Crash Analysis Report

City of Ryde

2007 – 2011

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February 2013

PART 1

Introduction

The City of Ryde is committed to making its roads a safe environment to be. Better understanding of road safety issues and solutions is important in achieving our goal.

Each year, these understandings are sought from the Crash Analysis Data, provided to Council by the RTA. This data is analysed by the Road and Community Safety Projects Officer to identity events and trends. These events and trends are then used to develop community-based local level actions to help make our roads safer.

This report and all data are forwarded to other sections of Council such as our Access and Traffic Team as well as our Enforcement teams.

The Challenge

The City of Ryde commenced involvement with the NSW Local Government Road Safety Program in 1999 with the employment of a full-time Road Safety Officer. Since 2004, the Road Safety Officer position has moved from the Access Team to the Community and Culture Team and renamed 'Road and Community Safety Project Officer'.

The challenge is to address the road safety issues within the City of Ryde, in conjunction with community safety issues, is raising community awareness through enforcement, education and engineering to make the roads a safer place to be.

Objectives of Action Plan

Road safety is an issue for all members of the City of Ryde community. The City of Ryde is committed to road safety and the Road Safety Action Plan will help to ensure our objectives are met. These objectives are stated in each road safety project initiative outlined in the Action Plan. They have been decided, based on the crash data evaluation of the City of Ryde and some community consultation. The activities of the Road Safety Action Plan aim to reduce the casualties on City of Ryde roads by educating the community and thereby changing driver and pedestrian behaviour.

The actions outlined in the Action Plan reflect both the commitment of the State Government and the City of Ryde Council.

Development, implementation and evaluation

The Road Safety Action Plan, based on this crash analysis report, is developed in consultation with the Road and Traffic Authority and the Community Safety Working Group. The Community Safety Working Group provides advice on the Road Safety Action Plan at key moments throughout the year.

The Community Safety Working Group is made of various government and non-government representatives, including Road and Traffic Authority, NSW Police, NSW Health Promotions, Youthsafe, Salvation Army, Putney Progress Association and Fire and Rescue NSW.

PART 2 Ryde Demographic Data

The City of Ryde has an area of 40.651kms^2 and lies in the central northern part of the Sydney Metropolitan area, approximately 12kms from the centre of Sydney.

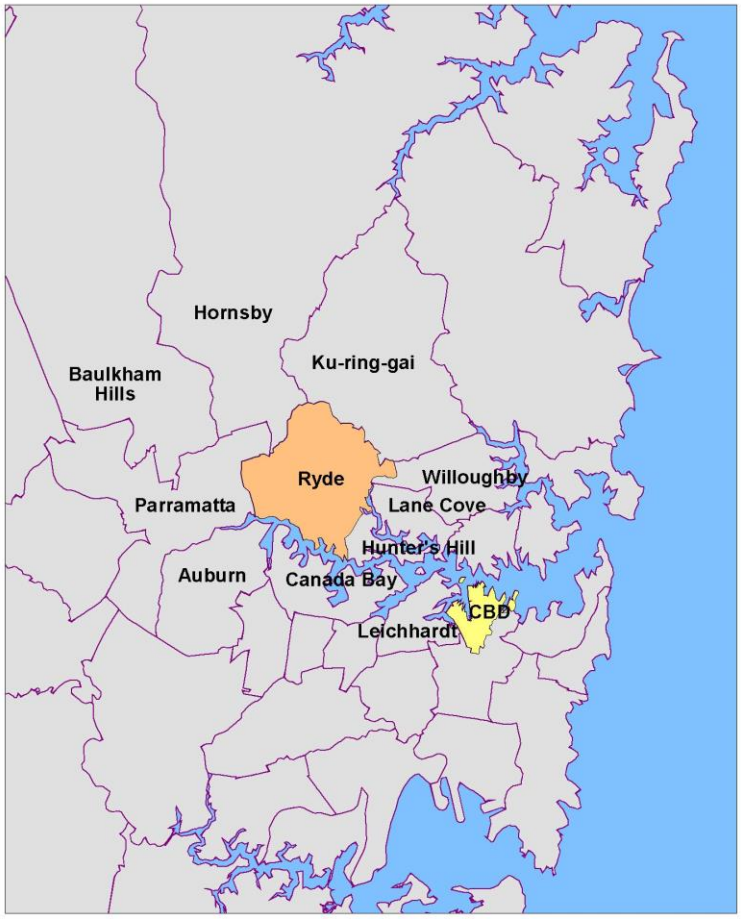


Figure A: The location of the City of Ryde

The City occupies most of the divide between the Parramatta and Lane Cove rivers, and has 16 suburbs within its boundaries. The suburbs that make up the City of Ryde include Chatswood West, Denistone, Denistone East, Denistone West, East Ryde, Eastwood, Gladesville, Macquarie Park, Marsfield, Meadowbank, Melrose Park, North Ryde, Putney, Ryde, Tennyson Point, and West Ryde.

The traditional Aboriginal owners of the land are the Wallumedegal clan of the Dharug tribe. Aboriginal sites in the City are predominantly located around the foreshores of the Parramatta River and Lane Cove River.

