

Technical Note 206

Guide to coding crashes

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1 Introduction

This technical note sets out the process for the coding of crashes in Queensland including definitions and terminology, crash type classification, Descriptive Road User Movement (DRUM) codes, the DRUM coding decision tree, the DRUM groups and DRUM coding examples.

The terminology DRUM replaces the previous description for coding of crashes called Definitions for Coding Accidents (DCA). Refer to *DRUM Information (for TN206)* document, tab labelled DRUM to DCA Table.

This technical note supersedes and replaces:

- *Queensland Road Crash Database Manual* Section 5
- *Queensland Guide to Road Safety Part 2: Safe Roads* Appendix A

2 Reference Documents

- [*DRUM information \(for TN206\)*](#)
- [*Queensland Guide to Road Safety Part 2: Safe Roads*](#)
- [*Austrroads Guide to Road Safety Part 2: Safe Roads*](#)
- *ATM29 Model Guidelines for Road Accident data and Accident Types*
- *Queensland Road Crash Database Manual*

3 Definitions and terminology

Crashes must be sorted and classified according to a set of definitions and rules. The rules must be applied in the first instance for saying what crashes in what locations are required to be reported (e.g., all crashes occurring on public roads, or only those crashes involving injury on public highways, etc.). The location elements must be defined to know if a crash was in a traffic lane, special purpose lane, road shoulder, footway, intersection or link, etc. Similarly, definitions are needed to know if the crash involved a motor vehicle, a pedestrian, or a passenger.

The purpose of definitions and rules is so that when analysis of the data is contemplated the analyst has some surety and confidence in what the various data items mean. It is an essential requirement in taking a scientific approach to traffic safety.

For example, when motorcycle crash data is studied one must know what type of motorised two-wheel vehicle is classified as a 'motorcycle'. Some countries classify only vehicles with engines above 50 cc capacity as 'motorcycles' and those with smaller engines as 'mopeds'. In some countries mopeds are classified as 'pedal cycles'. A child riding a tricycle on a footpath needs to be able to be clearly defined for example either as a 'pedestrian' or as a 'pedal cyclist'. Another example is when does a 'pedestrian' become a 'passenger' or occupant of a vehicle and vice versa.

The set of definitions shown below are guided by the Queensland *Transport Operations (Road Use Management—Road Rules) Regulation 2009* (TORUM) and Queensland *Transport Operations (Road Use Management—Road Rules) Act 1995 – Schedule 4* under the Queensland *Transport Operations (Road Use Management—Road Rules) Act 1995*.

Road

A road is any of the following:

- a) a busway under the *Transport Infrastructure Act 1994*, and
- b) an area that is:
 - i. open to or used by the public and is developed for, or has as 1 of its uses, the driving or riding of motor vehicles, whether on payment of a fee or otherwise, or
 - ii. dedicated to public use as a road, but
- c) does not include an area declared under a regulation not to be a road.

A reference to a road includes a reference to a road-related area, unless otherwise expressly stated.

Road-related area

A road-related area is any of the following:

- a) an area that divides a road
- b) a footpath or nature strip adjacent to a road
- c) an area that is not a road and that is open to the public and designated for use by cyclists or animals, and
- d) an area that is not a road and that is open to, or used by, the public for parking vehicles.

However, unless the contrary intention appears, a reference in this regulation (except this division) to a road-related area includes a reference to:

- a) any shoulder of a road, and
- b) any other area that is a footpath or nature strip as defined in the dictionary.

Shoulder

Shoulder of the road:

- a) includes any part of the road that is not designed to be used by motor vehicles in travelling along the road, and
- b) includes:
 - i. for a kerbed road—any part of the kerb, and
 - ii. for a sealed road—any unsealed part of the road, and any sealed part of the road outside an edge line on the road, but
- c) does not include a bicycle path, footpath or shared path.

Carriageway

Due to various differing definitions of carriageway having been used, the wording for carriageway varies from that used in TORUM and has been replaced with the words traffic lane.

Road Users

A road user is a driver, rider, passenger or pedestrian.

Vehicle

A vehicle includes:

- a) a motor vehicle, trailer and tram, and
- b) a bicycle, and
- c) a personal mobility device, and
- d) an animal-drawn vehicle, and an animal that is being ridden or drawing a vehicle, and
- e) a combination, and
- f) a motorised mobility device that can travel at over 15km/h on level ground, and
- g) a tram and train

but does not include another kind of wheelchair, a wheeled recreational device, or a wheeled toy.

Personal mobility device

A personal mobility device is a vehicle that:

- a) is designed to be used by 1 person, and
- b) has 1 or more wheels, and
- c) is propelled by an electric motor, and
- d) is not more than:
 - i. 1,250 mm in length by 700 mm in width by 1,350 mm in height, or
 - ii. 700 mm in length by 1,250 mm in width by 1,350 mm in height, and
- e) weighs 60 kg or less when the vehicle is not carrying a person or other load, and
- f) is none of the following:
 - i. a motorised scooter,
 - ii. a motorised mobility device, and
 - iii. a vehicle with pedals.

Driver

A driver is the person who is driving a vehicle (except a motorbike, bicycle, personal mobility device, animal or animal-drawn vehicle). Unless otherwise expressly stated, reference to a driver includes a rider.

However, a driver does not include a person pushing a motorised mobility device.

Rider

A rider is the person who is riding a motorbike, bicycle, personal mobility device, animal or animal-drawn vehicle.

A rider does not include:

- a) a passenger, or
- b) a person walking beside and pushing a bicycle or personal mobility device.

Passenger or pillion

Passenger or pillion includes any person carried on a vehicle, train, animal, vessel or tram, other than the driver or conductor thereof.

Object

An object is something that is hit in a crash that is not classed as a vehicle, animal or road user.

It is noted that objects that can be mounted, such as a traffic island, median, roundabout, LATM device or similar, is not counted as an object. An object, such as a light pole, tree or barrier may be on one of the above-mentioned mountable devices that would be an object, if hit.

Pedestrian

A pedestrian includes, but is not limited to:

- a) a person travelling by foot without the use of any device, and
- b) a person in a motorised mobility device, and
- c) a person in a non-motorised wheelchair, and
- d) a person pushing a motorised mobility device or non-motorised wheelchair, and
- e) a person pushing a bicycle or personal mobility device, and
- f) a person in or on a wheeled recreational device or wheeled toy.

Crash

A crash is an incident involving a vehicle, or vehicles, in which a person is killed or injured, property is damaged, or an animal in someone's charge is killed or injured.

Crashes may not be in scope for official road-related reporting purposes.

Intersection

Intersection means the area where two or more roads (except any road-related area) meet, and includes:

- a) any area of the roads where vehicles travelling on different roads might collide, and
- b) the place, other than a road-related area, where a slip lane between the roads meets the road into which traffic on the slip lane may turn.

Traffic Lane

A traffic lane is defined as the lanes, either marked or unmarked on a road, where all vehicles can travel. The traffic lanes are on road and include those in both directions of travel.

Traffic lanes do not include special purpose lanes such as bike lanes, bus lanes, transit lanes (while active), tram lanes; or shoulders, medians and footways.

Bike Lane

A bike lane shall be marked with either a bicycle lane sign, or a Bicycle LANE pavement marking.

In the case of where there is a shared bike lane and traffic lane it is considered a traffic lane.

Shoulders and bike lanes may often be hard to distinguish a difference, and for this reason, both a shoulder and bike lane are seen as part of the same road space.

Special Purpose Lanes

A special purpose lane is a marked lane, part of a marked lane, or part of the road with tracks beginning at a sign or pavement marking designating its start and ending at the nearest of the following:

- a) an end lane sign or pavement marking,
- b) a traffic sign that indicates the beginning of another special purpose lane, or
- c) at the next intersection.

Footway

The area of the road-related area outside of the kerb, traffic lanes, bike lanes and shoulder. It may consist of a footpath, shared path, bike path as well as a nature strip.

Motorised mobility device

A motorised mobility device means a mobility scooter or a motorised wheelchair.

Mobility scooter

A mobility scooter means a vehicle that is a chair on wheels that:

- a) is built to transport a person who is unable to walk or has difficulty in walking, and
- b) is fitted with an electric motor, and
- c) is steered by handlebars or a steering wheel, and
- d) when propelled only by the motor, can not reach a speed on level ground of more than:
 - i. if a speed is prescribed by regulation—the prescribed speed, or
 - ii. otherwise—15 km/h, and
- e) has an unladen mass of no more than:
 - i. if a mass is prescribed by regulation—the prescribed mass, or
 - ii. otherwise—170 kg.

