



# **Crash Analysis Report**

**Willoughby LGA**

**2004 – 2008**

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**February 2010**

## Introduction

The main role of Council's Road Safety Officer is to develop a variety of educational campaigns and projects that aim to raise awareness about road safety issues among particular road user groups, including drivers, pedestrians, pedal cyclists and motorcyclists. Campaigns are designed to target the highest risk road user groups within the Willoughby local government area, as determined by statistical analysis and community consultation.

Willoughby City Council has been involved in the Local Government Road Safety Program for thirteen years, and some considerable changes to road user behaviour have been made during this time.

## The Challenge

A key feature of the Willoughby City Council area is that a significant number of people travel to the area for work, school, shopping, or transport. Traffic management becomes a challenge, as council must balance the needs of competing user groups. Chatswood remains the commercial and retail centre of the area and is one of Sydney's largest transport interchanges.

As a consequence, many of the people involved in or responsible for road accidents within Willoughby City Council do not live in the area, which demonstrates a need to target people who live in surrounding areas. For this reason, Willoughby participates in many joint campaigns with surrounding Councils - including North Sydney, Ku-ring-gai, Mosman, Lane Cove, Ryde, Manly, Pittwater, Warringah and Hornsby.

## Strategic Planning for Road Safety

The 2005-2008 Road Safety Strategic Plan for Willoughby City was developed to ensure Council takes a systematic and comprehensive approach to reducing crashes and their associated costs to the community.

The road safety priorities to be addressed in the Road Safety Strategic Plan were identified in consultation with key stakeholders from Council and the community. The key priorities are to focus on those road user groups identified as being 'at risk', as well as specific traffic management and road user behaviour issues. Some of the identified priorities for road safety education programs include:

- **Pedestrian Safety (especially older pedestrians)**
- **Young Drivers (17-25 age group)**
- **Motorcyclists**
- **Pedal cyclists**

## Objectives of the 2010/11 Road Safety Action Plan

1. To raise awareness of road safety issues and priorities within the local community.
2. To provide a framework for an integrated approach by key stakeholders to work together towards common road safety goals.
3. To identify the priority road safety issues, in keeping with Council's Strategic Plan and RTA priority issues, and describe strategies by which we will address them.

## Demographic Data

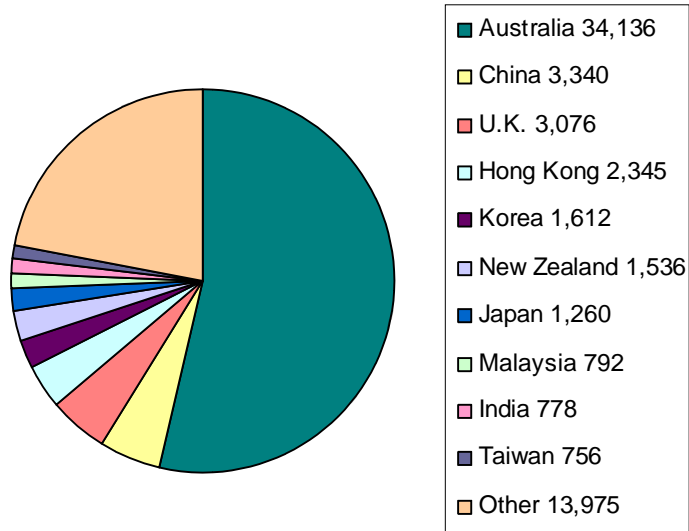
The City of Willoughby is located on Sydney's lower north shore, and is bordered by North Sydney and Lane Cove to the South, Ku-ring-gai and Warringah to the North, Ryde to the West and Middle Harbour to the East. The City proudly calls itself the City of Diversity; where residential, commercial, cultural and environmental interests are respected and balanced.



Chatswood is the hub of the City, and is identified as being a major commercial, transport and retail centre in Sydney. Each day about 30 000 passengers use Chatswood train station, and another 12 000 travel to and from Chatswood by bus. The workforce population entering Chatswood every day is around nine times the resident population. Both these population types are anticipated to increase over the coming years. The increase is due to further development in the Chatswood Central Business District and the completion of the Epping to Chatswood rail link. High pedestrian numbers within Chatswood also have implications for road safety within the town centre and surrounding areas.

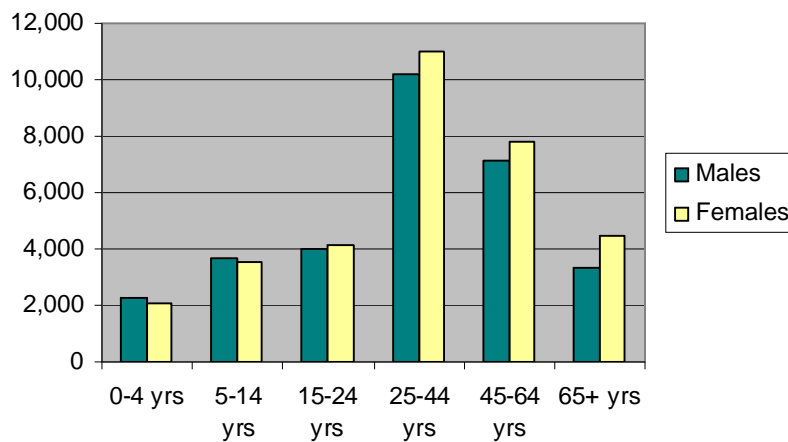
## Population Profile

The population for Willoughby City Council local government area, as at the 2006 Census, was estimated at 63,605. Of these people 39% were born overseas, many of which were born in a non-English speaking country. As shown in Graph 1 the major population groups born overseas were from China (5.3%), the UK (4.2%), Hong Kong (3.7%), Korea (2.5%), New Zealand (2.4%) and Japan (2%). Nearly one third of the population speak a language other than English at home, with Cantonese the main language spoken followed by Mandarin.



**Graph 1: Country of Birth (ABS 2006 Census)**

As shown in Graph 2 the largest age group in the community are adults aged 25-44 years who make up 33% of the population. Young people under 24 years of age represented almost one third of the population (31%) while those aged 65 years or more make up 12.3% of the population. In Willoughby City in 2006 there were 30,613 males and 32,992 females.



**Graph 2: Relative size of age groups (ABS 2006 Census)**

The number of people living in the Willoughby City Council LGA has steadily grown, increasing by 18% over the past 10 years. The community is well educated, with high numbers of tertiary educated people. The unemployment rate of the local government area is low, at just 3.5% of the population. There is a high percentage of motor vehicle ownership, with nearly 90% of dwellings owning at least one vehicle.

## Willoughby Crash Analysis 2004-2008

The following information provides a statistical overview of the road crash data for Willoughby LGA between 2004 and 2008.