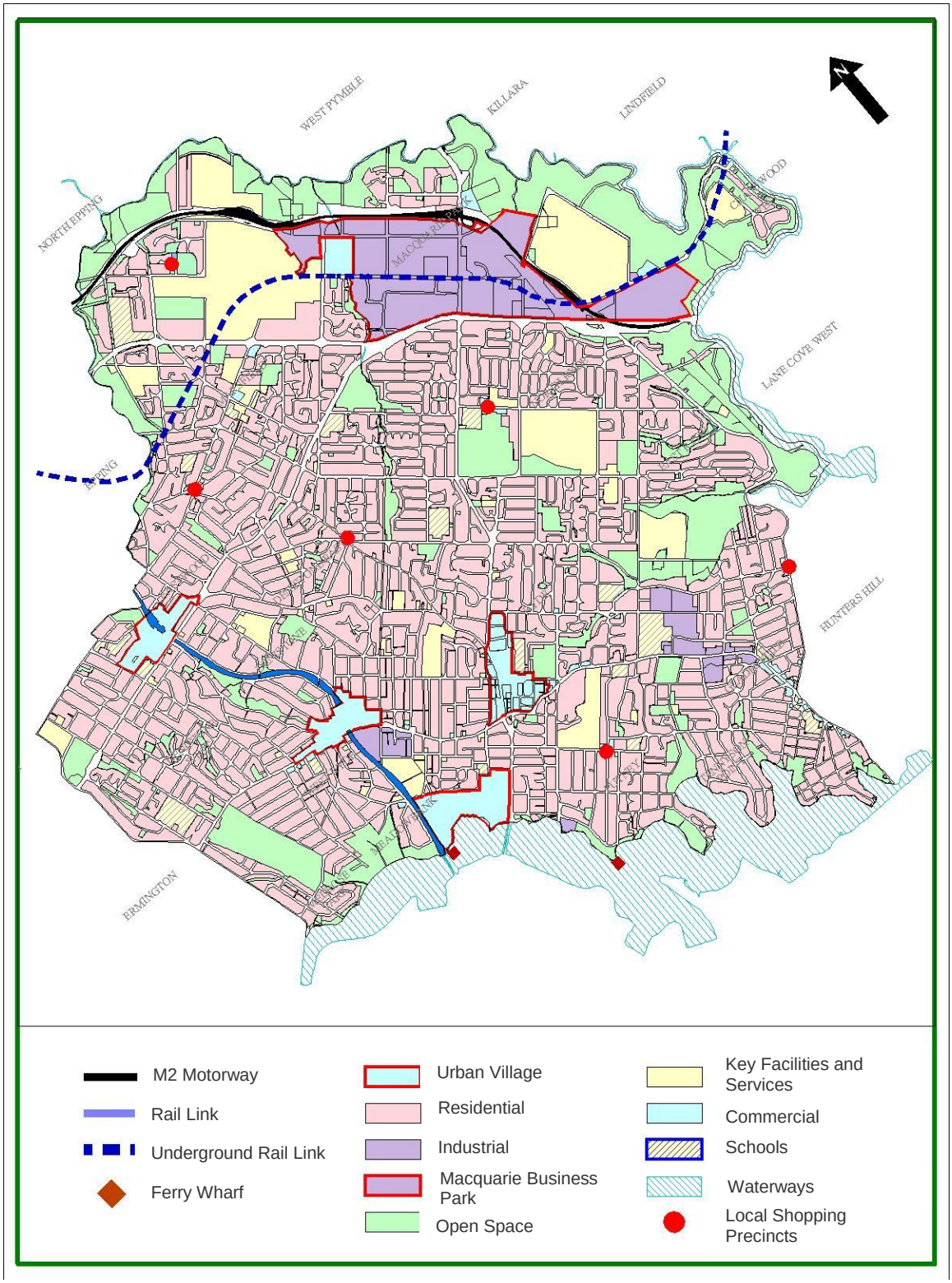
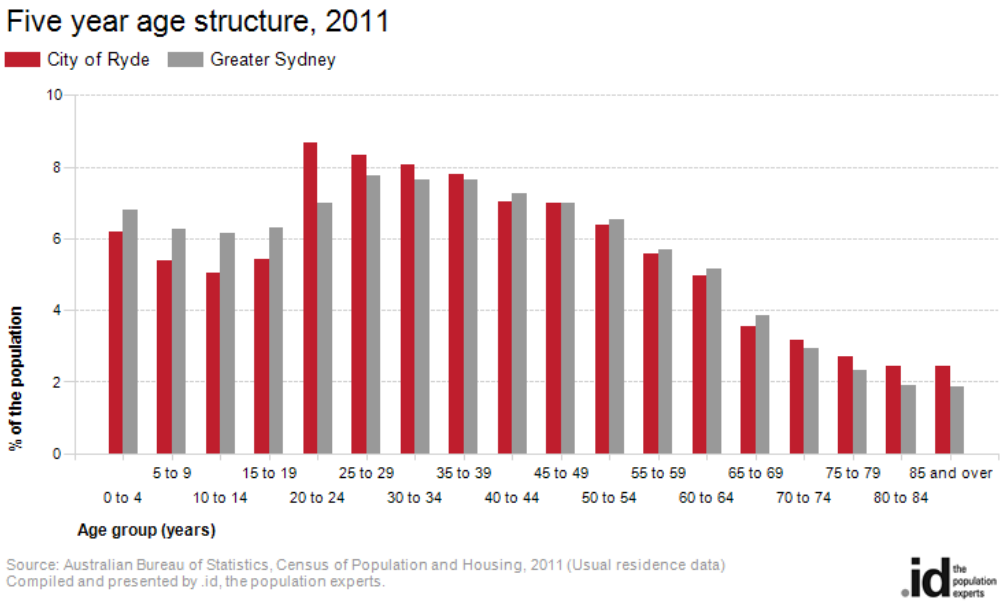


Figure B: Structure Plan of the City of Ryde

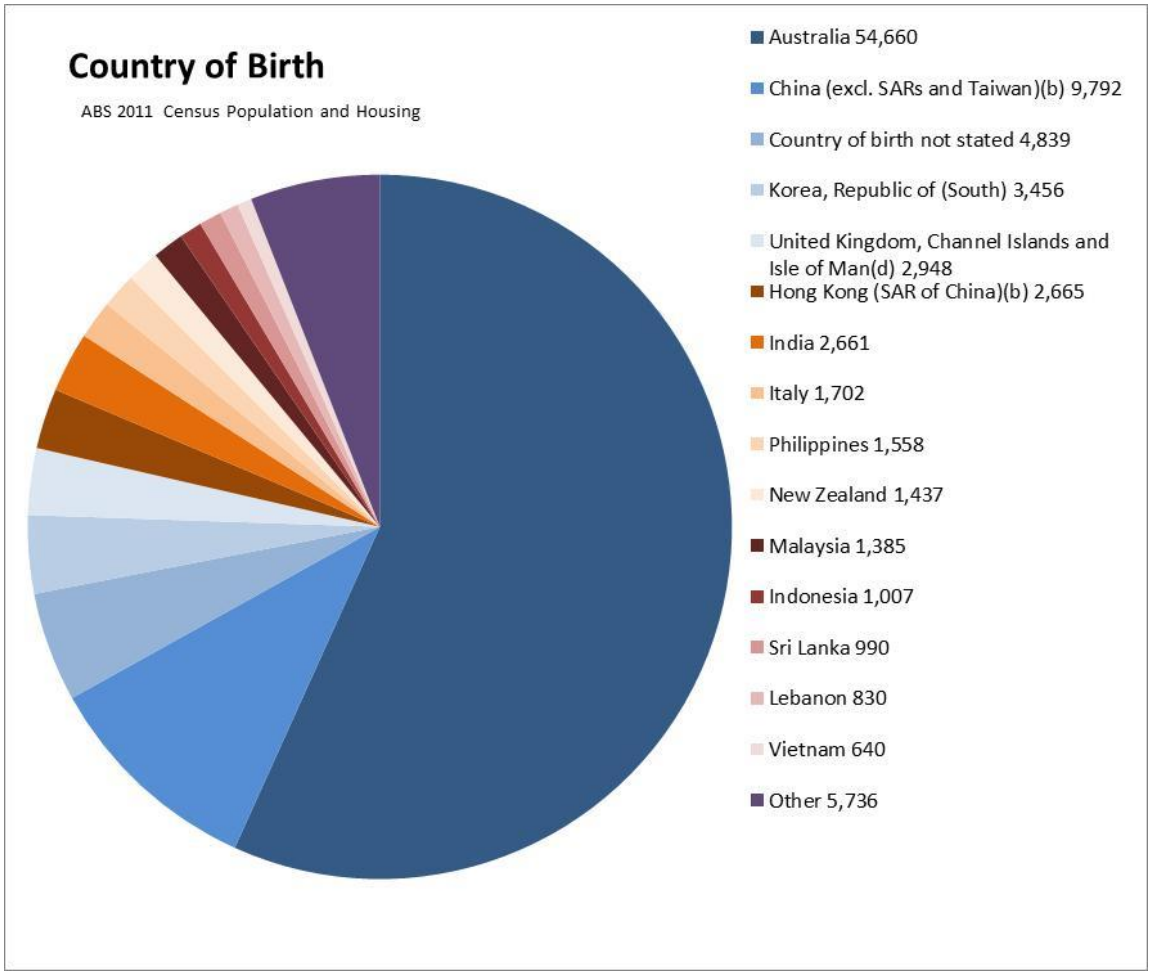
The People

As at the 2011 Census, the residential population for the City of Ryde was estimated at 103,038. The largest age group in the community is adults aged 20–24 years who make up 8.7% of the population.