Motorised wheelchair

A motorised wheelchair:

- a) means a vehicle that is a chair on wheels that:
 - i. is built to transport a person who is unable to walk or has difficulty in walking; and
 - ii. is fitted with an electric motor or an accessory containing an electric motor; and
 - iii. when propelled only by the motor, can not reach a speed on level ground of more than:
 - if a speed is prescribed by regulation—the prescribed speed; or
 - otherwise—15 km/h, but
- b) does not include:
 - i. a pram, stroller or trolley, or
 - ii. a mobility scooter, or

- iii. a vehicle that would be a mobility scooter other than because it does not comply with the requirement in definition mobility scooter, paragraph (e).

4 Crash type classification

4.1 Introduction

The system of classifying crashes into the subdivisions is referred to in these Guidelines as the Descriptive Road User Movement coding. The use of crash types are many and varied and discussion of them will be found in safety literature. In this context a crash type is the classification used to describe a crash by the techniques used in a 'collision diagram', a tool that has been used for a long time by practitioners.

The crash type is based on the traffic movements leading up to the conflict situation which results in the crash. Only the conflict situation is used, why and how the participants impact is not of significance and the relative blame of the participants plays no part in the principle of crash types. With regard to movements, driver, rider or pedestrian intent as well as actual movement can be used in determining the crash type (for example the car was stationary waiting to turn right, when it was hit from behind).

Crash type must always take ascendancy over severity. A crash must occur before an 'outcome' results. If severity is to be used for classification, it should be within crash types, not the other way around. Undue emphasis of little value results when severity is put first.

Some coding systems use what they call the initial event and most, if not all, use a single code event to describe the crash. Usually there is no priority protocol to determine the appropriate code if more than one event occurs. The event that produces the casualties may miss being recorded under such systems. The following sub-sections describe what has been put into this system to capture a picture of the events in a crash.

It is noted that while the multiple event process is more accurate, 30 years' experience of data collection has noted that the use of multiple crash types being coded occurred at such a low level, that in Queensland this defining no longer occurs. This is not to say that a 'collision diagram' should not consider following this approach to get a more accurate understanding of the site. Although these are not used in QLD Sections 4.2 to 4.4 explain these concepts in more details. For further information refer to ATM29 Model Guidelines for Road Accidents Data and Accident Types V2.1 (1994).

4.2 Multiple event crashes

When a crash occurs, it may involve a single event or several events. An example of a single event is when a vehicle reverses into the front of a parked vehicle and no further vehicle movement or action follows. An example of a crash which has two events is when a vehicle waiting to turn right is hit in the rear (event 1) and is pushed into the opposing traffic stream and hit by a vehicle from the opposite direction (event 2). It is important from both an analysis viewpoint and a costing viewpoint to recognise the multiple events in a crash and record them.

The selection of codes for the multiple event crash is an extension of the principles used in determining the appropriate code cell for the single event crash. For a multiple event crash the first question to be addressed is, where did a crash occur, and of what nature. Then the appropriate code cell is found by reference to the Decision Tree and the accompanying definitions. If there are two or more events in a crash, follow the first event to arrive at a DRUM code from the Decision Tree (refer to *DRUM Information (for TN206)* document, tab labelled Crash Coding Decision Tree). However, each event in the crash can be assigned a code to indicate the series of events that occurred in the multi event crash.

4.3 Independent impacts

Some care should be exercised in deciding whether a crash is a multiple event crash or, say, two separate crashes. If some distinct time has passed between the first event and the second event they might be considered as two crashes, that is, an independent impact.

For example, if two cars had a rear end collision (Code 301) and then five minutes later another vehicle runs into the rear of rearmost crashed vehicle. This would be considered two separate crashes, the first being Code 301 and the second Code 608. Generally, these events would be reported on two crash reports but if they appeared on one report they should be treated as two crashes with a difference in the time of occurrence.

4.4 Supplementary codes

One or more supplementary codes may be added to a cell, or group of cells, to describe certain aspects of the location, crash type, type of object hit, type of animal, etc. For example, code 0010ELS means a type 001 crash (pedestrian hit from the right) where a pedestrian stepped from the kerb on a marked crosswalk and was hit by a vehicle entering the intersection and turning left in a slip lane. Supplementary coding guidance is attached at Appendix A.

5 Descriptive Road User Movement Codes

The coding procedure and cells are intended for use for crashes occurring on 'roads' or within the road-related area. As mentioned in Section 3, a reference to a road includes a reference to a road-related area, unless otherwise expressly stated.

Crashes which occur in 'non-road' locations might also be recorded by the agencies involved. They should always be clearly marked as non-road crashes, but otherwise generally follow the same classification rules.

Thus to 'record' a crash it must first be known which State it occurred in, then which Local Government Area (LGA), then whether it was on a 'road' or not. If on a road, did it occur within 10 m of a 'node' ('node crash) or beyond 10 m ('link crash). In addition to intersections other 'fixed' locations can be used as nodes, e.g., railway crossings, state borders, 'access' to defined non-road area, etc. For intersections it is necessary to know the names of all the roads, and for links it is necessary to know the name of the road and the names of the roads at the intersections that bound that link (i.e., the first intersection in each direction from the crash site).

A vehicle need not be moving for a crash to be included. For example, a passenger falls down the steps when alighting from a bus which is stationary at a bus stop; a pedestrian is hit by an object which falls off a truck which is stationary while goods are being unloaded. However, if no vehicle is involved, e.g., two pedestrians collide, then the crash is not a vehicle/road crash.

The Descriptive Road User Movement (DRUM) chart is shown in *DRUM Information (for TN206)* document, tab labelled DRUM Chart.

The Descriptive Road User Movement (DRUM) definitions are shown in *DRUM Information (for TN206)* document, tab labelled DRUM Cell Definitions.

5.1 Consistency of coding before and after physical change

To evaluate the effects of some site-specific treatments it is essential to apply the coding rules in a consistent manner before and after any physical changes are made. At intersections the most obvious example of this condition is after a roundabout is installed. For example, for crashes which involve vehicles from adjacent approaches it is necessary to identify the origins of the vehicles, that is, from what approach did they enter the roundabout, to correctly classify the collision.

An example on a link is that of head-on crash before and after a median is installed. Crashes where a vehicle crosses the median and hits a vehicle in the opposing traffic lane must be recorded as a head-on crash as the chosen cell and not some other type. The use of the Decision Trees should ensure the correct chosen cell is determined.

There are instances where the origins may be known but the intended direction of travel is not given and for these cases the principle of 'default cell' and subdivisions is applied.

6 Cell definitions

6.1 00 Pedestrian

Pedestrian crashes can occur anywhere on the road or road related area.

'Vehicle hits' includes pedestrian walking into the side of the vehicle if the vehicle is in transit. In all pedestrian crashes the vehicle is coded as the key vehicle (1).

<p>000 OTHER</p> <p>Any 'road' crash involving a pedestrian not classified below. Pedestrian might be hit by the vehicle they intend to board or has left.</p> <p>Pedestrian hit by reversing vehicle, vehicle moving into/parking space.</p>
<p>001 NEAR SIDE</p> <p>Pedestrian proceeds from kerb or side of shoulder to cross the traffic lane, special purpose lane (including bike lane) or shoulder and is hit by vehicle from the right.</p>
<p>002 EMERGING</p> <p>Pedestrian proceeds from kerb or side of the traffic lane, special purpose lane (including bike lane) or shoulder and is hit by vehicle from the right, but pedestrian comes from in front of a parked or stationary vehicle at the kerb (not a bicycle), e.g., bus at bus stop.</p>
<p>003 FAR SIDE</p> <p>Pedestrian proceeds from kerb or side of the traffic lane, special purpose lane (including bike lane) or shoulder and is hit by a vehicle from the left. Includes any emerging of pedestrian from vicinity of parked or stationary vehicles.</p>
<p>004 PLAYING, WORKING, LYING, STANDING IN TRAFFIC LANE</p> <p>Pedestrian playing, working, lying, standing, etc. in the traffic lane, special purpose lane (including bike lane) or shoulder. This code is used for a person actually working on the road, or for persons whose direction of approach onto the traffic lane, special purpose lane (including bike lane) or shoulder is unknown.</p>

<p>005 WALKING WITH TRAFFIC Pedestrian is walking in the traffic lane, special purpose lane (including bike lane) or shoulder, with the traffic and is hit by a vehicle.</p>
<p>006 FACING TRAFFIC Pedestrian is walking in the traffic lane, special purpose lane (including bike lane) or shoulder, facing the traffic and is hit by a vehicle.</p>
<p>007 DRIVEWAY Pedestrian on footway is hit by vehicle entering or leaving a driveway (or loading bay).</p>
<p>008 ON FOOTWAY Pedestrian on footway hit by vehicle travelling along the footway.</p>
<p>009 STRUCK WHILE BOARDING OR ALIGHTING Person hit by a vehicle while in traffic lane, special purpose lane (including bike lane) or shoulder walking to/from or boarding/alighting a tram, bus, taxi, (see 001 - 003 for person alighting from other vehicle types).</p>

6.2 01 Footway

Vehicle crashes that occur on or from the footway.

