. Two of the accidents occurred at the roundabout with North Anderson Drive and two were in close proximity to the junction with Smithfield Drive.

**Rosehill Drive:** There was one slight injury accident on Rosehill Drive. This involved a motorcyclist being hit by a car pulling out from a side road.

**Stewart Park Place and Stewart Place:** There were two serious accidents at these locations. Both involved pedestrians stepping onto the road in front of moving vehicles.

### C.2.2 Accidents Resulting in Injury by Mode

It has also been possible to identify the user groups most at risk in the area. Records in Table C.2 show that 35% of all injuries in the recorded accidents were sustained by pedestrians. Similarly, vehicle occupants also accounted for 35% of recorded injuries. Given the disproportionate number of pedestrians



compared to vehicles, this is a significant concern. The combined total of cyclists (7%) and motorcyclists (24%) injuries is to contribute almost a third of all accident related injuries.

Again, North Andersson Drive and Great Northern Road were found to be the site of the highest proportion of injuries. However, the road network adjacent to the trunk roads has also been identified as significant sources of injuries to pedestrians.

Table C.2 : Accidents by Mode of Travel

Accidents resulting in injury by mode									
Street	Ped		Cyclist		M/cyclist		Veh Occ		Total No
	No	%	No	%	No	%	No	%	
Auchmill Road	5	56%	0	0%	1	11%	3	33%	<b>9</b>
Clifton Road	1	100%	0	0%	0	0%	0	0%	<b>1</b>
Fowler Avenue	0	0%	0	0%	1	50%	1	50%	<b>2</b>
Great Northern Road	6	50%	3	25%	1	8%	2	17%	<b>12</b>
Hilton Drive	1	50%	0	0%	0	0%	1	50%	<b>2</b>
Logie Place	0	0%	1	100%	0	0%	0	0%	<b>1</b>
Manor Avenue	3	100%	0	0%	0	0%	0	0%	<b>3</b>
Muggiemoss Road	0	0%	0	0%	2	25%	6	75%	<b>8</b>
Murray Court	0	0%	0	0%	1	100%	0	0%	<b>1</b>
North Anderson Drive	7	30%	0	0%	9	39%	7	30%	<b>23</b>
Provost Rust Drive	0	0%	1	17%	1	17%	4	67%	<b>6</b>
Rosehill Drive	0	0%	0	0%	1	100%	0	0%	<b>1</b>
Stewart Park Place	1	100%	0	0%	0	0%	0	0%	<b>1</b>
Stewart Place	1	100%	0	0%	0	0%	0	0%	<b>1</b>
The Parkway	0	0%	0	0%	0	0%	1	100%	<b>1</b>
<b>TOTAL</b>	<b>25</b>	<b>35%</b>	<b>5</b>	<b>7%</b>	<b>17</b>	<b>24%</b>	<b>25</b>	<b>35%</b>	<b>72</b>

### C.2.3 Accidents by Day of the Week

Analysis of the accident data has identified that the largest proportion of accidents resulting in injury occurred on Fridays (21%). This is most likely due to the increased level of traffic on the network on Fridays. The breakdown is summarised in Table C.3.

Table C.3 : Accidents by Day of the Week

Accidents by day of the week		
Day	Accidents	
	No	%
Monday	8	11%
Tuesday	13	18%
Wednesday	11	15%
Thursday	9	13%
Friday	15	21%
Saturday	11	15%
Sunday	5	7%
	<b>72</b>	<b>100%</b>



### C.2.4 Accidents by Time

The data has also been examined to determine the time period during which injury accidents occurred. As would be expected the highest proportion of accidents occurred during the PM peak period (16:00 – 18:00). There were also significant numbers of recorded accidents in the two hour segments either side of the PM peak period and in the AM peak period.

Table C.4 : Accidents by Time

Accidents resulting in injury by time									
Street	00:00 - 06:00	06:00 - 08:00	08:00 - 10:00	10:00 - 14:00	14:00 - 16:00	16:00 - 18:00	18:00 - 20:00	20:00 - 00:00	00:00 - 23:59
Auchmill Road	0	1	1	1	3	2	0	0	8
Clifton Road	0	0	0	0	0	1	0	0	1
Fowler Avenue	0	0	0	0	0	2	0	0	2
Great Northern Road	1	1	1	1	3	3	2	1	13
Hilton Drive	0	0	0	0	0	2	0	0	2
Logie Place	0	0	0	0	0	0	1	0	1
Manor Avenue	0	0	0	0	0	1	2	0	3
Muggiemoss Road	1	0	0	1	1	1	1	3	8
Murray Court	0	0	0	0	0	0	0	1	1
North Anderson Drive	1	3	3	2	2	6	3	3	23
Provost Rust Drive	0	0	2	1	1	1	1	0	6
Rosehill Drive	0	0	0	1	0	0	0	0	1
Stewart Park Place	0	0	0	1	0	0	0	0	1
Stewart Place	0	0	1	0	0	0	0	0	1
The Parkway	0	0	1	0	0	0	0	0	1
<b>TOTAL</b>	<b>3</b>	<b>5</b>	<b>9</b>	<b>8</b>	<b>10</b>	<b>19</b>	<b>10</b>	<b>8</b>	<b>72</b>

### C.3 Further Comment on Accidents (Source: Bear Scotland)

The fatal accident which occurred at the junction of North Anderson Drive and Hilton Drive on 18 May 2006 was due to inattention on the part of a 52 year old male motorcyclist who proceeded through a red light in a southbound direction and collided with a bus emerging from Hilton Avenue on a green light.