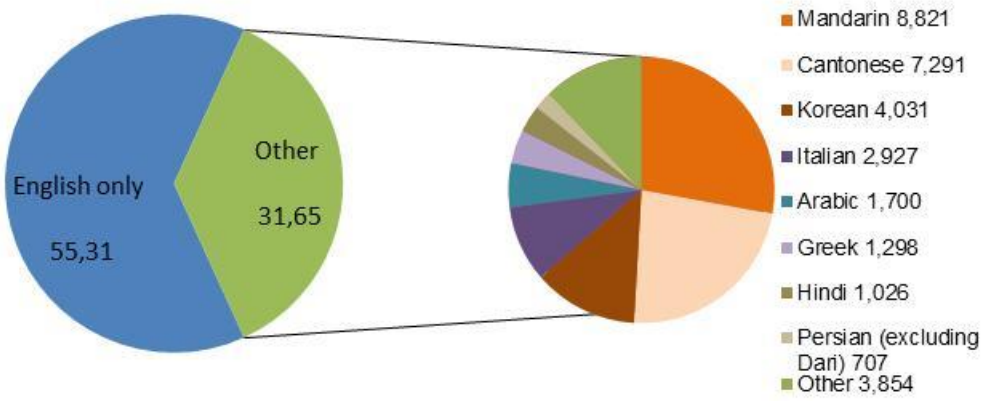
In the City in 2011 there were 50,060 males and 52,978 females. The City's Aboriginal and Torres Strait Islander population in 2011 was 354 persons.



In 2011, 42.2% of the population was born overseas, and 36.5% were from a non-English speaking background, compared with 34.2% and 26.3% respectively for Greater Sydney.The largest non-English speaking country of birth in the City of Ryde was China, where 9.5% of the population was born. The City of Ryde has a larger percentage of people born in China, Korea and Hong Kong than Greater Sydney. Between 2006 and 2011, the greatest increases were in the number of people born in China, South Korea and India.


Country of Birth
ABS 2011 Census Population and Housing
Australia 54,660
China (excl. SARs and Taiwan)(b) 9,792
Country of birth not stated 4,839
Korea, Republic of (South) 3,456
United Kingdom, Channel Islands and Isle of Man(d) 2,948
Hong Kong (SAR of China)(b) 2,665
India 2,661
Italy 1,702
Philippines 1,558
New Zealand 1,437
Malaysia 1,385
Indonesia 1,007
Sri Lanka 990
Lebanon 830
Vietnam 640
Other 5,736

Between 2006 and 2011, the number of people who spoke a language other than English at home increased by 23%, and the number of people who spoke English only decreased by 1.6%. The dominant language spoken at home, other than English, in the City of Ryde was Mandarin, with 8.6%. City of Ryde has a significantly greater percentage of the population who speak Mandarin, Cantonese, Korean and Armenian than Greater Sydney.



Graph 3: Language spoken at home (ABS 2011 Census Population and Housing)

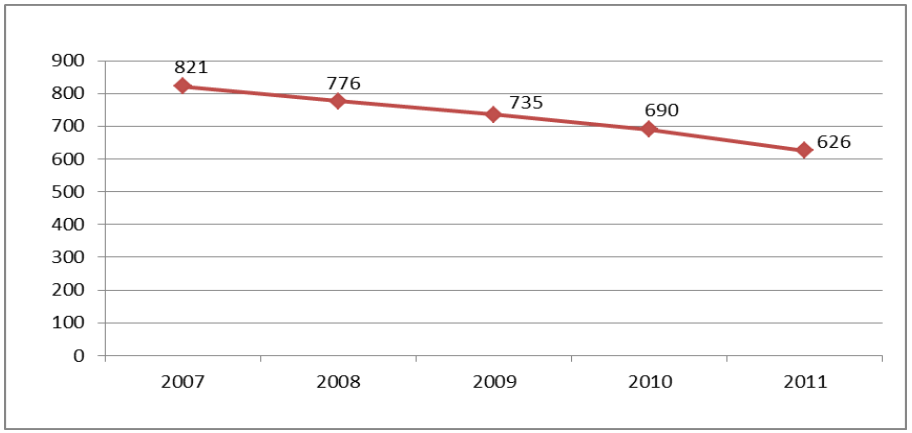
PART 3

City of Ryde Crash Analysis 2007-2011

The following information provides a statistical overview of the road crash data for the City of Ryde between 2007 and 2011. For definitions and explanatory notes please see Appendix 1.

1. CRASHES

The data below identifies the total number of crashes in the City of Ryde by fatal/injury/non-casualty classification between 2007 and 2011. Crashes have been steadily decreasing over the past 5 years (Graph 4), however the number of fatal crashes, while slightly less than 2010 have remained higher than previous years. (Table 1)



Graph 4: Total number of crashes 2007 - 2011

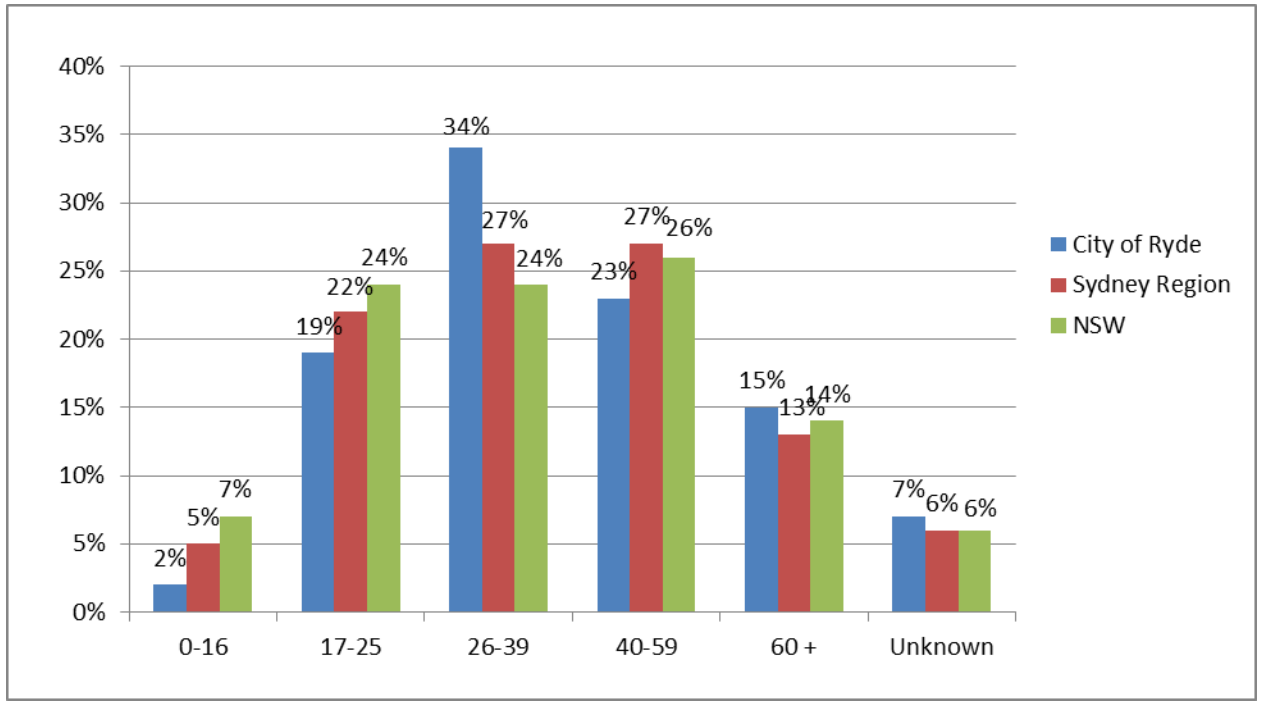
	2007	2008	2009	2010	2011	5 year average
Fatal Crashes	2	2	1	4	3	2
Injury Crashes	313	267	265	274	214	267
Non-Casualty Crashes	506	507	469	412	409	461
Total Crashes	821	776	735	690	626	730

Table 1: City of Ryde number of crashes by fatal/injury/non-casualty classification 2007-2011