<p>010 OTHER Other vehicle crashes not classified below that occur on or from the footway.</p>
<p>011 NEAR SIDE Vehicle proceeds from footway onto traffic lane, special purpose lane (including bike lane) or shoulder and is hit by a vehicle from the right.</p>
<p>012 EMERGING As above, but vehicle comes from in front of a parked or stationary vehicle at the kerb, e.g., bus at bus stop.</p>
<p>013 FAR SIDE Vehicle proceeds from footway onto traffic lane, special purpose lane (including bike lane) or shoulder and is hit by a vehicle from the left. Includes any emerging of a vehicle from vicinity of parked or stationary vehicles.</p>
<p>014 HEAD-ON Vehicles from opposing directions on footway collide. Includes sideswipes.</p>
<p>015 REAR END Two vehicles travelling in the same direction along the footway, the vehicle hit may be moving or stationary.</p>
<p>016 ENTER FOOTWAY A vehicle exits the traffic lane, special purpose lane (including bike lane) or shoulder and hits or is hit by a vehicle travelling in the footway.</p>
<p>017 DRIVEWAY Vehicle leaves driveway and hits or is hit by vehicle on the footway. Emerging vehicle may be travelling forward or in reverse. The vehicle hit may be moving, parked, parking or stationary.</p>
<p>018 CROSSING INTERSECTION Vehicle crossing from footway at an intersection hits or is hit by an adjacent vehicle travelling in the traffic lane, special purpose lane (including bike lane) or shoulder.</p>
<p>019 OUT OF CONTROL FROM FOOTWAY Vehicle loses control and either remains on or runs off footway. The vehicle may or may not hit an object.</p>

6.3 02 Non-Traffic Lane Road

Vehicle crashes that occur on or from the special purpose lanes (including bike lanes) or shoulder of a road.

<p>020 OTHER Other vehicle crashes not classified below that occur on or from a special purpose lane (including bike lane) or shoulder.</p>
<p>021 ENTER TRAFFIC LANE Vehicle enters traffic lane from special purpose lane (including bike lane) or shoulder and hits or is hit by a vehicle travelling in the traffic lane. Vehicle on the traffic lane may be parked, parking or stationary. Vehicles making a U-turn from the special purpose lane (including bike lane), or shoulder are not included.</p>
<p>022 HEAD-ON Vehicle in special purpose lane (including bike lane) or shoulder collides with another vehicle from opposing direction also travelling in special purpose lane (including bike lane) or shoulder.</p>
<p>023 REAR END Two vehicles travelling in the same direction along the special purpose lane (including bike lane) or shoulder, the vehicle hit may be moving or stationary.</p>
<p>024 PARKED Vehicle in the special purpose lane (including bike lane) or shoulder hits stationary or parked vehicle. Includes open doors of vehicles parked or stationary.</p>
<p>025 ENTER NON-TRAFFIC LANE ROAD A vehicle exits the traffic lane and hits or is hit by a vehicle travelling in the special purpose lane (including bike lane) or shoulder. Includes vehicles crossing special purpose lane (including bike lanes) to access turning lanes, or vehicle storage boxes at intersections.</p>
<p>026 PARALLEL TURNING A vehicle travelling on the traffic lane turns and hits or is hit by a vehicle travelling parallel in the special purpose lane (including bike lane) or shoulder. The vehicle may have entered the traffic lane to cross an intersection at the time of the impact.</p>
<p>027 OPPOSING TURNING A vehicle travelling on the traffic lane turns and hits or is hit by a vehicle travelling from the opposing direction in the special purpose lane (including bike lane) or shoulder. The vehicle may have entered the traffic lane to cross an intersection at the time of the impact.</p>
<p>028 ADJACENT APPROACH A vehicle travelling in the traffic lane hits or is hit by a vehicle travelling adjacent in the special purpose lane (including bike lane) or shoulder. The vehicle may have entered the traffic lane to cross an intersection at the time of the impact.</p>
<p>029 OUT OF CONTROL SHOULDER / SPECIAL PURPOSE LANE Vehicle loses control and remains in the special purpose lane (including bike lane) or shoulder.</p>

6.4 10 Intersection: Vehicles from Adjacent Approaches

These cells are used for all intersection types, viz cross, T, Y, multi-leg approaches or off-set intersections.

Vehicles can be travelling on the incorrect side of the road approaching the intersection.

The vehicles must be coming from adjacent approaches, that is, not travelling in the same direction or opposite directions.

<p>100 OTHER</p> <p>Other impacts involving adjacent approaches, e.g., three vehicles from three approaches in mutual impact; one or both vehicles reversing. More complicated intersection geometries where the vehicles are not strictly on adjacent approaches should be included in this cell.</p>
<p>101 THRU-THRU</p> <p>Vehicles approach each other in the traffic lane of two adjacent approaches, both intending to proceed straight through.</p> <p>Vehicle on right is straight through (1).</p>
<p>102 RIGHT - THRU</p> <p>One vehicle is straight through, the other right turning.</p> <p>Vehicle on the right is right turning (1).</p>
<p>103 LEFT-THRU</p> <p>One vehicle is straight through, the other left turning.</p> <p>The vehicle on the right is left turning (1).</p>
<p>104 THRU-RIGHT</p> <p>One vehicle is making or intending a right turn, the other is straight through.</p> <p>Vehicle on the right is straight through (1).</p>
<p>105 RIGHT-RIGHT</p> <p>One vehicle is making right turn, the other is right turning.</p> <p>Vehicle on right is right turning (1).</p>
<p>106 LEFT-RIGHT</p> <p>One vehicle is making a right turn, the other is left turning.</p> <p>Vehicle on right is left turning (1).</p>
<p>107 THRU-LEFT</p> <p>One vehicle is making or intending a left turn, the other is straight through.</p> <p>The vehicle on the right is straight through (1).</p>
<p>108 RIGHT-LEFT</p> <p>One vehicle is a left turn, the other is right turning.</p> <p>The vehicle on the right is right turning (1).</p>
<p>109 LEFT-LEFT</p> <p>One vehicle is making a left turn, the other is left turning.</p> <p>The vehicle on the right is left turning (1).</p>
<p>110 U-TURN</p> <p>One vehicle is making a U-turn, the other is straight through.</p> <p>The vehicle on the right is straight through (1).</p>

6.5 20 Vehicles from Opposing Directions

These cells can be used for crashes at all locations involving opposing vehicles in the traffic lane e.g., intersections, median openings, links, etc.

<p>200 OTHER Other crashes involving vehicles from opposing directions. Includes one vehicle hitting parked vehicle on far side of two-way road.</p>
<p>201 HEAD-ON Vehicles from opposing directions collide. Includes sideswipes. If a vehicle crosses a median or other separator and hits vehicle travelling in opposite direction still code as this cell. One or both of the vehicles in impact might be out of control.</p>
<p>202 THRU-RIGHT One vehicle proceeding straight through, the other turning right from the opposing direction.</p>
<p>203 RIGHT-LEFT One vehicle turning left, one vehicle turning right from opposing direction.</p>
<p>204 RIGHT-RIGHT Both vehicles turning right from opposing directions.</p>
<p>205 THROUGH-LEFT One vehicle proceeding straight through, the other turning left from the opposing direction.</p>
<p>206 LEFT-LEFT Both vehicles turning left.</p>
<p>207 U-TURN Vehicle making or attempting to make a U-turn hit by a vehicle coming from the opposite direction. Includes hitting a parked vehicle on the far side of the turn. Turns through a median via a constructed opening are included but not turns across a median without a constructed opening.</p>

6.6 30 Vehicles from One Direction

REAR ENDS: These can be used at intersections, at driveways, or links.

Vehicles travelling in same direction along the traffic lane, the vehicle hit may be moving or stationary. [For parked vehicle see 601, and definition of parked].