### 1. CRASHES

Table 1 identifies the total number of crashes in Willoughby LGA by fatal/injury/non-casualty classification between 2004 and 2008. During 2008 there were 413 crashes in Willoughby LGA, which is a 15.5% reduction on the previous year's figure. The trend shows that there has been a steady decrease in crashes since 2003, with a steeper decrease for 2008. While the number of fatal crashes in 2008 has decreased from last year, the number of injury crashes is significantly lower in 2008 than it has been in the past 5 years. In fact, the figures for all classifications of crashes in 2008 are notably lower than previous years.

**Table 1. Willoughby LGA number of crashes by fatal/injury/non-casualty classification 2004-2008**

	2004	2005	2006	2007	2008	5 year Average
<b>Fatal Crashes</b>	0	1	3	3	1	1.6
<b>Injury Crashes</b>	168	173	173	162	146	164.4
<b>Non-casualty Crashes</b>	376	361	334	324	266	332.2
<b>Total Crashes</b>	544	535	510	489	413	498.2

### 2. CASUALTIES

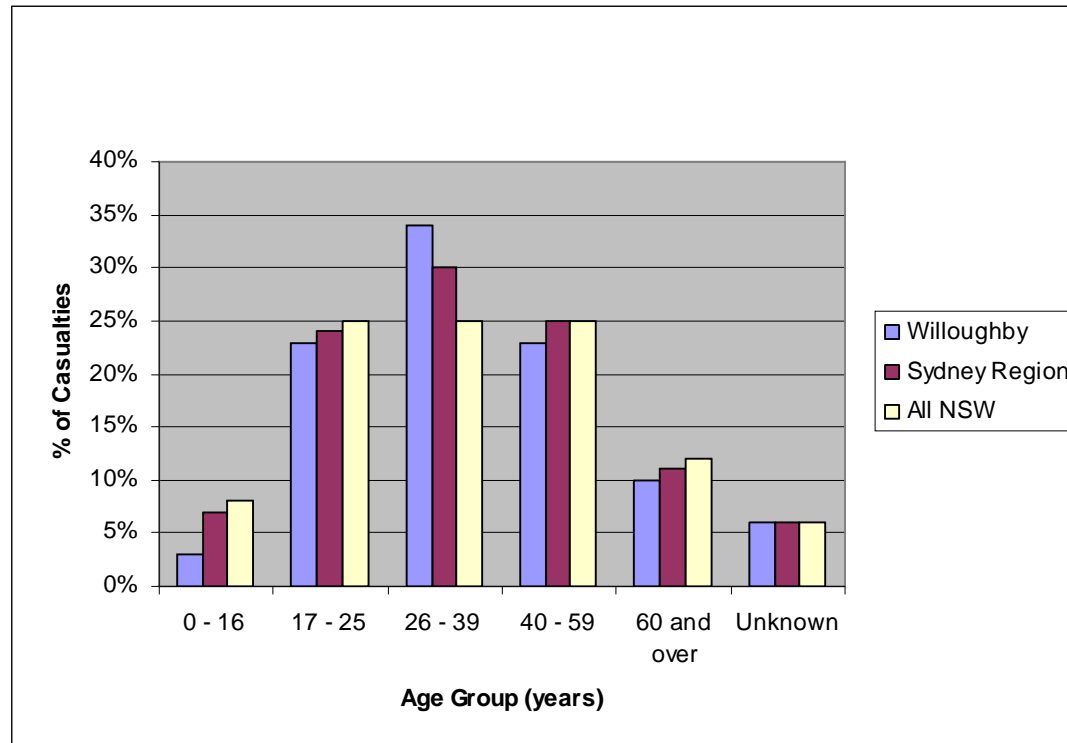
Table 2 shows the total number of casualties in Willoughby LGA by killed/injured classification between 2004 and 2008. There has been a dramatic drop in the number of overall casualties in 2008 from previous years, with an 18.1% reduction in total casualties from last year. In 2006, both the killed and injured casualties peaked with 3 fatalities and 214 injured casualties. But in 2007 figures decreased and now 2008 has been a stand out year with a great reduction in casualties.

**Table 2. Willoughby LGA number of casualties by killed/injured classification 2004-2008**

	2004	2005	2006	2007	2008	5 year Average
<b>Killed</b>	0	1	3	3	1	1.6
<b>Injured</b>	198	197	214	201	166	195.2
<b>Total</b>	198	198	217	204	167	196.8

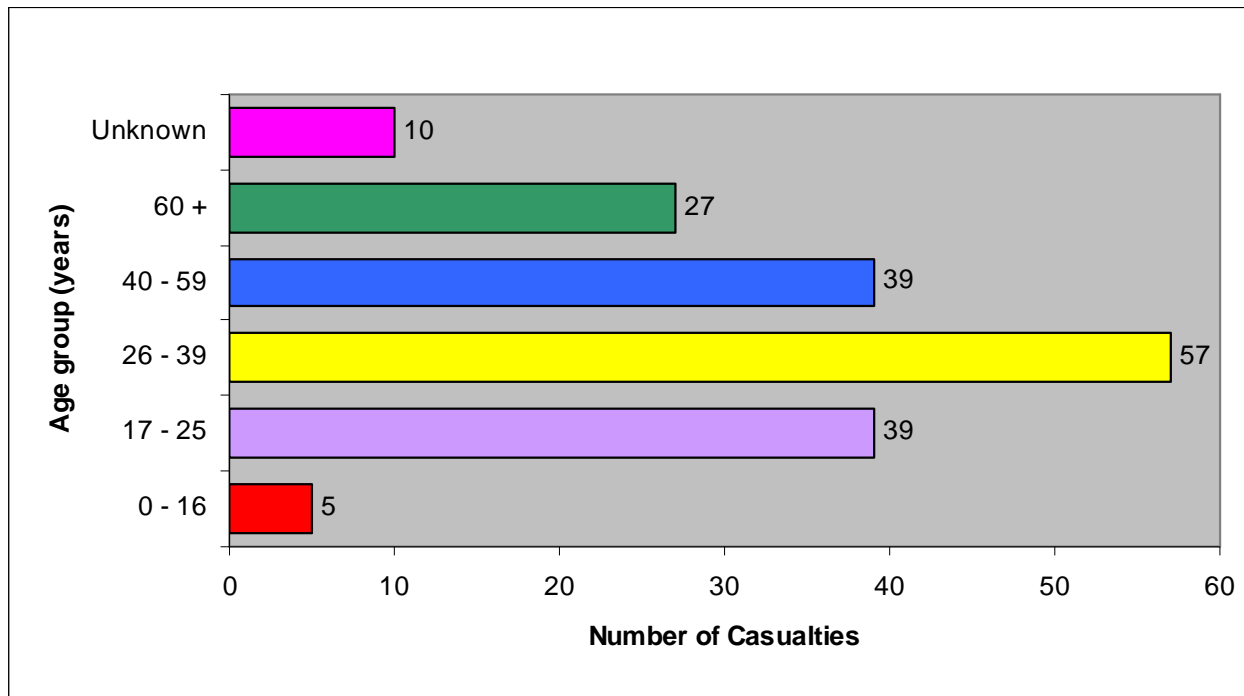
**2a. Casualties by age group**

Graph 3 shows the distribution of casualties by age group across Willoughby LGA, Sydney Region and NSW for 2008. Willoughby LGA has a higher percentage of casualties than NSW and Sydney for the 26 - 39 years age group. However, in all other age groups, Willoughby LGA has a lower percentage of casualties compared to NSW and Sydney region.