2. CASUALTIES

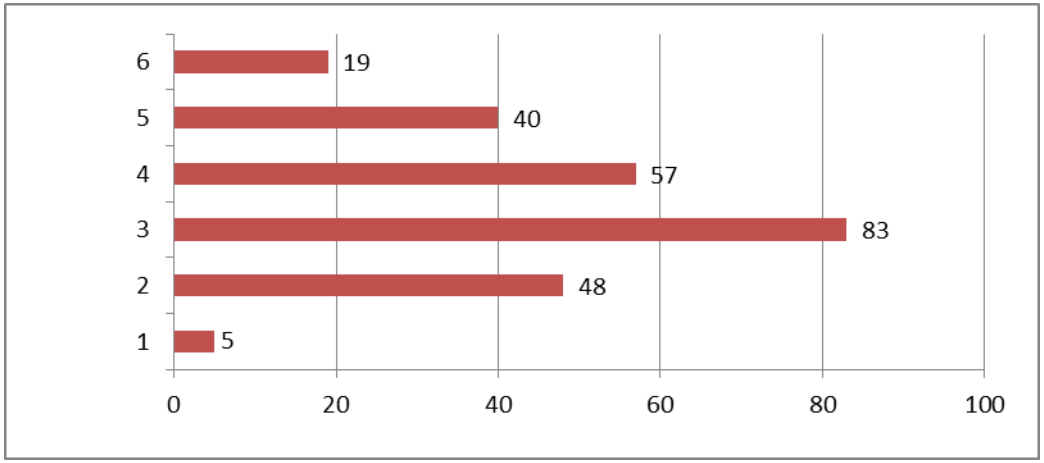
2a. Casualties by age group

Graph 5 shows the distribution of casualties by age group across the City of Ryde, Sydney and NSW for 2011. The 26-39yrs age group is up significantly from last year after a period of comparable figures to the rest of NSW and the Sydney Region. Though down from previous years, the City of Ryde continues to have a higher percentage of casualties in the 60+yrs age groups than NSW and Sydney. The 17-25yrs and 40-59yrs groups are now well down compared to Sydney Region and NSW after being above or level in previous years.



Graph 5: Distribution of casualties by age group and region 2011

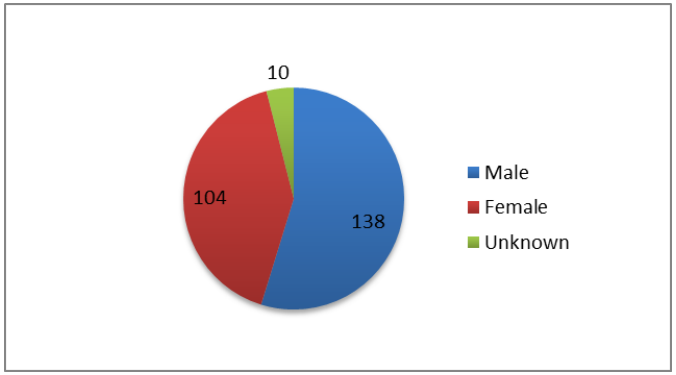
Graph 6 displays the number of casualties in the City of Ryde by age group in 2011. There has been a considerable increase in the 26-39yrs age group and the figure is climbing back to the 35% peak in 2008. Casualty rates for 0-16yrs halved from the last two years.



Graph 6: Casualties in the City of Ryde by age group 2011

2b. Casualties by gender

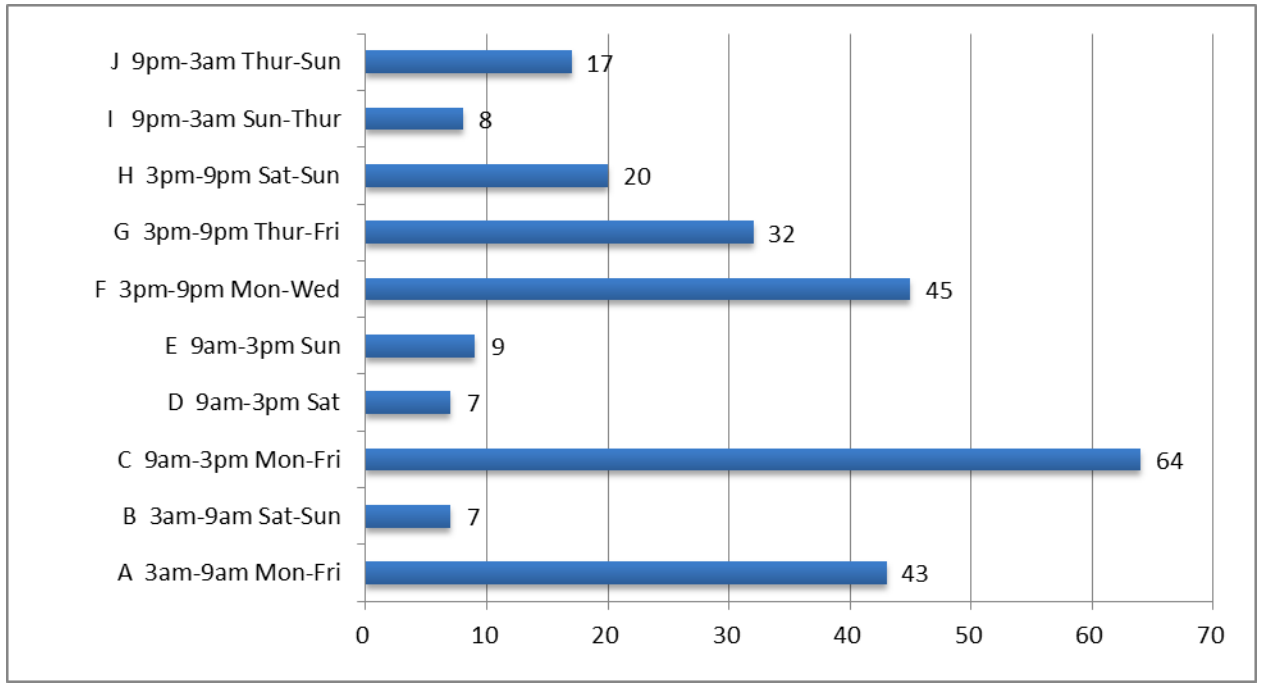
Table 2 shows that there were 252 casualties in the City of Ryde, of the 252 casualties, 54% were males and 41% were females, and 4% were unknown. The percentages for the City of Ryde are comparable with NSW and Sydney.



Graph 7: City of Ryde casualties by gender 2011

2c. Casualties by time period

Graph 8 describes the number of casualties in the City of Ryde by time periods in 2011. The greatest number of casualties occurred from Monday to Friday between 9am and 3pm which was consistent with past years. However, these numbers are well down from 2010, as are those for the 3pm -9pm Monday to Wednesday time period. All other periods remain stable.