The new traffic signal system had been in place for just over a week. "New traffic signals ahead" signs were in place.

The fatal accident inquiry in March 2007 concluded that there was no case to answer from a roads point of view, and that driver error caused the accident.

The fatal accident involving a motorcycle on 9 September 2006, just north of Hilton Road on North Anderson Drive was alcohol-related and is not relative to Haudagain design.

The cluster of accidents around Hilton Drive/Manor Avenue 2004-2006 included accidents which involved turning movements now prohibited following the redesign of the junctions and an alcohol related accident. There were no recorded injury accidents in 2007.

The cluster of accidents at Haudagain roundabout between 2004-2006 included 3 pedestrian accidents just west of the roundabout, notwithstanding the presence of a puffin crossing and pedestrian guardrail. Only one injury accident occurred in 2007, when two vehicles negotiating the roundabout in a westerly direction collided.



### C.3.1 Impact of Proposed Options

Local accident data was supplied by Aberdeen City Council. This indicated that there have been 72 personal injury accidents (PIAs) over the last 5 years in the study area considered.

This includes 5 PIAs at Haudagain Roundabout itself and 13 PIAs at the junction of North Anderson Drive/Middlefield Pace.

### C.3.2 NESAs Assessment

Network and Evaluation from Surveys and Assignment (NESA) is a computer program developed and maintained by Transport Scotland that is used to assess proposed road schemes, measuring their impact on traffic and the economy in the surrounding area. Accident costs are one element of a NESA assessment. It is necessary to put a money value on accidents savings so that they are given an appropriate evaluation relative to that given to travel time and construction costs.

The recommended methodology is to adopt local accident rates and default costs in the Base and default rates and default cost in the design. Despite the number of accidents recorded, given the high volumes of traffic using the network, the local accident rates are lower than the default values [Ref: DMRB 15, Table 6/6/1, August 2002].

This would result in an increase in accidents between the Base and Design which is counter intuitive. Consequently, default accident rates and default costs have been adopted in both Base and Design networks.

### C.3.3 Accident Benefit Summary

The results of the accident assessment indicate that each of the options will realise savings in accidents.

- Option 5      £0.64M
- Option 11     £1.01M
- Option 12     £2.57M

It should be noted that both Options 5 and 11 include new sections of carriageway. Consequently, both will incur accidents and partially offset the savings at Haudagain itself.

## C.4 Security

The most important factors which contribute to peoples feelings of unsafety are anti-social behaviour, poor lighting, and places for strangers to hide. Lonely places and the presence of those under the influence of alcohol and drugs are also of significant concern, as are secluded subways and alleyways. On the whole, these personal security issues appear to be of greater importance for many people than safety issues such as uneven pavements, fast traffic or busy roads.

For pedestrians, the fear of crime can be significant when deciding whether to walk or not. Small improvements such as better lighting on a route can lead to an increase in pedestrian activity. In general, people living in urban areas feel safer in areas which are busy with people going about their daily activities.

The initial assessment of security is primarily a qualitative exercise and considers the impact of the proposal on vulnerable sections of the community such as the young, the elderly and infirm and women travelling alone. Factors which influence the public's perception of safety include:

- Clearly laid out and well lit streets
- Good inter-visibility between the street and surrounding properties



- Avoidance of potentially dangerous areas
- Adoption of at-grade crossings in preference to underpasses or footbridges which may attract less desirable elements of the local community and are also more onerous for the Council to maintain

A more quantitative approach may be adopted through the setting up of audits on public perception on the suitability of walking and cycling for certain specific journeys. Targeted pedestrian strategies and audits are a simple method of identifying measures and initiatives to promote walking. The issues addressed in audits tend to include safety and environmental improvements such as wider pavements, street furniture and controlled crossings, but some also relate to personal security features such as lighting and maintenance of vegetation.

Where trunk roads are involved, the Trunk Road Authority can focus on security and safety by considering the needs of pedestrians at all stages of trunk road scheme development, in consultation and collaboration with other parties. They can also aim to ensure good access arrangements for pedestrians in and around developments near trunk roads and ensuring that maintenance of footways and crossings is carried out regularly to the benefit of pedestrians, and using maintenance schemes to provide enhanced facilities for pedestrians.