Notes: The direction of the front vehicle determines the cell, the rear vehicle might itself be turning or intending to turn right or left (e.g., two vehicles in a right turn lane), or diverging from the lane, but often no information is given about direction of the rear vehicle. (If rear vehicle was in the process of overtaking, see 506). The criteria is that the front vehicle is hit by a vehicle coming from behind (same direction of travel) regardless of the angle of impact (e.g., front vehicle might be hit in rear or side if it is turning) but vehicles must be in the same lane or partly in the same lane.

PARALLEL LANES: Vehicles travelling in same direction in traffic lanes along the road in parallel lanes (marked or unmarked) and an impact results. (These can be used at intersections but only when vehicles originate from same approach).

Notes: Traffic lanes refers to parallel traffic streams, lane marking as such need not exist. There must, however, be width enough for two lanes, even if unmarked.

<p>300 OTHER</p> <p>Other impacts involving vehicles from same direction.</p> <p>The case where one vehicle is moving out of a service road and hits a vehicle on the main traffic lanes are vehicles that are not in the same traffic lanes.</p> <p>Front vehicle rolls back into rear vehicle.</p>
<p>301 REAR END</p> <p>Front vehicle — straight ahead.</p>
<p>302 LEFT REAR</p> <p>Front vehicle — left turning or intending to turn.</p>
<p>303 RIGHT REAR</p> <p>Front vehicle — right turning or intending to turn.</p>
<p>304 U-TURN REAR</p> <p>Vehicle making or attempting to make a U-turn is struck by vehicle from the same direction. Includes hitting parked vehicle on the nearside of traffic lanes.</p> <p>Turns across a median via a constructed opening are included but not turns across a median without a constructed opening.</p>
<p>305 LANE SIDESWIPE</p> <p>Two vehicles are travelling in same direction straight ahead in adjacent traffic lanes and one 'sideswipes' the other in the side, rear or front. Use if both vehicles change lanes, or if not known which one changed.</p>
<p>306 LANE CHANGE RIGHT</p> <p>Vehicle diverges to the right and hits or is hit by the vehicle in the next lane in the side, rear or front.</p>
<p>307 LANE CHANGE LEFT</p> <p>Vehicle diverges to the left and hits or is hit by the vehicle in the next lane.</p>
<p>308 RIGHT TURN SIDESWIPE</p> <p>Two vehicles are in parallel lanes (marked or unmarked) and vehicle on the left makes (or attempts to) a right turn and hits vehicle in the right lane. The vehicle on the left may have pulled out from special purpose lanes (including bike lanes) or shoulder (from a stationary position). The turn should be associated with a driveway, median opening, intersection, service road opening, etc.</p>
<p>309 LEFT TURN SIDESWIPE</p> <p>Two vehicles are in parallel lanes (marked or unmarked) and vehicle on the right makes (or attempts to) a left turn and hits vehicle in the left lane. The turn should be associated with a driveway, median opening, service road opening, etc.</p>
<p>310 PULLING OUT</p> <p>A vehicle is pulling out from a traffic lane (when weaving through traffic) and is struck in the rear or side by a vehicle travelling in the adjacent traffic lane.</p>
<p>311 U-TURN</p> <p>A vehicle is making a U-turn from an adjacent traffic lane and turns in front of a vehicle travelling through in the adjacent lane. Although the vehicles are initially travelling in the same direction, it results in an angle type crash.</p> <p>The vehicle making the U-turn can be turning from a traffic lane, a special purpose lane (including bike lane) or shoulder.</p>

6.7 40 Manoeuvring

Vehicles manoeuvring or parking.

<p>400 OTHER Other crashes involving a manoeuvring or parking vehicle not covered below or covered in 01 or 02.</p>
<p>401 LEAVING PARKING Includes parallel parking and angle parking.</p>
<p>402 PARKING One vehicle must be moving in or out of the 'parking space' and the other vehicle in the traffic lane in the lane adjacent to the parked vehicles. This does NOT include vehicle leaving a stationary position at the kerb.</p>
<p>403 PARKING VEHICLES ONLY Vehicle manoeuvring within; into or out of a parking space (marked or unmarked) parallel or angle parking and hits vehicle to front or rear or side. Vehicles to front or rear or side might also be manoeuvring at the time (do not confuse with codes 401, 402). Includes two vehicles trying to get into the same parking space.</p>
<p>404 REVERSING IN TRAFFIC Vehicle reverses (see note below) in traffic stream. Do not use for vehicle reversing from parking space or driveway, (see codes 401, 402, 403, 406).</p>
<p>405 REVERSING INTO FIXED OBJECT Vehicle reverses (see note below) into a fixed object on or outside of the traffic lanes, special purpose lanes (including bike lanes) or shoulder. The fixed object that was hit is recorded.</p>
<p>406 LEAVING DRIVEWAY Vehicle leaves driveway and hits or is hit by vehicle in the traffic lane, special purpose lanes (including bike lanes) or shoulder. Emerging vehicle may be travelling forward or in reverse. The vehicle on the traffic lane, special purpose lanes (including bike lane) or shoulder may be parked, parking or stationary. [If vehicle hit is moving on the footway, see 017].</p>

6.8 50 Overtaking

In this context the term 'Overtaking' relates to undivided roads and involves a vehicle pulling out into the traffic lane reserved for opposing traffic, overtaking the vehicle in front of them and pulling back into the original lane; that is, both vehicles are in the same lane (portion of traffic lanes) to start with, then the overtaking vehicle goes onto the opposing traffic lane to pass the vehicle in front.

<p>500 OTHER Other overtaking.</p>
<p>501 HEAD-ON Vehicle pulls out to overtake and collides with a vehicle from the opposite direction. The impact can take place at any time from just pulled out until the time the vehicle returns to their original traffic lane. (The head-on class includes sideswipes by vehicles travelling in opposite directions).</p>
<p>502 OUT OF CONTROL Vehicle pulls out to overtake and loses control. Vehicle might subsequently leave traffic lane, special purpose lane (including bike lane) or shoulder (if hit by vehicle travelling in opposite direction code as 501).</p>
<p>503 PULLING OUT Vehicle pulls out to overtake a moving vehicle in the same lane and is hit by vehicle coming from behind which itself is in the overtaking process.</p>

<p>504 CUTTING IN Vehicle, at the end of its overtaking manoeuvre, cuts in on the overtaken vehicle.</p>
<p>505 PULLING OUT REAR END Vehicle is pulling out to overtake and hits/clips the vehicle in front.</p>
<p>506 OVERTAKING RIGHT TURN Vehicle right-turning is hit by vehicle in the process of overtaking. The turn should be associated with a driveway, intersection, median opening, etc.</p>

6.9 60 On Path

Vehicle collides with vehicle, object, or animal in the traffic lane (i.e., left side of two-way road).

<p>600 OTHER Including parked vehicle hit by unknown vehicle from unknown direction; vehicle hit by missile or stone including stone hits windscreen, when other vehicle passes. Includes vehicle hits rail line, road hump, etc. but see 708 for LATM devices.</p>
<p>601 PARKED Vehicle collides with rear or side of vehicle parked on left side of road (parallel or angle parking)</p> <ul style="list-style-type: none"> • If street is one-way then impacts with vehicles parked on the right side of road are included otherwise they are excluded. Centre-of-road parked vehicles are included. (If the parked vehicle was on right side of two-way road, see 200). • If the impact is with an opened door of the parked vehicle, then 604 is used. • The vehicle hit must be actually parked, for vehicles moving in or out of parking space see 402 and 403. • For parked vehicle hit by vehicle along a footway see 017. • For parked vehicle hit by vehicle entering the traffic lane from a special purpose lane (including bike lane) or shoulder see 021. • For parked vehicle hit by U-turning vehicle see 207, 304. • For parked vehicle hit by vehicle in the shoulder see 024. • For unknown hitting vehicle and unknown direction use 600.
<p>602 DOUBLE PARKED Same as in 601. The vehicle hit must be actually doubled parked. A vehicle is 'doubled parked' if the driver is, absent otherwise the vehicle is 'standing'.</p>
<p>603 [BLANK] This DRUM code is not used.</p>
<p>604 CAR DOOR Vehicle hits open door of stationary or parked vehicle.</p>
<p>605 HIT PERMANENT OBSTRUCTION Striking bridge, bridge abutment, tree, fixed object, etc. where they are actually in the traffic lane, special purpose lane (including bike lane) or shoulder, and cause a reduction in usable traffic lane, special purpose lane (including bike lane) or shoulder width. Where reduction in the traffic lane, special purpose lane (including bike lane) or shoulder does not occur, the crash is classified in column 70 or column 80. Includes hitting overhead structure, power lines, trees, etc. Object hit is to be recorded.</p>
<p>606 HIT TEMPORARY ROADWORKS Vehicle hitting temporary roadworks, e.g., pile of dirt, excavation, signs and barriers, manholes. Roadworks must be in the traffic lane, special purpose lanes (including bike lanes) or shoulder.</p>