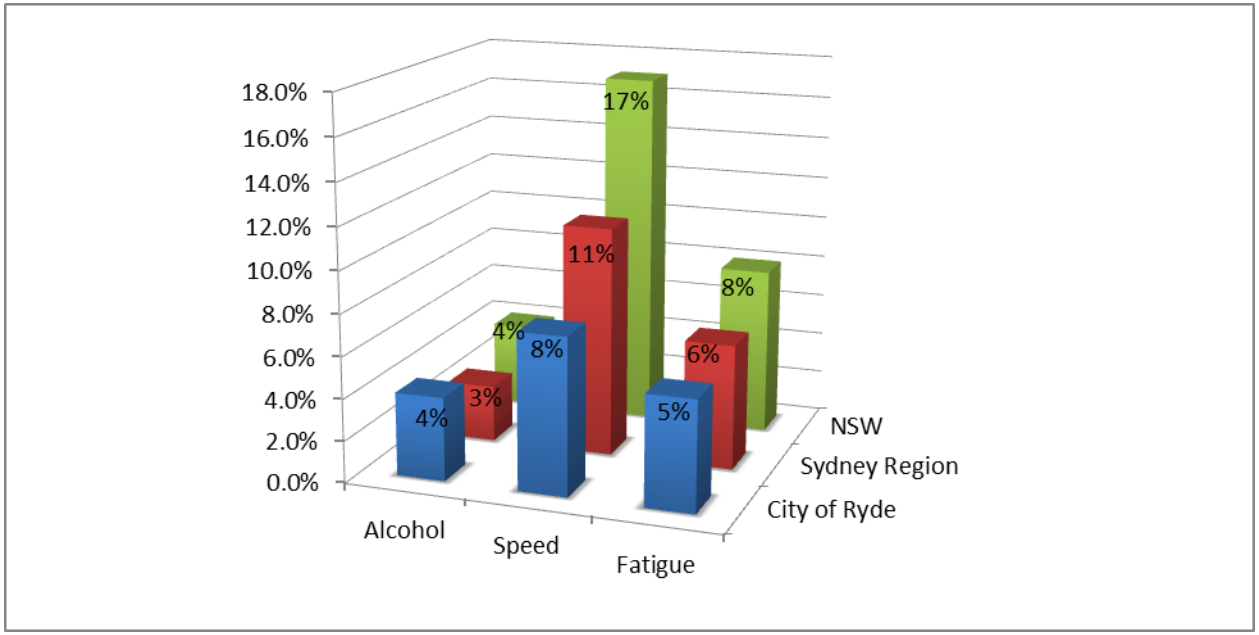
Graph 8: Number of casualties by time period in the City of Ryde 2011

3. CONTRIBUTING FACTORS

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

3a. Comparisons by region – crashes

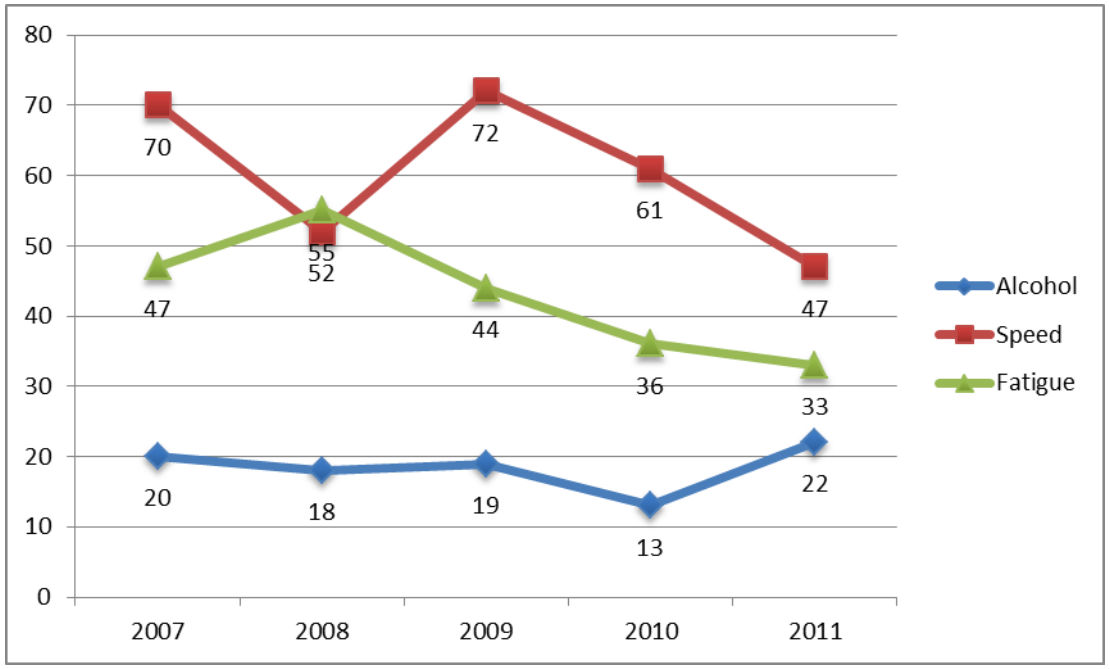
Graph 9 illustrates the percentage of all crashes in the City of Ryde, Sydney region and NSW according to contributing factors in 2011. Speed is the highest contributing factor for all regions, with the City of Ryde down 1% from last year while Sydney and NSW remain stable. Alcohol as a contributing factor has increased for the City of Ryde from last year by almost 2%. Fatigue related crashes remained stable.



Graph 9: Crash percentage and contributing factors between City of Ryde, Sydney region and NSW in 2011

3b. Comparisons within the City of Ryde 2007-2011 – crashes

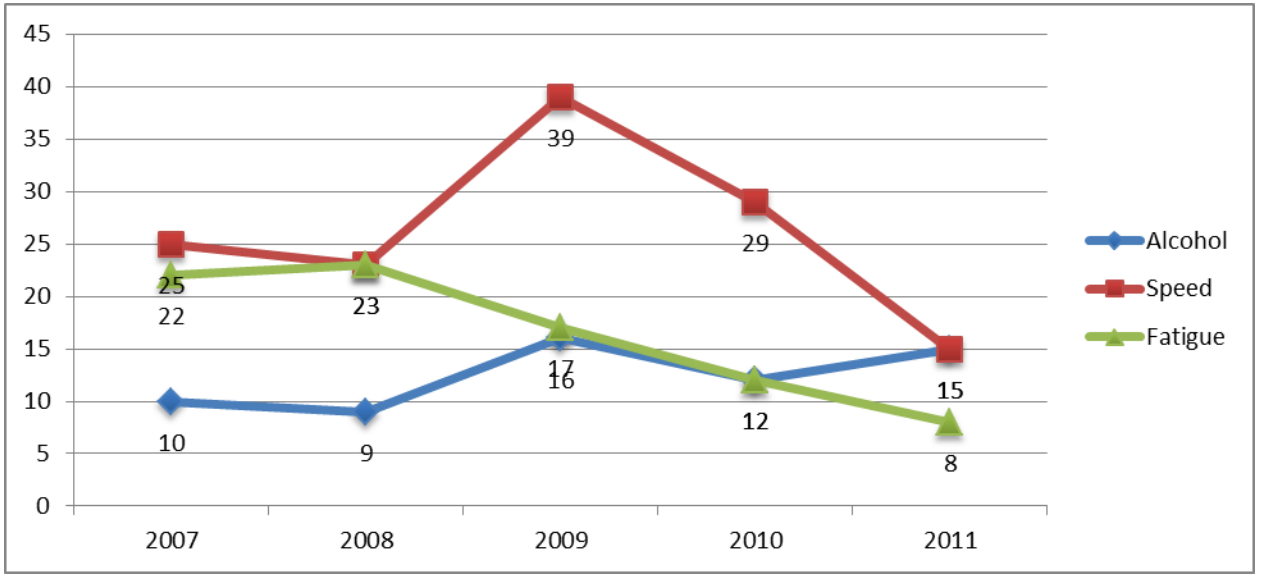
Graph 10 looks at the number of crashes with contributing factors between 2002 and 2011 in the City of Ryde and shows the difference between the number of speed, fatigue and alcohol crashes. Speed related crashes continue to reduce as do fatigue related crashes. Alcohol related crashes are increasing after dropping in 2010.