**Graph 3: Distribution of Casualties by Age Group and Region 2008**

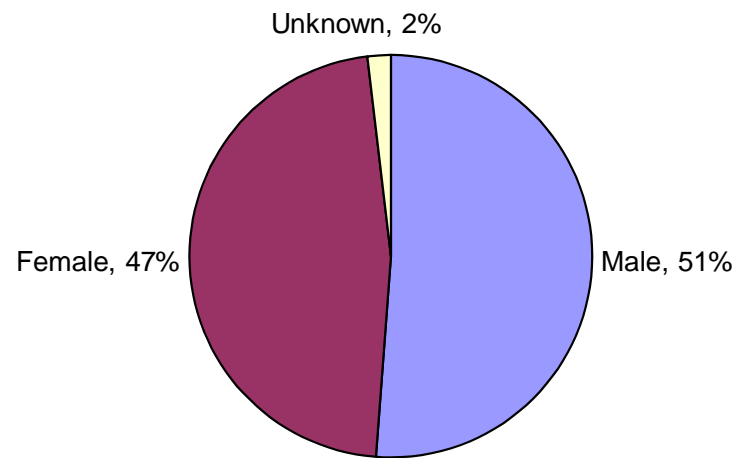
Graph 4 displays the number of casualties in Willoughby LGA by age group in 2008. It is important to note that the 26 - 39 years age group contains the highest number of casualties within Willoughby LGA.



**Graph 4: Casualties in Willoughby LGA by Age Group 2008**

**2b. Casualties by gender**

As shown in Graph 5, of the 167 casualties in the Willoughby LGA in 2008, 51% of all casualties were male (85). The one fatality for 2008 was also male.

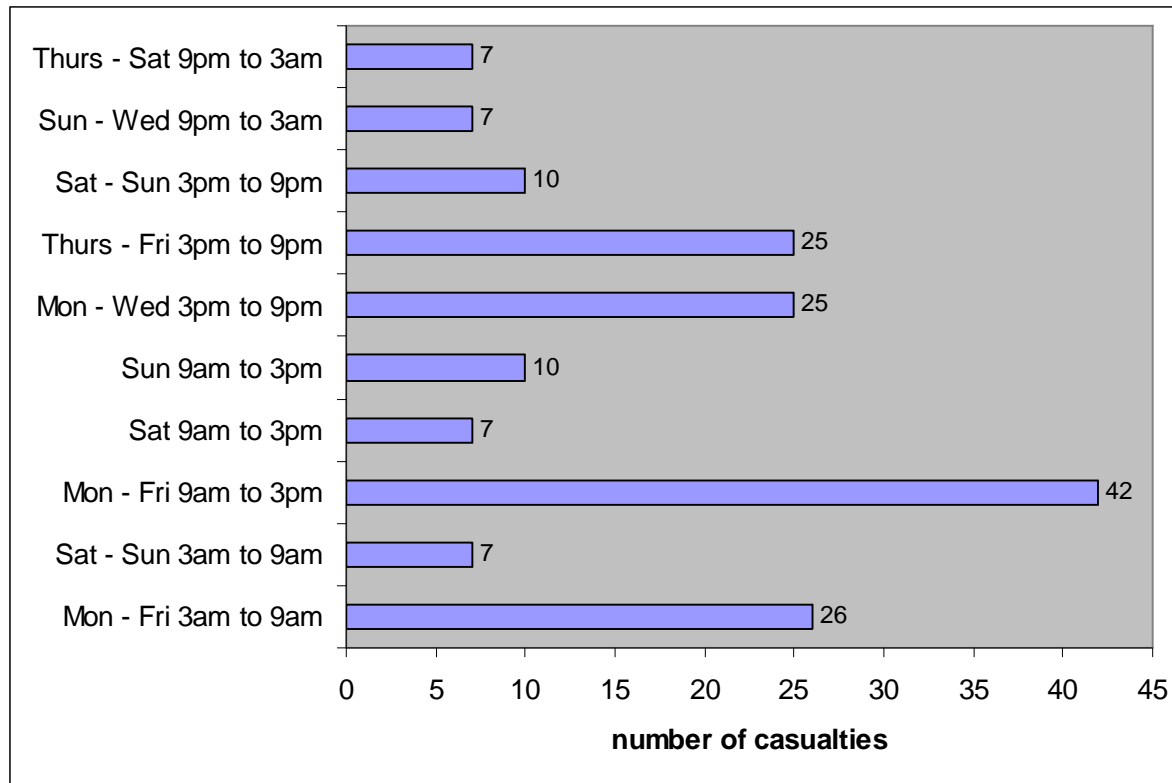


**Graph 5: Casualties by gender in Willoughby LGA 2008**



**2c. Casualties by time period**

Graph 6 describes the number of casualties in Willoughby LGA by time periods, 2008. The greatest number of casualties occurred from Monday to Friday between 9am and 3pm.



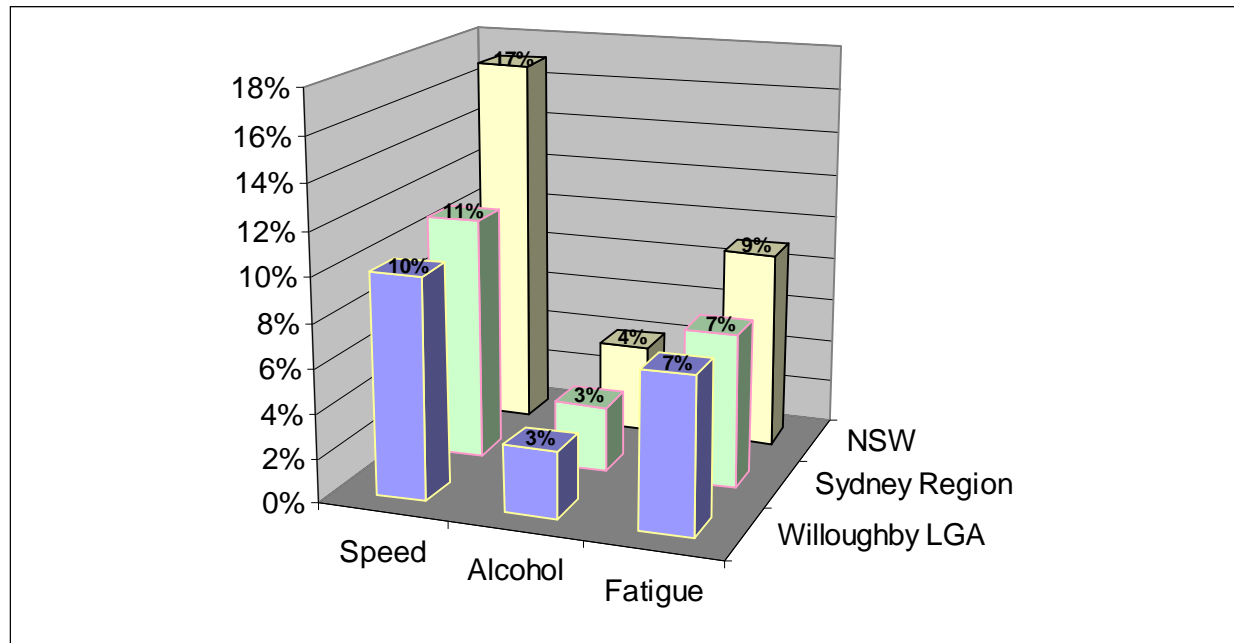
**Graph 6: Number of casualties by time period in Willoughby LGA 2008**