<p>607 HIT TEMPORARY OBJECT IN TRAFFIC LANES</p> <p>Vehicle hits object temporarily in the traffic lane, special purpose lanes (including bike lanes), or shoulder (e.g., rocks, crates, fallen trees, etc.). Includes falling trees, rocks hitting a vehicle. The object may be stationary or moving. Includes hitting a pothole. Object hit is recorded.</p>
<p>608 CRASH OR BROKEN DOWN</p> <p>Includes hitting the disabled vehicle and/or attending the disabled vehicle eg. police car, tow truck, ambulance etc., in the traffic lane, special purpose lanes (including bike lanes), or shoulder.</p>
<p>609 ANIMAL</p> <p>Vehicle hits an animal in the traffic lane, special purpose lanes (including bike lanes), shoulder or along the footway. Only riderless animals are included since ridden animals and animal drawn conveyances are classified as vehicles. Includes animals being led or herded.</p>
<p>610 LOAD HITS VEHICLE</p> <p>Load hits vehicle. Load (including part of vehicle) actually falls from one vehicle onto another vehicle. If the load is on the road before a vehicle collides with it then code as 607.</p>
<p>611 WATER ON ROAD</p> <p>Vehicle hits pooled water on road or is swept away by water. The water may be stationary or moving.</p>

6.10 70 Off Path, On Straight

These crashes can occur on straight sections of 'road', these sections can be at nodes or links. For crashes in or after curves see 801-809.

This group can be used at roundabouts.

Notes: If a 'road' is divided by presence of traffic island, safety zone, median or separator then on each side of that device are the traffic lanes, special purpose lanes (including bike lanes) or shoulder. Hence vehicles leaving the traffic lanes, special purpose lanes (including bike lanes) or shoulder may mount the traffic island, median, etc. When a vehicle mounts the median etc. it has left the traffic lanes, special purpose lanes (including bike lanes) or shoulder (see 708).

For cases when a vehicle crosses a median and hits a vehicle travelling in the opposite direction see 201.

<p>700 OTHER</p> <p>Other off path on straight. Includes any reversing vehicle out of control on straights.</p>
<p>701 OFF TRAFFIC LANE TO LEFT</p> <p>Vehicle loses control and runs off the traffic lanes to the left. Note similar cell for curves in column 80.</p>
<p>702 OFF TRAFFIC LANE TO RIGHT</p> <p>Vehicle loses control and runs off the traffic lanes to the right.</p>
<p>703 LEFT OFF TRAFFIC LANE INTO OBJECT</p> <p>As for 701, but vehicle hits object after leaving the traffic lanes. Object hit is recorded.</p>
<p>704 RIGHT OFF TRAFFIC LANE INTO OBJECT</p> <p>As for 702, but vehicle hits object after leaving the traffic lanes. Object hit is recorded.</p>

<p>705 OUT OF CONTROL ON TRAFFIC LANE</p> <p>Vehicle loses control but does not leave the traffic lanes, special purpose lanes (including bike lanes) or shoulders, ending up in the traffic lanes (e.g., rolls over, rider falls from bicycle, motorcycle).</p> <p>The vehicle might hit a kerb or median, etc but does not mount it, (see 708 and 709 if vehicle mounts median etc).</p>
<p>706 LEFT TURN</p> <p>Vehicle left turning at intersection (or driveway) loses control (either goes off or stays in traffic lanes, hits object or does not hit object).</p>
<p>707 RIGHT TURN</p> <p>Vehicle right turning at intersection (or driveway) loses control (either goes off or stays in traffic lanes, hits object or does not hit object).</p>
<p>708 MOUNT MEDIAN</p> <p>Vehicle mounts the traffic island, median, roundabout, LATM device etc.</p> <p>This code is to only be used if no objects, excluding those listed above that are mounted, are hit [see 709 when vehicle does enter the median and hit an object].</p>
<p>709 HIT OBJECT ON MEDIAN</p> <p>Vehicle mounts the traffic island, median, roundabout, LATM device etc. and hits an object.</p> <p>The device hit should be recorded.</p> <p>The object hit on the device should also be recorded.</p>
<p>710 ROAD END/T INTERSECTION</p> <p>Vehicle at the end of a road, or at a T intersection, travels straight ahead off the road.</p>

6.11 80 Off Path, On Curve

These crashes can occur at a bend/curve in a road or are associated with a bend that is, the vehicle was entering the curve, was in the curve or had passed through the curve. The bends can be at nodes or links.

This group is not used at roundabouts.

Notes: If a 'road' is divided by presence of traffic island, safety zone, median or separator then on each side of that device are the traffic lanes, special purpose lanes (including bike lanes) or shoulder. Hence vehicles leaving the traffic lanes, special purpose lanes (including bike lanes) or shoulder may mount the traffic island, median, etc. When a vehicle mounts the median etc. it has left the traffic lanes or shoulder (see 808 and 709).

When the vehicle mounts the device and then proceeds onto the opposing traffic lane a supplementary code will be used.

<p>800 OTHER</p> <p>Other off-path on curves.</p> <p>Includes any reversing vehicle out of control on curves.</p>
<p>801 OFF RIGHT BEND</p> <p>A vehicle negotiating a RIGHT HAND bend loses control and runs off the traffic lanes to either the left or the right.</p>
<p>802 OFF LEFT BEND</p> <p>A vehicle negotiating a LEFT HAND bend loses control and runs off the traffic lanes to either the left or the right.</p>

<p>803 OFF RIGHT BEND INTO OBJECT</p> <p>As for 801, but vehicle hits object after leaving the traffic lanes. Object hit is recorded.</p>
<p>804 OFF LEFT BEND INTO OBJECT</p> <p>As for 802, but vehicle hits object after leaving the traffic lanes. Object hit is recorded.</p>
<p>805 OUT OF CONTROL ON TRAFFIC LANES</p> <p>Vehicle loses control on RIGHT or LEFT bend but does not leave the traffic lanes, special purpose lanes (including bike lanes) or shoulders (e.g., rolls over, rider falls from bicycle, motorcycle). The vehicle might hit a kerb or median, etc but does not mount it, (see 808 and 809 if vehicle mounts median etc).</p>
<p>806 LEFT TURN</p> <p>Vehicle left turning at intersection (or driveway) loses control (either goes off or stays in traffic lanes, hits object or does not hit object).</p>
<p>807 RIGHT TURN</p> <p>Vehicle right turning at intersection (or driveway) loses control (either goes off or stays in traffic lanes, hits object or does not hit object).</p>
<p>808 MOUNT MEDIAN</p> <p>Vehicle mounts the traffic island, median, roundabout, LATM device etc.</p> <p>This code is to only be used if no objects, excluding those listed above that are mounted, are hit [see 809 when vehicle does enter the median and hit an object].</p>
<p>809 HIT OBJECT ON MEDIAN</p> <p>Vehicle mounts the traffic island, median, roundabout, LATM device etc. and hits an object. The device hit should be recorded.</p> <p>The object hit on the device should also be recorded.</p>

6.12 90 Passengers and Miscellaneous

Crashes that occur that are outside the normal and not usually seen as an impact.

<p>900 OTHER</p> <p>When a crash does not fit the any other cell to describe a crash, then use this code.</p>
<p>901 FELL IN / FROM VEHICLE</p> <p>Passenger falls while boarding or alighting a vehicle, passenger falls inside a vehicle, falls from a vehicle. Vehicle may be stationary or moving but has no impact. Includes passenger on motorcycles, bicycles, animals, buses, trams.</p>
<p>902 [BLANK]</p> <p>This DRUM code is not used.</p>
<p>903 HIT TRAIN</p> <p>Vehicle hits train or other railway vehicle on a crossing, or if railway runs along the road it may collide at other than a crossing.</p>
<p>904 HIT RAILWAY X-ING FURNITURE</p> <p>Vehicle hits part of railway crossing furniture, but does not hit the train. Use this code also if barrier arm or boom hits the vehicle, or if vehicle hits overhead wire for train. Vehicle might be on or off of the traffic lanes, special purpose lanes (including bike lanes) or shoulders.</p>
<p>905 HIT ANIMAL OFF PATH</p> <p>The vehicle hits an animal after the vehicle leaves the traffic lanes, special purpose lanes (including bike lanes) or shoulders. Only riderless animals are involved (including animals being led or herded).</p> <p>Ridden animals and animal-drawn conveyances are classified as vehicles, (see 609 for animal in traffic lane, special purpose lanes (including bike lanes), or shoulders).</p>

906 PARKED VEHICLE RAN AWAY

Parked vehicle ran away. Driverless vehicles may be involved in many of the cells already described but due to the lack of a driver all such impacts are given this code.