Graph 10: Number of all crashes according to contributing factors in the City of Ryde 2002-2011

3c. Comparisons within the City of Ryde 2007-2011 – casualties

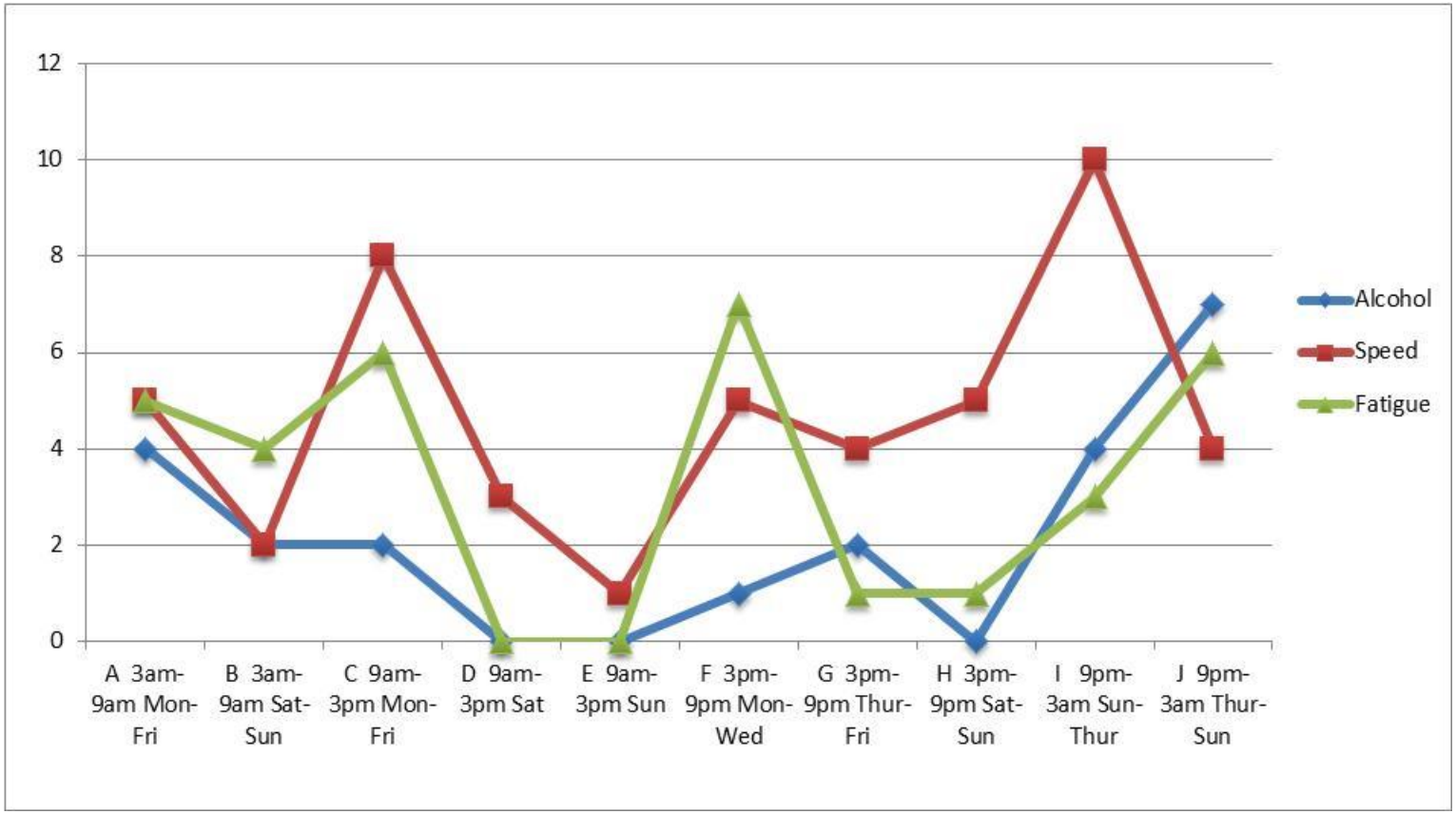
As alcohol related crashes increased in 2011, so did related casualties. Speed and fatigue related casualties have decreased, reflecting the drop in the number of crashes related to those factors.



Graph 11: Number of casualties according to contributing factors in the City of Ryde 2007 - 2011

3d. Comparisons in the City of Ryde by time period and contributing factor

Graph 12 shows crashes by contributing factor and time period in the City of Ryde in 2011. The time periods are specified in the table according to McLean Time Periods.



Graph 12: Crashes by contributing factor and time period for the City of Ryde 2011

3e. Crashes involving speed

In 2011, there were 22 crashes involving speed, including 1 fatal and 9 injury crashes. The number of crashes has dropped (from 61 crashes in 2010), as have the number of casualties. All age groups have dropped from the previous year, however speed is still the significant factor for both 17-25 years and 40-59 years. The 26-39 years have dropped well, relative to the other factors. As shown in Graph 12, the peak periods for speed related crashes are 3pm to 9am Sunday to Thursday and 9am to 3pm Monday to Friday.

3f. Crashes involving alcohol

The number of alcohol related crashes is up from 2010, contributing to 3.5% of the total number of crashes in the City of Ryde. The time period peak for alcohol-related crashes was between the hours of 9pm and 3am, Thursday - Sunday (see Graph 12). There is also a peak in the Monday – Friday 3am – 9am period. The 17-25 year age group continues to remain stable in this area, while the 40-59 age group is twice as high as 2010, making them the biggest offenders for alcohol related crashes. The 26-39 year age group has also increased the number of alcohol related crashes.

3g. Crashes involving fatigue

Fatigue related crashes continue to decrease in 2011. The peak periods are 3pm-9pm Monday – Friday and 9pm-3am Thursday-Sunday. Fatigue is the key factor for 60+years by a significant margin, but the highest group in which fatigue related crashes occur is the 26-39 years.

4. ROAD USER TYPE

This section examines crash statistics and road user type.
Table 2 summarises the percentage of casualties by road user class, as a total of all casualties, between 2007 – 2011, for NSW, Sydney region and the City of Ryde. The following is representative of the five year average and 2011 data (five year average data is shown).

- The City of Ryde has seen a drop in the number of motor vehicle driver casualties, down to 50% in 2011 compared to 56% in 2010. The NSW and Sydney regions have both seen a slight increase in numbers from last year.
- Motor vehicle passenger casualties have remained stable across all regions.
- Motorcyclist casualties have risen significantly both within the City of Ryde and comparative to Sydney region and NSW, which have remained at the same levels as 2010.
- Pedestrian casualties for the City of Ryde have risen slightly from last year and remain higher than NSW and Sydney region, both of which has seen a fall from last year.
- The biggest concern for the City of Ryde is motorcycle casualties followed by pedestrians.

	NSW		Sydney Region		City of Ryde	
	5 year average	2011	5 year average	2011	5 year average	2011
Motor Vehicle Driver	56%	58%	56%	58%	57%	50%
Motor Vehicle Passenger	21%	21%	19%	19%	16%	17%
Motorcyclist	10%	10%	9%	10%	12%	19%
Pedal Cyclist	4%	4%	5%	4%	4%	4%
Pedestrian	8%	7%	11%	9%	11%	11%

Table 2: Percentage of casualties by road user class 2007-2011 average, and 2011

Table 3 examines the total number of casualties by road user class from 2007 to 2011.

	2007	2008	2009	2010	2011	5 Yr. Average
Motor Vehicle Drivers	222	198	192	186	126	185
Motor Vehicle Passengers	61	51	54	52	42	52
Motorcyclists	39	31	35	44	47	39
Pedal Cyclists	16	13	5	18	9	12
Pedestrians	36	31	42	34	28	34

Table 3: Number of casualties by road user class 2007 - 2011 City of Ryde

4a. Number of pedestrian casualties
The number of pedestrian casualties reduced this year. Most of the casualties are still occurring around the Eastwood shopping precinct, with another cluster along Victoria Rd around West Ryde.

4b. Number of motorcyclists casualties
Motorcyclist casualties are continuing to increase after a drop in 2008 and currently are higher than both NSW and Sydney region. There were no known instances of helmets not being worn and there was one fatality in the 40-49 years group.

4c. Number of pedal cyclists casualties
Pedal cyclist casualties are well down from 2010 and apart from a low in 2009, continue to be below average over the past 5 years. There were no known instances of helmets not being worn.