### 3. CONTRIBUTING FACTORS

This section discusses crash statistics in relation to contributing factors, notably speed, alcohol and fatigue.

#### 3a. Comparisons by region

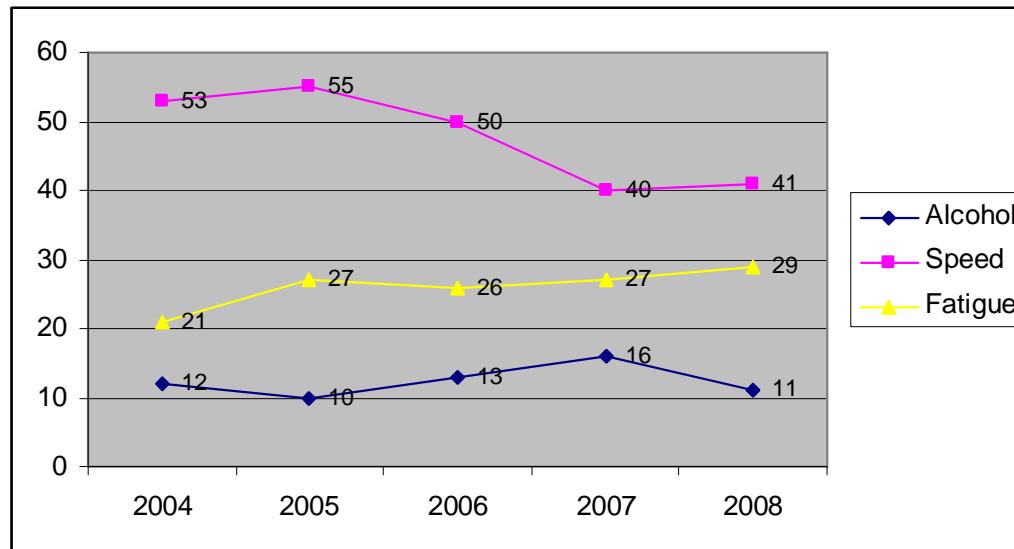
Graph 7 shows the percentage of all crashes in Willoughby, Sydney region and NSW according to contributing factors in 2008. Speed continues to be the greatest contributing factor in crashes, locally, regionally and across the State. Speed accounts for 10% of all crashes in Willoughby and 11% and 17% for Sydney region and NSW respectively. Crashes involving alcohol and fatigue contribute to 3% and 7% respectively, of all crashes in the Willoughby LGA. In Sydney Region and NSW alcohol contributes to 3% and 4% of all crashes, respectively and fatigue contributes to 7% and 8% respectively.



**Graph 7: Crash percentage and contributing factors between Willoughby LGA, Sydney region and NSW 2008**

### 3b. Comparisons within Willoughby 2004-2008

Graph 8 looks at the number of crashes with contributing factors between 2004 and 2008 in Willoughby. As shown in the previous graph speed is the highest contributing factor of crashes in Willoughby. There is only a slight increase in the number of crashes with contributing factors of speed and fatigue for 2008. The trend of fatigue-related crashes from 2004 to 2008 has not shown any major changes, but there has been a steady increase in the number of crashes over the past 5 years. There was a dramatic drop in the number of speed-related crashes in 2007, and this lower number of crashes has been sustained in 2008. The trend for alcohol-related crashes from 2005 to 2007 was increasing, but 2008 sees a reduction in the number of alcohol-related crashes by 5 crashes.