907 VEHICLE MOVEMENTS NOT KNOWN

Not known is used when no, or insufficient, description is given about the movement or origins of the road users.

7 Descriptive Road User Movement Coding Decision Tree

The Decision Tree is the primary means of classifying the event and deciding the chosen cell and then the definitions should be read to ensure that the event matches the description.

The origins of the vehicles (and pedestrians) and the intended direction of travel must be known to correctly choose the cell. When the crash can be classified as belonging to a particular column but does not fit one of the existing cells in that column then it should be given the 'Other' code for that column.

Throughout the definitions 'vehicle hits ...' can be interpreted also as a 'vehicle is hit by ...'. The vehicle type (e.g., car, bicycle, truck, etc.) should have previously been coded as vehicle A, vehicle B from the crash report form.

It is noted that, due to the various parts of a road and road-related area, as well as differences between impacting another vehicle, animal, road user, object or losing control, four key crash groups are marked in the decision tree, which are prioritised in the following order:

Traffic lane crashes – these are crashes that originate from a vehicle in a traffic lane crashing predominately into another vehicle, pedestrian animal or other road user.

Non-traffic lane crashes – these are crashes that originate from a vehicle in a shoulder or special purpose lane (including bike lanes) crashing predominately into another vehicle, pedestrian animal or other road user.

Footway crashes – these are crashes that originate from a vehicle in the footway crashing predominately into another vehicle, pedestrian animal or other road user.

Lane departure Crashes – these are crashes, predominately originating from the traffic lane, losing control or hitting an object.

The decision tree is shown in the *DRUM Information (for TN206)* document.

Please refer to *DRUM Information (for TN206)* document, tab labelled DRUM Chart.

Please refer to *DRUM Information (for TN206)* document, tab labelled DRUM Cell Definitions.

Please refer to *DRUM Information (for TN206)* document, tab labelled Crash Coding Decision Tree.

8 Descriptive Road User Movement (DRUM) Coding Groups

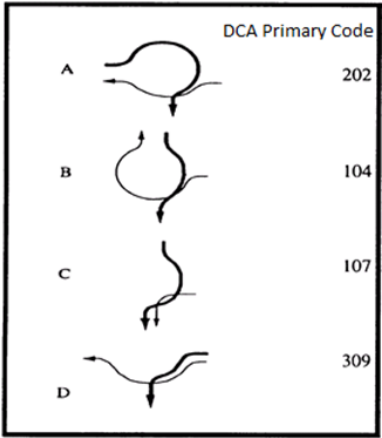
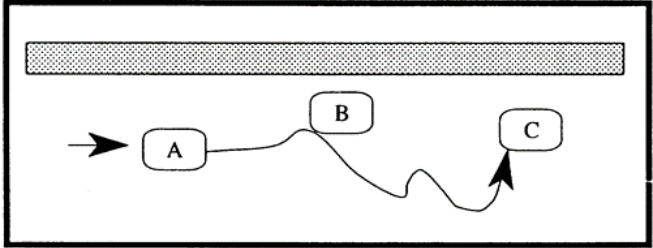
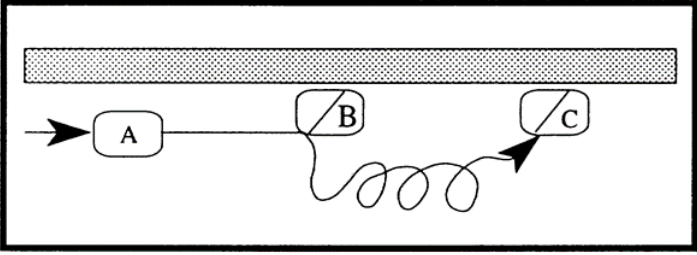
The use of the cells for analysis is normally at a more aggregated level than that used in the encoding process. However, the analyst should understand how the data has been categorised as it can affect interpretation of results. The coding procedure is intended to be used to determine a crash type from a crash report. The code chart has a number of subdivisions which allow the coder to often find a one-to-one correspondence between the sketch on the crash report and one of the cells on the code chart.

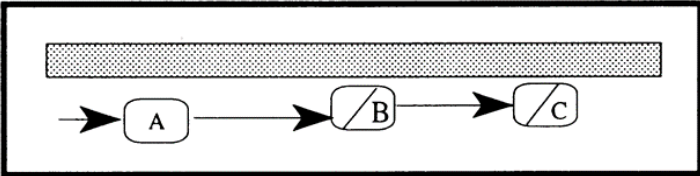
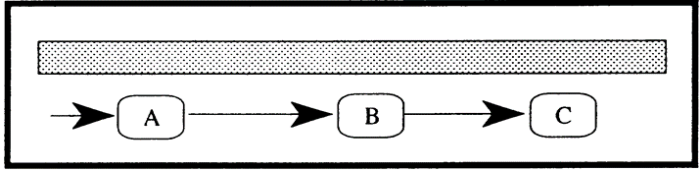
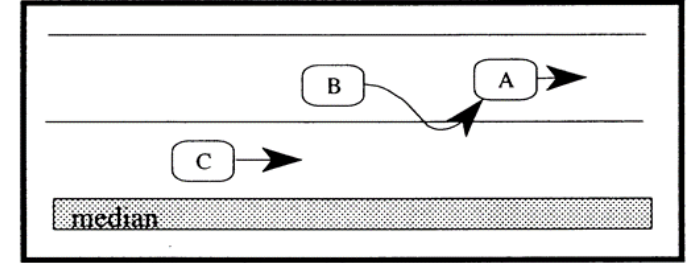
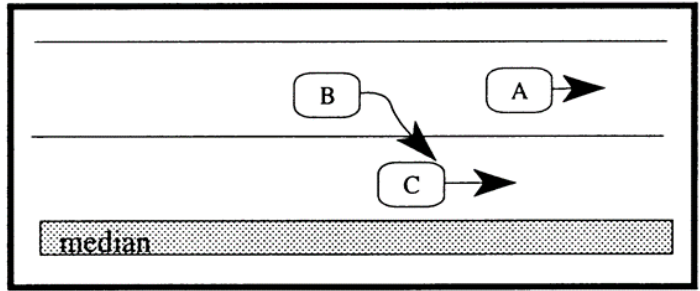
When it comes to analysis of the crash data, groupings of the cells can be used. Table 8 shows the primary DRUM groups and the respective DRUM codes.

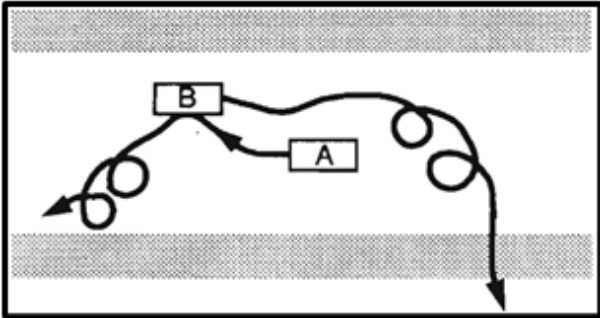
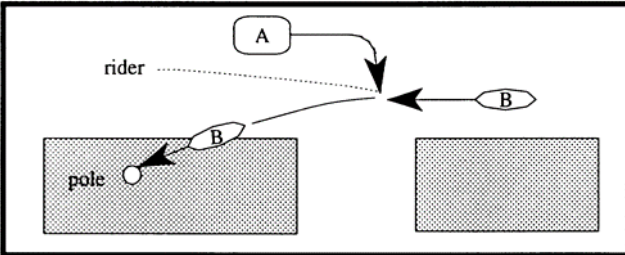
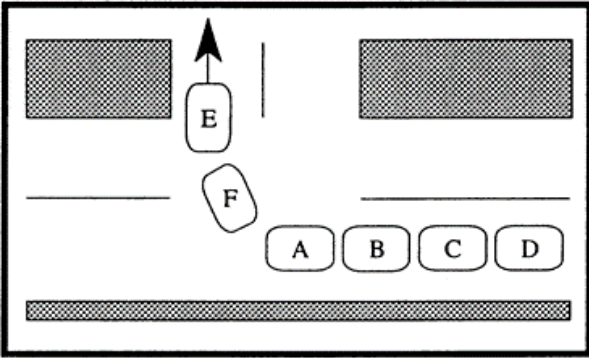
Table 8 – DRUM Groups for Analysis