4d. Number of motor vehicle passenger casualties
Casualties in this group continue to drop and are well below the 5 year average.

4e. Number of motor vehicle driver casualties
The number of casualties among motor vehicle drivers is well down this year. The most casualties were in the 26 – 39 year age group, with the 40-59 years and 60+ groups well above the young drivers.

4d. Occupant restraints
There were 6 motor vehicle driver casualties in the City of Ryde in 2010 and only 2 in 2011 where a restraint was fitted but not worn. This fall is contrasted by increases in both NSW and Sydney region over the past year. Both casualties in this category were in the 60-69 year age group. There was however 1 casualty (in the 30-39 year age group) in motor vehicle passenger not wearing a restraint in 2011 compared to none in 2010. NSW and Sydney region both had slight decreases in this category.

	NSW		Sydney Region		Ryde	
All Motor Vehicle Driver Casualties Restraint fitted but not worn (as a percentage of the total number of driver casualties)	269	**1.7%**	135	**1.6%**	2	**1.5%**
	NSW		**Sydney Region**		**Ryde**	
All Motor Vehicle Passenger Casualties Restraint fitted but not worn (as a percentage of the total number of passenger casualties)	119	**2%**	36	**1.3%**	1	**2%**

Table 4: Use of restraints 2011 average

5. AGE GROUPS AND GENDER FOR ALL CRASHES

5a. Crashes by age group

Table 6 shows the percentage of all crashes by age group of motor vehicle controller for NSW, Sydney Region and City of Ryde.

All regions are fairly much on par across each age group, except for the higher percentage of drivers in the 26-39 year age group in the City of Ryde.

	0-16	17-25	26-39	40-59	60+	Unknown
NSW	0%	26%	28%	30%	12%	4%
Sydney Region	0%	24%	30%	30%	11%	4%
City of Ryde	0%	23%	31%	30%	11%	4%

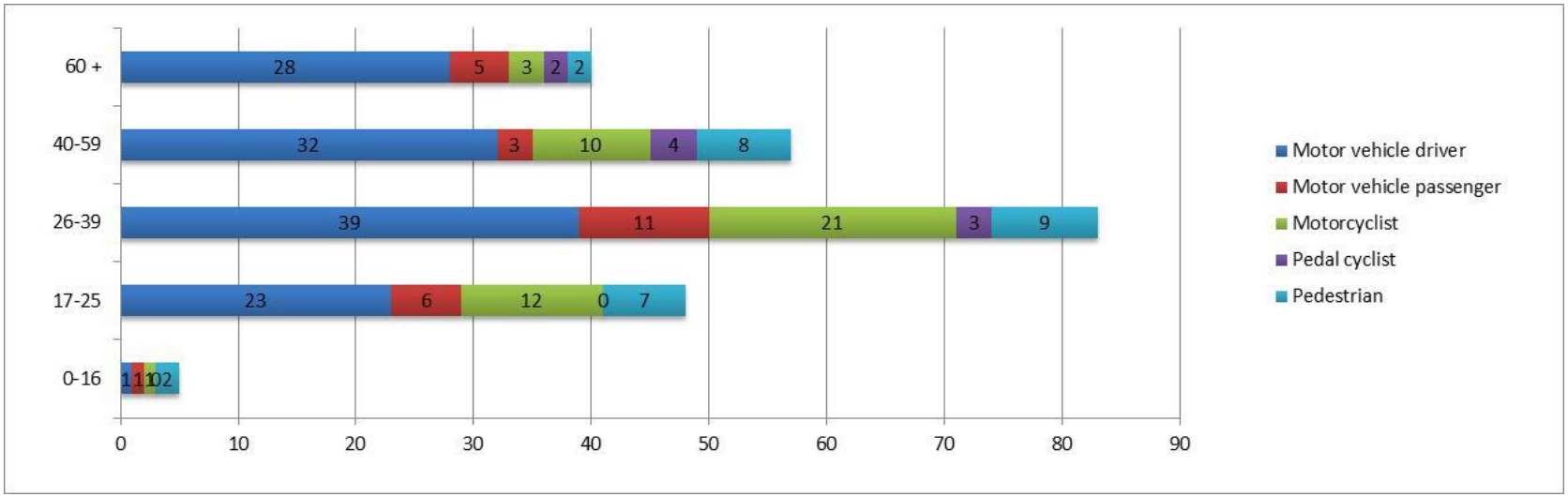
Table 5: Percentage of all crashes by age group of controller 2011 average

5b. Age group, gender and road user type

This section addresses casualties in the City of Ryde according to age 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		
Motor Vehicle Drivers	1	0	9	14	24	15	16	16	12	16	3	126
Motor Vehicle Passengers	0	1	4	2	3	8	0	3	2	3	16	42
Motorcyclists	1	0	12	0	20	1	9	1	2	1	0	47
Pedal Cyclists	0	0	0	0	3	0	3	1	2	0	0	9
Pedestrians	1	1	2	5	6	3	2	6	1	1	0	28

Table 6: City of Ryde casualties by age, gender and road user class in 2011



Graph 13: Casualties by age group and road user class in the City of Ryde in 2011

5bi. Motor vehicle driver casualties

Motor vehicle driver casualties accounted for 50% of all casualties in the City of Ryde in 2011, down slightly from 2010. The 26-39 year age group has the highest incidence of casualties, which is up from last year. In 2010 the 40-59 year age group was significantly higher and has almost halved this year. Female drivers account for more casualties in both the 17-25 and 60+ year age groups, which is similar to 2010.

5bii. Motor vehicle passenger casualties

Motor vehicle passenger casualties are down from 2010, particularly in the 0-16 and 40-59 year age groups. There has been an increase in the 26-39 year age group, in line with the overall increase in crashes and casualties in this age group.

5biii. Motorcyclist casualties

Motorcyclist casualties in the City of Ryde are considerably higher in percentage than both NSW and Sydney region. Number rose from 2010, particularly in the 40-59 year age group and in the 60+ age group, which had none in 2010. Female casualties in the 26-39 year age group did drop to zero this year compared to 3 in 2010.

5biv. Pedal cyclist casualties

Pedal cyclist casualties decreased by half from 2010 to 2011, down to zero in the younger age groups.

5bv.Pedestrian casualties

While there has been a significant decrease in 60+ year age group since 2010, casualties have increased in all other groups, most significantly for 26-39 years and 40-59 years. Whereas in 2010 there were no pedestrian casualties among males 26-39 years, in 2011 there were 6. Females in the 40-59 year age group also had a notable increase in casualties.

Graph 17: Pedestrian casualties by age group in the City of Ryde in 2010 and 2011

6. SUMMARY

In summary, there are issues which have been identified and now must be addressed in the City of Ryde from the 2011 crash data. The issues identified will in turn aid in developing road safety initiatives for the City of Ryde over the 2013-2014 period.

- Fatal crashes are down from 2010, however still above the five year average.
- Alcohol as a contributing factor has become the key concern for the City of Ryde, with speed and fatigue continuing to decline. While alcohol related crashes are mainly occurring in the expected weekend evening period. Crashes have doubled in the 40-59 year age group, and almost doubled in the 26-39 year age group from 2010, though 17-25 year age group has remain stable.
- Pedestrian casualties, while down from 2010 are still of concern, and they are above the level of the Sydney region. There is a cluster of pedestrian casualties around the Eastwood shopping precinct, even though a successful campaign was run previously to bring down incidences in this area. There is also a cluster along Victoria Road at West Ryde which hasn't been seen previously. Campaigns targeting the 60+ age group have been successful but the significant rise in pedestrian casualties among 26-39 year olds is concerning.
- Motorcycle crashes are another key concern for the City of Ryde. Crash levels are well above Sydney region and NSW. While crashes are highest in the 26-39 year age group, there has been a noticeable increase in the older age groups, which is consistent with wider trends.
- The key age group of concern overall is 26-39 years. They account for the greatest numbers of crashes in all areas, which is a significant rise from 2010.