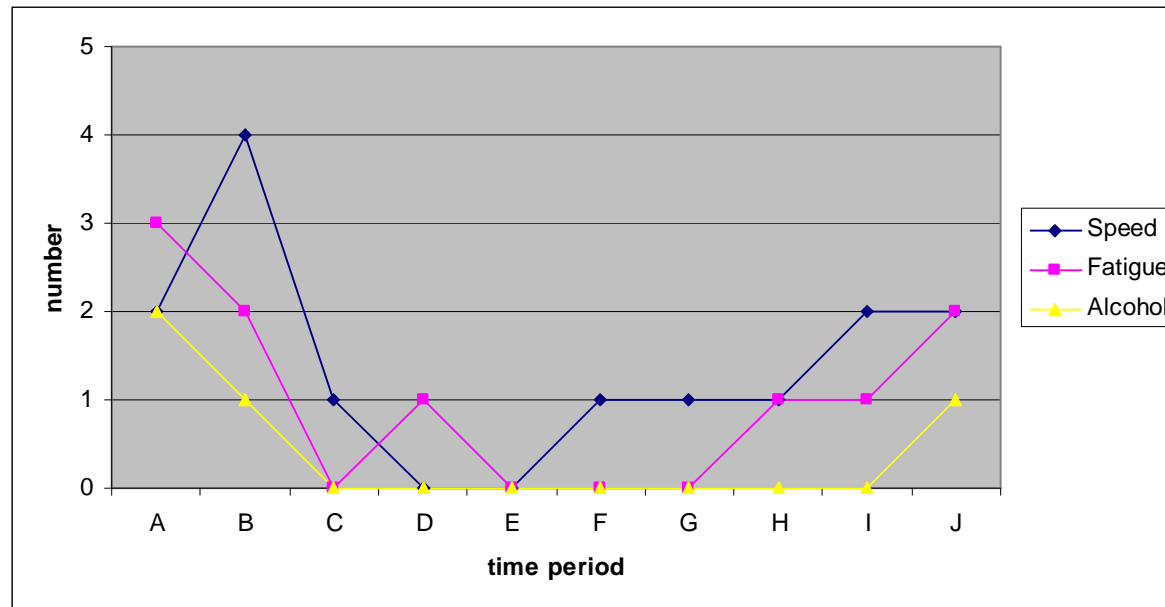


**Graph 8: Number of all crashes according to contributing factors 2004-2008 Willoughby**

**3c. Comparisons in Willoughby by time period and contributing factor**

**McLean Time Periods**

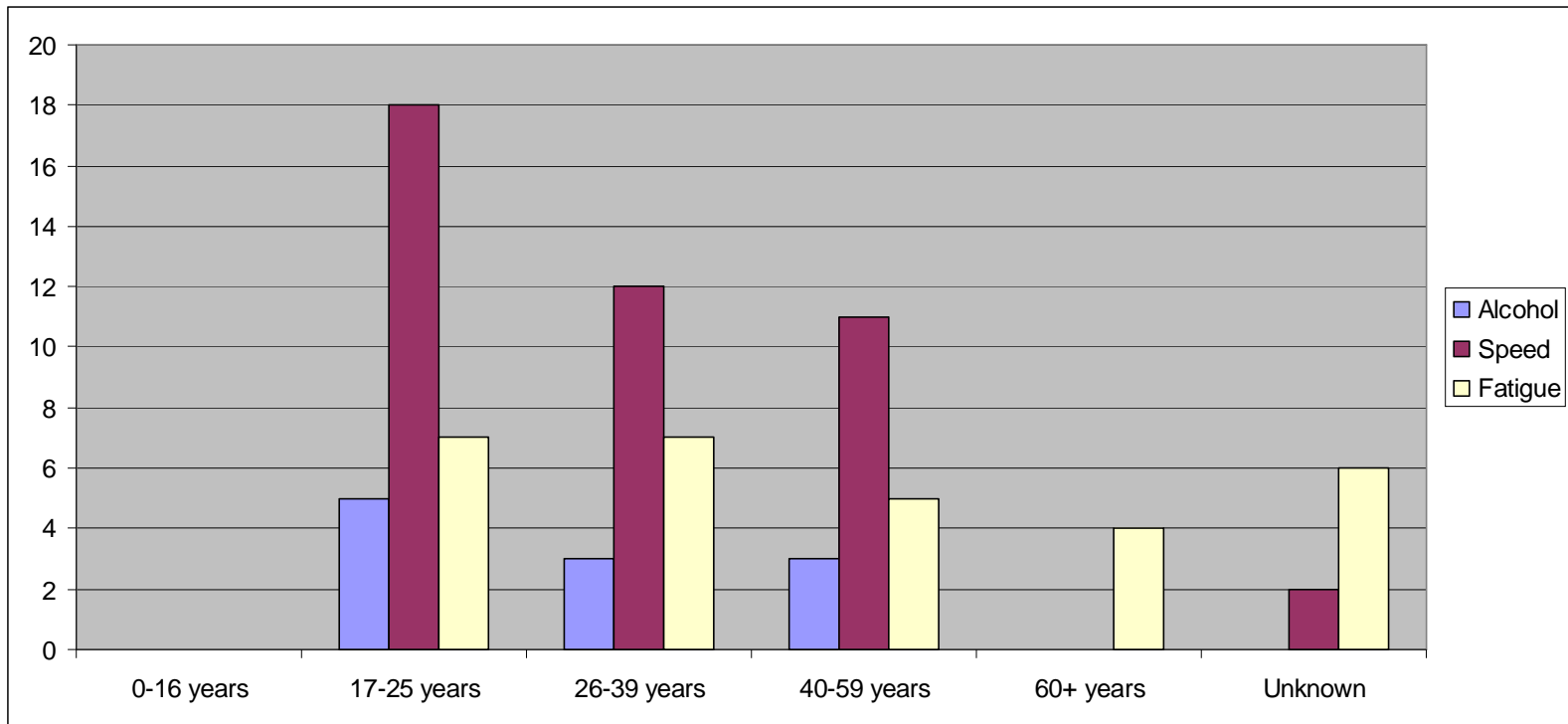
<b>A</b>	Monday – Friday 3am – 9am
<b>B</b>	Saturday – Sunday 3am – 9am
<b>C</b>	Monday – Friday 9am – 3pm
<b>D</b>	Saturday 9am - 3pm
<b>E</b>	Sunday 9am – 3pm
<b>F</b>	Monday – Wednesday 3pm – 9pm
<b>G</b>	Thursday – Friday 3pm – 9pm
<b>H</b>	Saturday – Sunday 3pm – 9pm
<b>I</b>	Sunday – Wednesday 9pm – 3am (next day)
<b>J</b>	Thursday – Saturday 9pm – 3am (next day)



**Graph 9: Number of fatal or injury crashes by contributing factor and time period Willoughby 2008**

Graph 9 shows the fatal or injury crashes by contributing factor and time period in Willoughby 2008. The time periods are specified in the table above according to McLean Time Periods.

Graph 10 shows the number of motor vehicle controllers involved in crashes in Willoughby LGA according to contributing factors and age group in 2008. The greatest number of motor vehicle controllers involved in speeding related crashes occurred, quite considerably, in the 17-25 year age group. The 17-39 year age group were involved in the greatest number of fatigue related crashes, while motor vehicle controllers in the 17-25 year age group were also involved in the greatest number of alcohol related crashes. Interestingly, there were no 0-16 year old motor vehicle controllers involved in alcohol, speed or fatigue related crashes. There were also no older drivers (60 + years) involved in crashes that were contributed by alcohol or speed.



**Graph 10: Number of motor vehicle controllers involved in crashes by contributing factor and age group Willoughby 2008**

### **3ci. Crashes involving speed**

In 2008, there were 41 crashes involving speed in Willoughby, resulting in 14 injured casualties. Speeding contributed to approximately 10% of the total number of fatal or injury crashes in Willoughby. The majority of casualty crashes involving speed in 2008 occurred from Saturday to Sunday within 3am to 9am (see Graph 9). The highest number of motor vehicle controllers involved in speeding crashes were in the 17-25 year age group (18), whereby 44% of all speeding related crashes involved 17-25 motor vehicle controllers (see Graph 10).

### **3cii. Crashes involving alcohol**

In 2008, alcohol was a factor in 11 crashes, resulting in 4 casualties. In 2008, alcohol contributed to 3% of the total number of fatal or injury crashes in Willoughby. In 2008 alcohol related crashes occurred mostly from Monday to Friday within 3am to 9am (see Graph 9). The majority of motor vehicle controllers involved in alcohol related crashes in Willoughby in 2008 were aged 17-25 years (see Graph 10).

### **3ciii. Crashes involving fatigue**

In 2008, there were 29 crashes involving fatigue in Willoughby, resulting in 13 casualties. 7% of the total number of fatal or injury crashes in Willoughby in 2008 involved fatigue. The time period when most crashes involving fatigue occurred was from Monday to Friday 3am – 9am. The majority of motor vehicle controllers involved in fatigue-related crashes were aged between 17 and 39 years of age (see graph 10).

## **4. ROAD USER TYPE**

This section will now examine crash statistics and road user type.

Table 3 summarises the percentage of casualties by road user class from 2004-2008, inclusive, for NSW, Sydney region and Willoughby LGA. The following is representative of the 5 year average and 2008 data (5 year average data is shown).