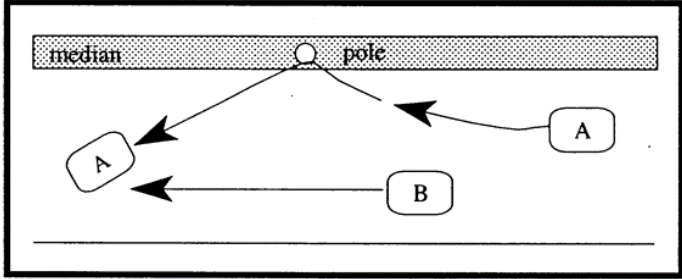
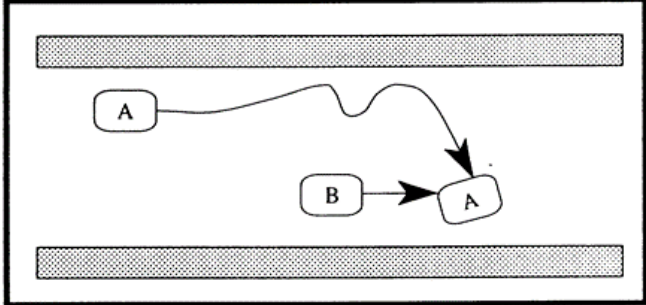
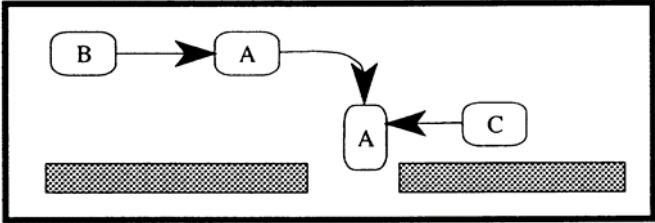
DRUM Group	DRUM Group Description	DRUM Codes									
		000	001	002	003	004	005	006	007	008	009
1	Hit Pedestrian	000	001	002	003	004	005	006	007	008	009
2	On Footway	010	011	012	013	014	015	016	017	018	019
3	In Non-Traffic Lane Road	020	021	022	023	024	025	026	027	028	029
4	Intersection: Adjacent Approach	100	101	102	103	104	105	106	107	108	109
5	Opposing Vehicles Turning	200	202	203	204	205	206				
6	Head-on	201	501								
7	Rear End	300	301	302	303						
8	Lane Change	305	306	307	310						
9	Parallel Lanes Turning	308	309								
10	U-turn	110	207	304	311						
11	Entering Roadway	401	406								
12	Overtaking / Same Direction	500	502	503	504	505	506				
13	Hit Parked Vehicle	400	402	403	600	601	602	604			
14	Hit Railway	903									
15	Hit Obstruction	405	605	606	607	608	611	904			
16	Hit Animal	609	905								
17	Off Path: On Straight	700	701	702	706	707	708	710			
18	Off Path: On Straight Hit Object	703	704	709							
19	Out of Control, On Straight	705									
20	Off Path: On Curve	800	801	802	806	807	808				
21	Off Path: On Curve Hit Object	803	804	809							
22	Out of Control, On Curve	805									
23	Other	404	610	900	901	906	907				

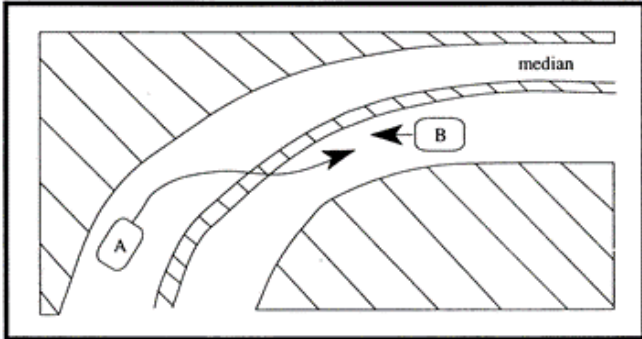
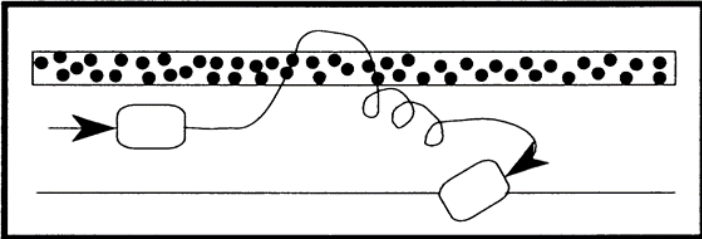
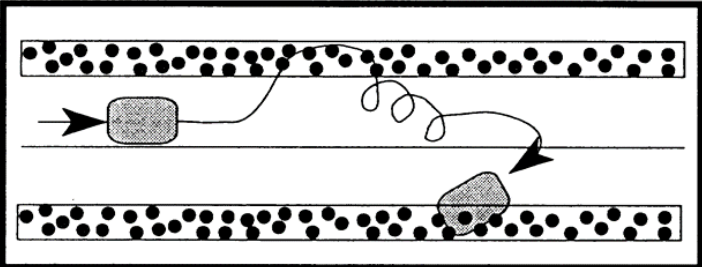
9 Descriptive Road User Movement coding crashes examples

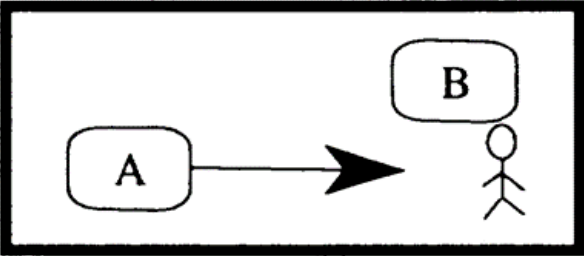
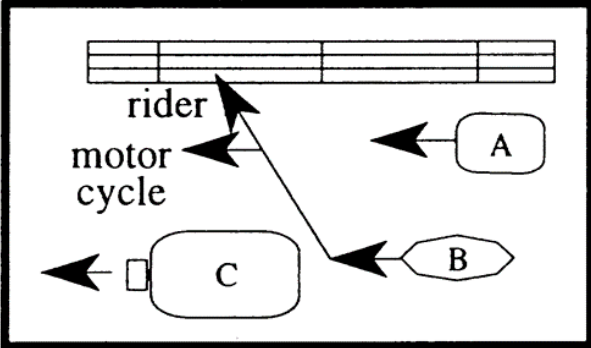
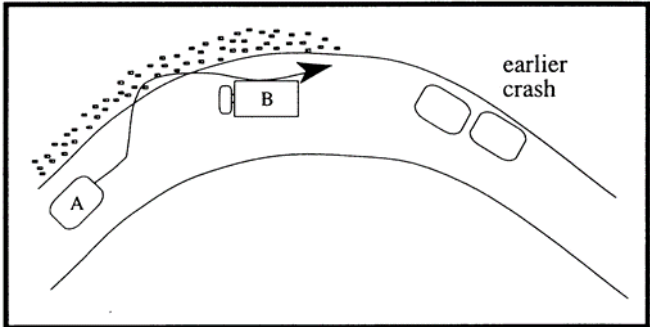
Example #	Example Diagram	Description of Example	DRUM Code used
1	 <p>DCA Primary Code</p> <p>A 202</p> <p>B 104</p> <p>C 107</p> <p>D 309</p>	Roundabouts.	-
2		Vehicle A travelling in the same direction and lane as B and C ran into the rear of B, then went and hit the rear of C.	Record as DRUM 301 if Vehicle A is in traffic lane or DRUM 023 if Vehicle A is travelling in a special purpose lane (including bike lane) or shoulder.
3		Vehicle A hit parked Vehicle B, and then went out of control, rolled and hit parked Vehicle C.	Record as DRUM 601 if Vehicle A is in traffic lane or DRUM 024 if Vehicle A is travelling in a special purpose lane (including bike lane) or shoulder.