Actions

- A focus on motorcycle safety.
- Alcohol campaigns, particularly targeting the 40-59 year age group.
- Pedestrian safety targeting Eastwood and West Ryde and also young pedestrian, potentially around leaving venues when intoxicated.
- A general road safety focus for 26-39 year old, including speed, alcohol, pedestrian safety and low risk driving awareness.
- Ongoing speed and driver fatigue campaigns to maintain a declining level of speed and fatigue related crashes.

7. SOURCES

- Sydney Profile (Census 2006)
- RTA Crash Data
- Maps provided by the RTA

Appendix 1

DEFINITIONS AND EXPLANATORY NOTES

Animal rider: A person sitting on/riding a horse or other animal.

Articulated truck: Comprised of articulated tanker, semi-trailer, low loader, road train and B-double.

Bicycle rider: See *Pedal cycle rider.*

Bus: Includes 'State Transit Authority' bus and long distance/tourist coach.

Car: Includes sedan, station wagon, utility (based on car design), panel van (based on car design), coupe, hatchback, fastback, sports car, taxi-cab, passenger van and four wheel drive vehicle.

Carriageway: That part of the road improved or designed and/or ordinarily used for vehicular movement. When a road has two or more of these portions, divided by a median strip or other physical separation, each of these is a separate carriageway.

Casualty: Any person killed or injured as a result of a crash.

Controller: A person occupying the controlling position of a road vehicle.

Crash: Any apparently unpremeditated event reported to the police and resulting in death, injury or property damage attributable to the movement of a road vehicle on a road.

Driver: A controller of a motor vehicle other than a motorcycle.

Emergency vehicle: Includes ambulance, fire brigade vehicle, police patrol car (or van) and tow truck.

Fatal crash: A crash for which there is at least one fatality.

Fatality: A person who dies within 30 days of a crash as a result of injuries received in that crash.

Footpath: That part of the road which is ordinarily reserved for pedestrian movement as a matter of right or custom.

Heavy truck: Comprised of heavy rigid truck and articulated truck.

Heavy rigid truck: Comprised of rigid lorry and rigid tanker with a tare weight in excess of 4.5 tonnes.

Injured: A person who is injured as a result of a crash, and who does not die as a result of those injuries within 30 days of the crash.

Injury crash: A non-fatal crash for which at least one person is injured.

Intersection crash: A crash for which the first impact occurs at or within 10 metres of an intersection.

Killed: See Fatality.

Light truck: Includes panel van (not based on car design), utility (not based on car design) and mobile vending vehicle.

Motor vehicle: Any road vehicle which is mechanically or electrically powered but not operated on rails.

Motorcycle: Any mechanically or electrically propelled two or three-wheeled machine with or without side-car. Includes solo motorcycle, motorcycle with sidecar, motor scooter, mini-bike, three-wheeled special mobility vehicle and moped (motorized 'pedal cycle').

Motorcycle passenger: A person on but not controlling a motorcycle.

Motorcycle rider: A person occupying the controlling position of a motorcycle.

Newcastle Metropolitan Area: Comprised of the following local government areas: Newcastle and Lake Macquarie cities.

Non-casualty crash: A crash for which at least one vehicle is towed away but there is no fatality or person injured.

Passenger: Any person, other than the controller, who is in, on, boarding, entering, alighting or falling from a road vehicle at the time of the crash, provided a portion of the person is in/on the road vehicle.

Pedal cycle: Any two or three-wheeled device operated solely by pedals and propelled by human power except toy vehicles or other pedestrian conveyances. Includes bicycles with side-car, trailer or training wheels attached.

Pedal cycle passenger: A person on but not controlling a pedal cycle.

Pedal cycle rider: A person occupying the controlling position of a pedal cycle.

Pedestrian: Any person who is not in, on, boarding, entering, alighting or falling from a road vehicle at the time of the crash.

Pedestrian conveyance: Any device, ordinarily operated on the footpath, by which a pedestrian may move, or by which a pedestrian may move another pedestrian or goods. Includes non-motorized scooter, pedal car, skateboard, roller skates, in-line skates, toy tricycle, unicycle, push cart, sled, trolley, non-motorized go-cart, billycart, pram, wheelbarrow, handbarrow, non-motorized wheelchair or any other toy device used as a means of mobility.

Road: The area devoted to public travel within a surveyed road reserve. Includes a footpath and cycle path inside the road reserve and a median strip or traffic island.

Road vehicle: Any device (except pedestrian conveyance) upon which or by which any person or property may be transported or drawn on a road.

Sydney Metropolitan Area: Comprised of the following local government areas: City of Sydney, Bankstown, Blacktown, Botany Bay, Campbelltown, Canada Bay, Canterbury, Fairfield, Holroyd, Hurstville, Liverpool, Parramatta, Penrith, Randwick, Rockdale, Ryde, South Sydney and Willoughby cities, Ashfield, Auburn, Baulkham Hills, Burwood, Camden, Hornsby, Hunters Hill, Kogarah, Ku-ring-gai, Lane Cove, Leichhardt, Manly, Marrickville, Mosman, North Sydney, Pittwater, Strathfield, Sutherland, Warringah, Waverley and Woollahra.

Wollongong Metropolitan Area: Comprised of the following local government areas: Wollongong and Shellharbour cities.

CRITERIA FOR DETERMINING SPEEDING AND FATIGUE INVOLVEMENT

Speeding

The identification of speeding (excessive speed for the prevailing conditions) as a contributing factor in road crashes cannot always be determined directly from police reports of those crashes. Certain circumstances, however, suggest the involvement of speeding. The Roads and Traffic Authority has therefore drawn up criteria for determining whether or not a crash is to be considered as having involved speeding as a contributing factor.

Speeding is considered to have been a contributing factor to a road crash if that crash involved at least one *speeding* motor vehicle.

A motor vehicle is assessed as having been *speeding* if it satisfies the conditions described below under (a) or (b) or both.

(a) The vehicle's controller (driver or rider) was charged with a speeding offence; or

the vehicle was described by police as travelling at excessive speed; or

the stated speed of the vehicle was in excess of the speed limit.

(b) The vehicle was performing a manoeuvre characteristic of excessive speed, that is:

while on a curve the vehicle jack-knifed, skidded, slid or the controller lost control; or

the vehicle ran off the road while negotiating a bend or turning a corner and the controller was not distracted by something or disadvantaged by drowsiness or sudden illness and was not swerving to avoid another vehicle, animal or object and the vehicle did not suffer equipment failure.

Fatigue

The identification of fatigue as a contributing factor in road crashes similarly cannot always be determined directly from police reports of those crashes and the following criteria are used to assess its involvement. Fatigue is considered to have been involved as a contributing factor to a road crash if that crash involved at least one *fatigued* motor vehicle controller.

A motor vehicle controller is assessed as having been *fatigued* if the conditions described under (c) or (d) are satisfied together or separately.

(c) The vehicle's controller was described by police as being asleep, drowsy or fatigued.

(d) The vehicle performed a manoeuvre which suggested loss of concentration of the controller due to fatigue, that is

the vehicle travelled onto the incorrect side of a straight road and was involved in a head-on collision (and was not overtaking another vehicle and no other relevant factor was identified); or

the vehicle ran off a straight road or off the road to the outside of a curve and the vehicle was not directly identified as travelling at excessive speed and there was no other relevant factor identified for the manoeuvre.

Roads and Traffic Authority (2004) Road Traffic Crashes in NSW – 2003 Statistical Statement