- On average, Willoughby LGA has a significantly higher number of **pedestrian** casualties (16%) compared to NSW (9%) and Sydney region (11%). The number of pedestrian casualties for Willoughby LGA in 2008 is lower than the five year average (12%) but is still higher than the NSW and Sydney region figures for 2008.
- When looking at **motorcyclist** casualties, there are a higher number of casualties for Willoughby LGA on average (12%), compared to NSW (9%) and Sydney region (8%). In 2008 motorcycle casualties in Willoughby have greatly increased, with motorcyclists contributing to 17% of all casualties. There hasn't been much change in the number of motorcyclist casualties for NSW and Sydney region in 2008.
- The 5 year average of motor vehicle **passenger** casualties for Willoughby LGA (16%) is much lower than both NSW (22%) and Sydney region (20%). In 2008, motor vehicle passenger casualties in Willoughby LGA significantly reduced to just 10% of total casualties, whereas the number of passenger casualties for both NSW and Sydney region were very similar to their 5 year averages.
- In 2008, the number of **pedal cyclist** casualties in Willoughby LGA (6%) is higher than the 5 year average (4%), whereas the number of pedal cyclist casualties for both NSW and Sydney region are the same as their 5 year averages. In 2008, pedal cyclist casualties in Willoughby LGA (6%) are slightly higher than Sydney region (5%) and NSW (4%).

- In 2008, the number of motor vehicle **driver** casualties in Willoughby LGA (55%) was higher than the 5 year average (53%). The 5 year average of motor vehicle driver casualties in Willoughby LGA is only slightly lower than NSW (55%) and Sydney region (56%).

**Table 3. Percentage of casualties by road user class 2004-2008 average, and 2008**

	Willoughby LGA		Sydney Region		NSW	
	5 year avge	2008	5 year avge	2008	5 year avge	2008
<b>Motor Vehicle Drivers</b>	53%	55%	56%	56%	55%	56%
<b>Motor Vehicle Passengers</b>	16%	10%	20%	19%	22%	21%
<b>Motorcyclists</b>	12%	17%	8%	10%	9%	10%
<b>Pedal Cyclists</b>	4%	6%	5%	5%	4%	4%
<b>Pedestrians</b>	16%	12%	11%	11%	9%	9%

Table 4 shows the percentage of casualties by road user class for each year from 2004 up to 2008 in Willoughby LGA. It is clear that the 5 year trends are mostly unpredictable for each of the road user classes. Motor vehicle driver casualties increased from 2004 to 2005, then decreased until 2008 when the percentage of casualties is nearly at it's highest over the past five years (55%) and is higher than the 5 year average (53%). Motor vehicle passenger casualties decreased from 2004 to 2005, then increased until 2008 when the percentage of casualties is lower than it has been in the past five years (10%) and is lower than the 5 year average (15%). Motorcyclist casualties have generally shown an increasing trend – increasing from 2004 to 2006, slightly decreasing in 2007, only to severely rise to the highest number of casualties in 2008 (17%). The percentage of pedal cyclist casualties increased from 2004 to 2005, dropped to only 1% in 2006, then increased again until 2008 when the percentage is at it's highest over the past 5 years (6%). Pedestrian casualties have virtually remained the same from 2004 to 2007 (16-17%), with a reduction in 2008 (12%).

**Table 4. Percentage of casualties by road user class 2004-2008 Willoughby LGA**

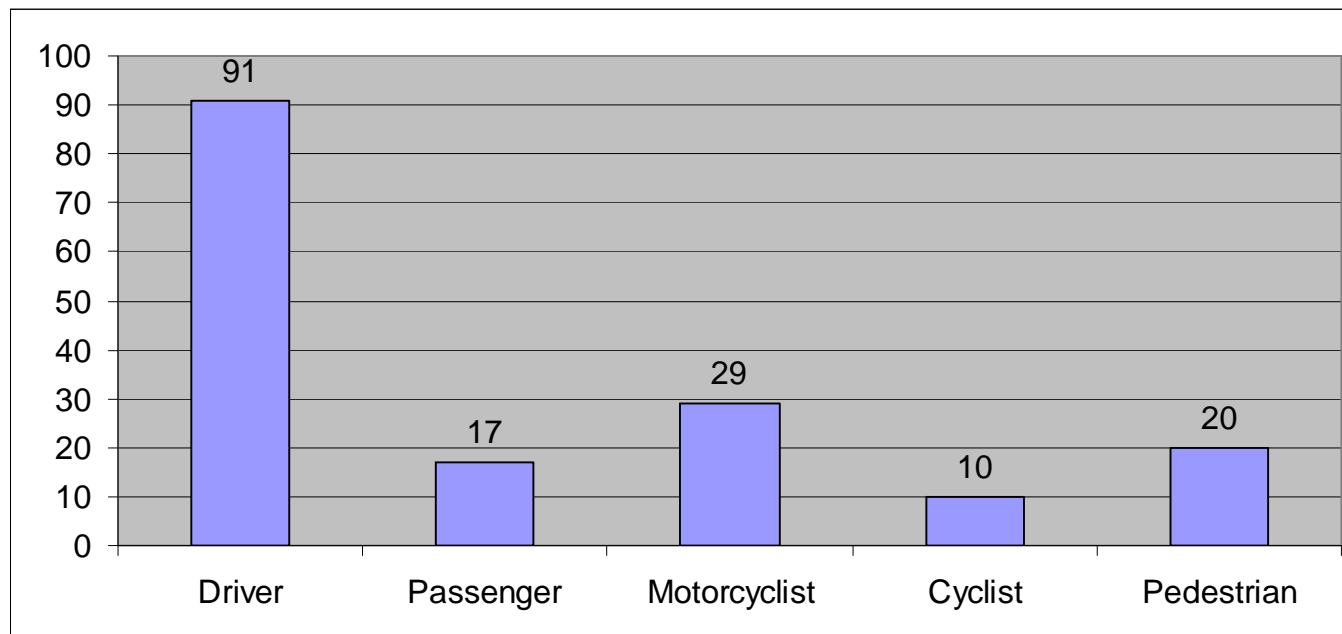
	2004	2005	2006	2007	2008	5 year average
<b>Motor Vehicle Drivers</b>	53%	56%	53%	48%	55%	53%
<b>Motor Vehicle Passengers</b>	17%	11%	18%	21%	10%	15%
<b>Motorcyclists</b>	9%	12%	12%	11%	17%	12%
<b>Pedal Cyclists</b>	5%	6%	1%	3%	6%	4%
<b>Pedestrians</b>	17%	17%	16%	17%	12%	16%

Table 5 now examines the total number of casualties by road user class from 2004 to 2008. In 2008, the number of motor vehicle driver casualties (91) is below the 5 year average of 104. And in 2008, the number of driver casualties is lower than it has ever been over the past 5 years. Similarly, the number of motor vehicle passenger casualties in 2008 (17) is lower than it has been over the past 5 years, same with the

number of pedestrian casualties in 2008 (20). However, the number of motorcyclist casualties in 2008 (29) is higher than it has been over the past 5 years. The number of pedal cyclist casualties in 2008 (10) is higher than the 5 year average and is the highest it has been since 2005.

**Table 5. Number of casualties by road user class 2004-2008 Willoughby LGA**

	2004	2005	2006	2007	2008	5 year average
<b>Motor Vehicle Drivers</b>	105	110	116	97	91	104
<b>Motor Vehicle Passengers</b>	33	21	38	42	17	30
<b>Motorcyclists</b>	17	23	26	23	29	24
<b>Pedal Cyclists</b>	9	11	2	7	10	8
<b>Pedestrians</b>	34	33	35	35	20	31

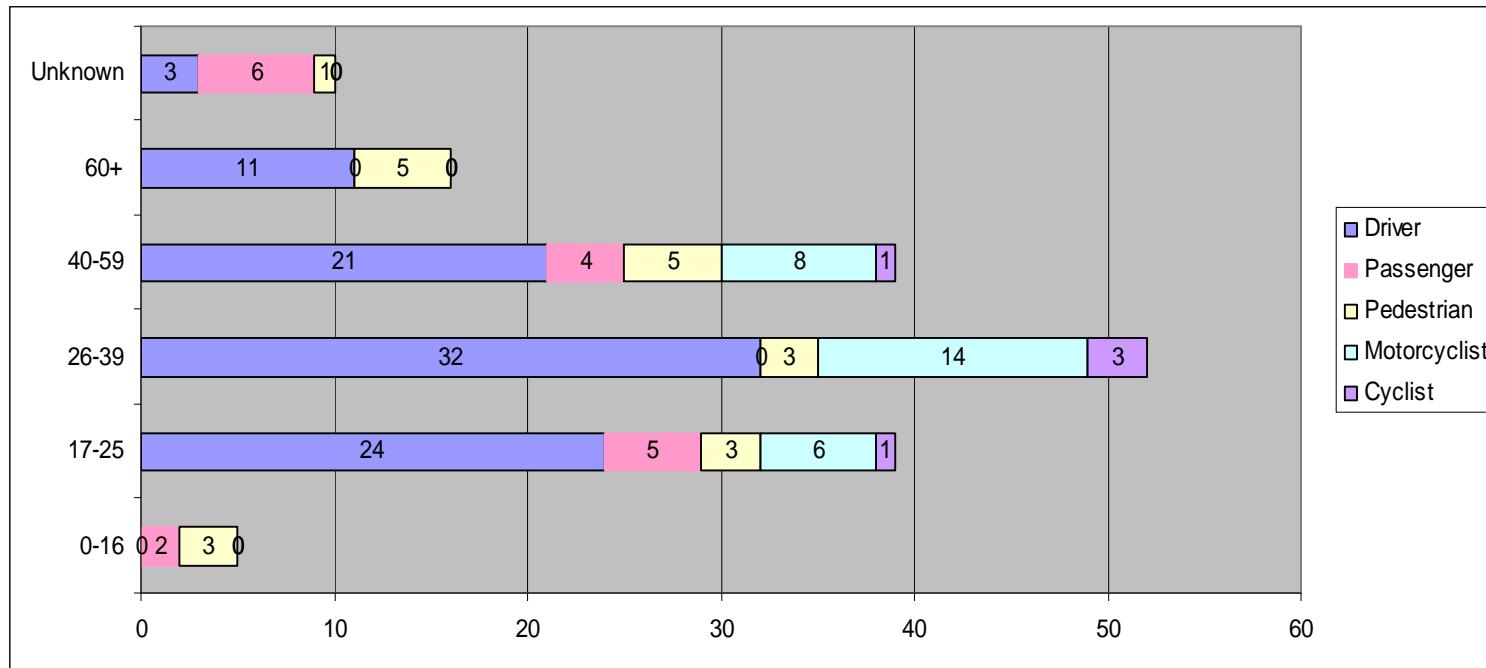


**Graph 11: Number of casualties in Willoughby LGA by road user group 2008**



**Table 6. 2008 Willoughby casualties by age, gender and road user class**

	0-16		17-25		26-39		40-59		60+		Unknown	Total
	M	F	M	F	M	F	M	F	M	F		
<b>Motor Vehicle Drivers</b>	-	-	13	11	10	22	12	9	5	6	3	91
<b>Motor Vehicle Passengers</b>	-	2	1	4	-	-	1	3	-	-	6	17
<b>Motorcyclists</b>	-	-	6	0	11	3	8	-	-	-	-	28
<b>Pedal Cyclists</b>	-	-	1	-	8	-	-	1	-	-	-	10
<b>Pedestrians</b>	1	2	1	2	2	1	1	4	2	3	1	20
<b>Total</b>	1	4	22	17	31	26	22	17	7	9	10	166

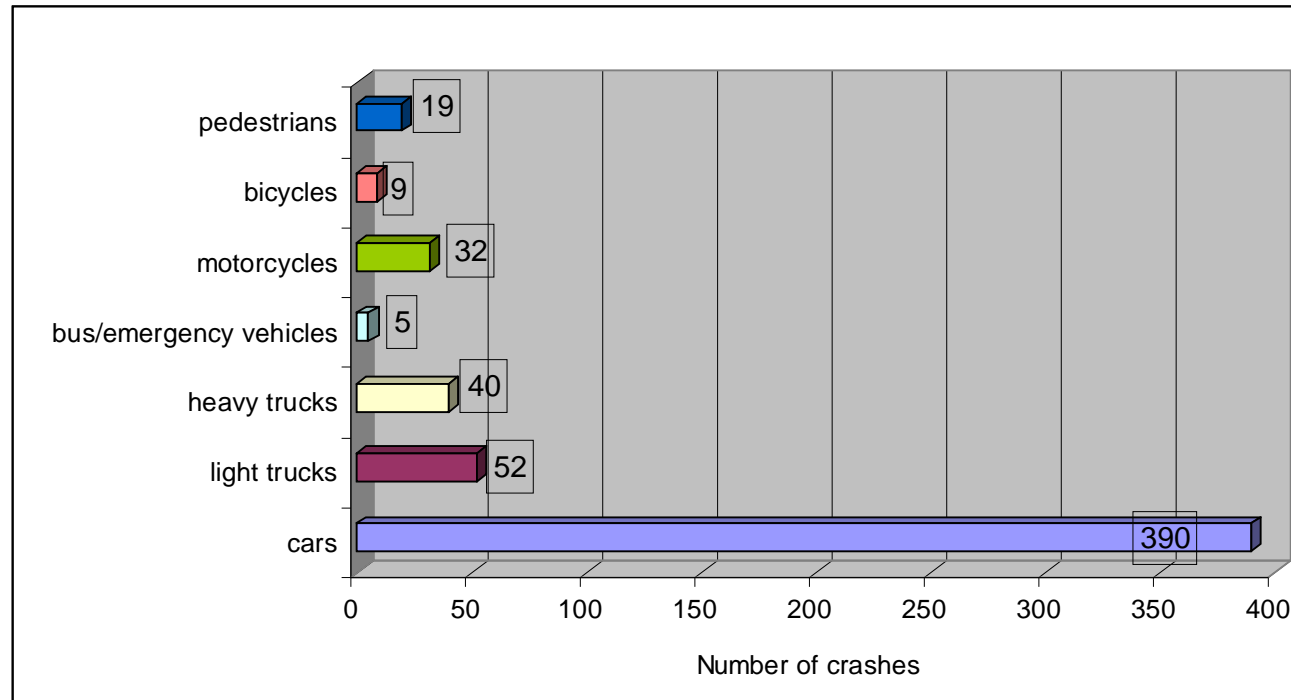


**Graph 12: Casualties by road user class and age Willoughby 2008**

The following section addresses casualties in Willoughby LGA according to age and road user class. The following has been identified from the RTA data, and graphs and tables above.

#### 4ai. Motor Vehicle Drivers

Graph 11 shows the total number of casualties for each road user type in Willoughby, 2008. Motor vehicle driver casualties account for 55% of all casualties in Willoughby (see Table 4). Graph 13 displays the total number of crashes in Willoughby by crash type for 2008. It must be noted that the accident types are not mutually exclusive and therefore should not be added together. For example, an accident involving a car and a motorcycle would be included in the “car” and “motorcycle” crash type categories. As can be seen, the majority of crashes involved cars (390). This is followed by light trucks (52). One fatality was recorded in Willoughby LGA in 2008 and it was a motor vehicle driver. Table 6 shows the number of casualties in 2008 by age, gender and road user class. The results show that motor vehicle driver casualties were most likely to be female aged between 26 and 39 (see Table 6 and Graph 12).



**Graph 13: Crash types in Willoughby 2008**

#### 4a.ii. Motor Vehicle Passengers

In 2008, motor vehicle passenger casualties (17) were lower than the previous five years and significantly lower than 2007 (Table 5). Table 6 shows that the majority of motor vehicle passenger casualties were female, aged 17-25 years, with the exception of the unknown age group. Table 6 also shows that within every age group there were more female motor vehicle passenger casualties than male, however there were no female or male passenger casualties in the 26-39 and 60+ year age groups.

#### 4a.iii. Occupant restraints

Table 7 shows the percentage of casualties who had restraints fitted in the vehicle but did not wear them in NSW, Sydney region and Willoughby LGA in 2008. Although percentages are low, use of restraints is still an important issue, not just within Willoughby but also Sydney region and all of NSW as seatbelts save lives and Road Safety 2010 has identified restraints as an important safety issue. It is important to note that all of these casualties shown in Table 7 would most likely be prevented by simply wearing a restraint. The correct use of restraints must be promoted from the beginning of a child's life to encourage continued restraint use from an early age, through to adulthood.

**Table 7. Use of restraints, 2008**

	NSW		Sydney Region		Willoughby	
<b>All Motor Vehicle Driver Casualties</b>						
Restraint fitted but not worn (as a % of the total number of driver casualties)	232	1.7%	128	1.5%	3	3.3%
	NSW		Sydney Region		Willoughby	
<b>All Motor Vehicle Passenger Casualties</b>						
Restraint fitted but not worn (as a % of the total number of passenger casualties)	87	1.7%	38	1.3%	1	5.9%

#### **4b. Pedestrians**

In 2008, there were 20 pedestrian casualties in the Willoughby LGA including no fatalities, making up 12% of all casualties. The number of pedestrian casualties in 2008 has significantly reduced from 2007 when pedestrian casualties were at their highest (35) over the past five years.

Although there was a drop in pedestrian casualties in Willoughby LGA in 2008, pedestrian casualties as a percentage of all casualties are still higher in Willoughby (12%) than in Sydney region (11%) or NSW (9%).

Table 6 shows that the majority of pedestrian casualties are female within the 40-59 year age group with 4 casualties, followed by females within the 60+ age group with 3 casualties. However it should be noted that pedestrian casualties are quite evenly distributed across all age groups in 2008, highlighting the need for a pedestrian campaign focusing on everyone in the community (see Table 6).

#### **5. SUMMARY**

In summary, the following issues have been identified for Willoughby LGA and therefore need to be addressed when developing road safety initiatives for 2010/2011.

- The trend from 2004 to 2007 shows that the total number of crashes is steadily decreasing, while the number of crashes decreased significantly in 2008.
- The trend over the past 5 years for the number of casualties shows an increase from 2004 to a peak in 2006, then a decrease to the lowest number of casualties in 2008.
- The 2008 figures for both crashes and casualties are well below the 5 year average for the past 5 years.
- In 2008 most casualties are in the 26-39 year age group and 50% of all casualties are male, 44% are female and the rest are unknown.
- The majority of fatal or injury crashes occurred from Monday to Friday between 9am and 3pm.
- The greatest contributing factor to crashes in Willoughby LGA was speeding. Speeding crashes are most likely to occur Saturday to Sunday between 3am – 9am. The majority of speeding crashes occurred in the 17-25 year age group.
- Fatigue related crashes were the second greatest contributing factor of crashes in Willoughby LGA, followed by alcohol related crashes. Fatigue related crashes have increased slightly since 2007. In 2008, crashes involving fatigue are most likely to occur from Monday to Friday 3am - 9am and by drivers aged 17 – 39 years old.
- The number of alcohol related crashes has decreased in 2008. Crashes involving alcohol are most likely to occur Monday to Friday between 3am and 9am. Those between the ages of 17-25 were most likely to be involved in alcohol related crashes.
- In Willoughby LGA the majority of casualties are motor vehicle drivers followed by motorcyclists and then pedestrians. Motor vehicle drivers and motorcyclist casualties have increased in 2008, though pedestrian casualties have decreased. Even still, pedestrian casualties as a percentage of all casualties in 2008 are higher than Sydney region and NSW. This suggests that pedestrians as a road

user class are particularly at risk in Willoughby LGA. Most pedestrian casualties are female and either in the 40-59 years age group or the 60+ year age group.

- As a percentage of total casualties, the percentage of motorcyclist casualties has significantly increased in 2008. Most motorcyclist casualties are male from 26 – 39 years of age.

#### **What needs to be addressed in 2010/2011 road safety initiatives?**

- Pedestrian safety for the whole community including young children, commuters/workers/shoppers and older people.
- Speeding on local streets.
- Drink driving, targeted particularly to young drivers 17 - 25 years of age.
- Fatigue should also be targeted.
- Passenger safety, including child restraints.
- A motorcycle project will also be looked into.

#### **6. SOURCES**

- ABS Census Data 2006
- RTA Crash Data