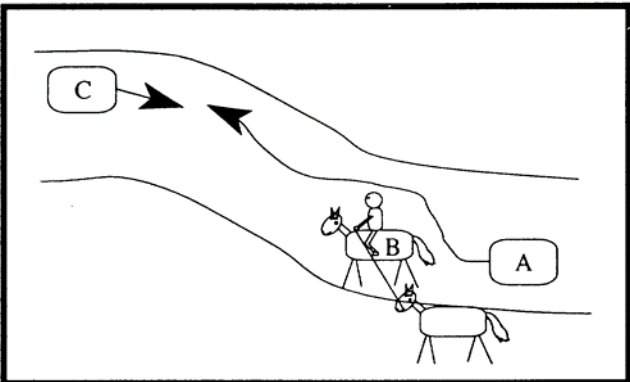
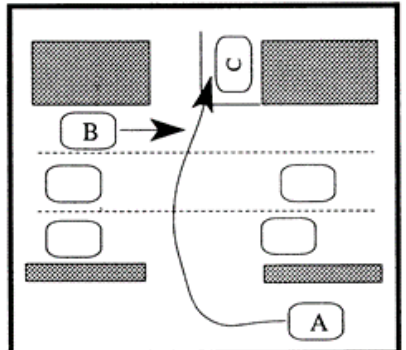
Example #	Example Diagram	Description of Example	DRUM Code used
4		<p>Vehicle A ran into parked Vehicle B, causing it to hit parked Vehicle C.</p>	<p>Record as DRUM 601 if Vehicle A is in traffic lane or DRUM 024 if Vehicle A is travelling in a special purpose lane (including bike lane) or shoulder.</p>
5		<p>Vehicle A ran into the rear of Vehicle B, causing it to run into the back of Vehicle C.</p>	<p>Record as DRUM 301 if Vehicle A is in traffic lane or DRUM 023 if Vehicle A is travelling in a special purpose lane (including bike lane) or shoulder.</p>
6		<p>Vehicle B began to change lanes to pass Vehicle A, when driver saw Vehicle C and moved back into lane and hit Vehicle A.</p>	<p>Record as DRUM 301 if Vehicle B is in traffic lane or DRUM 023 if Vehicle B is travelling in a special purpose lane (including bike lane) or shoulder.</p>
7		<p>Vehicle B changed lanes to pass Vehicle A, did not see Vehicle C and hit Vehicle C.</p>	<p>Record as DRUM 306 if Vehicle B is in traffic lane or DRUM 021 if Vehicle B is travelling in a special purpose lane (including bike lane) or shoulder.</p>

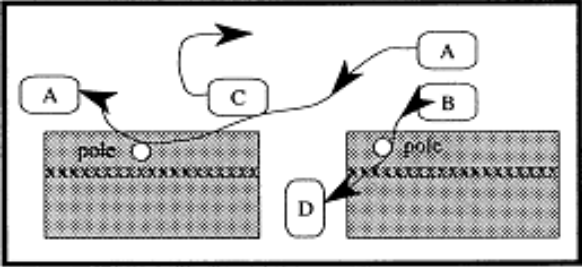
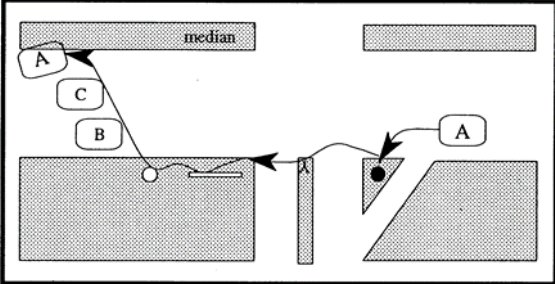
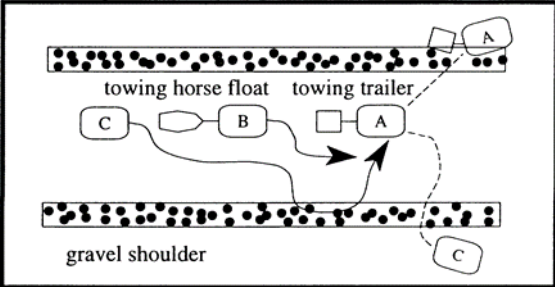
Example #	Example Diagram	Description of Example	DRUM Code used
8		<p>Vehicle A travelling west struck Vehicle B travelling East. Vehicles hit drivers' side panels. Vehicle A rolled end over end. Vehicle B continued East for 150 m then ran off the road to the right.</p>	<p>Record as DRUM 201.</p>
9		<p>Vehicle A travelling east and making right turn into his driveway hit Vehicle B (motorcycle). The rider was thrown from the motorcycle and the motorcycle hit power pole.</p>	<p>Record as DRUM 202.</p>
10		<p>All the vehicles proceeded when the signals turned green. Vehicles E and F suddenly stopped and then turned right into street. Vehicle A (travelling straight ahead) applied brakes to avoid hitting F who was blocking the intersection. Unable to stop in time, Vehicle B struck Vehicle A, Vehicle C struck Vehicle B, Vehicle D struck Vehicle C (4 car nose-to-tail).</p>	<p>Record as DRUM 301.</p>

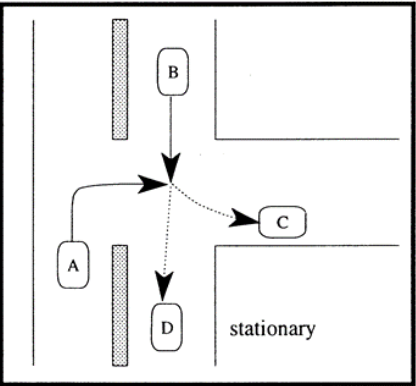
Example #	Example Diagram	Description of Example	DRUM Code used
11		<p>Vehicle A travelling south on the South-East Freeway, lost control skidded and collided with power pole on the raised median, Vehicle A then swung back across road hitting Vehicle B</p>	<p>Record as DRUM 305 as while there was a DRUM 709 prior, the impact with another vehicle takes precedence.</p>
12		<p>Vehicle A travelling south skidded on road due to oil film, lost control, slid sideways into adjacent lane (and stopped). Vehicle B also travelling south then collided with Vehicle A.</p>	<p>Record as DRUM 608 as while there was a DRUM 705 prior, the impact with another stopped vehicle takes precedence.</p>
13		<p>Vehicle A stationary waiting to turn right is hit from behind by Vehicle B. Vehicle A is pushed by the impact into the path of Vehicle C which is approaching from opposite direction.</p>	<p>Record as DRUM 303.</p>

Example #	Example Diagram	Description of Example	DRUM Code used
14		<p>Vehicle A was travelling south around a bend lost control and travelled across the raised median and collided with Vehicle B which was travelling north on the other side of the road.</p>	<p>Record as DRUM 201 as while there was a DRUM 808 prior, the head-on impact with another vehicle takes precedence.</p>
15		<p>The vehicle was travelling east when the driver lost control and went off the road, onto the footway, to the left. The vehicle came back on the road where it rolled and came to rest on its wheels.</p>	<p>Record as DRUM 705 as the vehicle did not crash prior to them losing control back in the traffic lanes, shoulder or bike lanes.</p>
16		<p>The vehicle travelling east, drifted off the bitumen onto the gravel shoulder on the north side and lost control. The vehicle then rolled and came to rest in the gravel shoulder on the south edge.</p>	<p>Record as DRUM 705 as the vehicle did not crash prior to them losing control back in the traffic lanes, shoulder or bike lanes.</p>

Example #	Example Diagram	Description of Example	DRUM Code used
17		<p>Driver of parked Vehicle B returned to his car and stood beside the driver's door. Vehicle A hit the driver of B, knocking him to the ground.</p>	<p>Record as DRUM 004, assuming both Vehicle A and the Driver of Vehicle B are both either in the traffic lanes, special purpose lanes (including bike lane) or shoulder.</p>
18		<p>Vehicle B (a motorcycle) clipped rear of truck (Vehicle C). Vehicle B and rider went into path of Vehicle A. A hit B and the rider was thrown off onto the guard rail.</p>	<p>Record as DRUM 301.</p>
19		<p>There had been a crash and Vehicle B (a tow truck) was on the road attending the disabled vehicle with yellow lights flashing. Vehicle A pulled to the side, skidded on the gravel shoulder, and then sideswiped Vehicle B.</p>	<p>Record as DRUM 608 as the vehicle did not crash prior to them hitting the stopped vehicle.</p>

Example #	Example Diagram	Description of Example	DRUM Code used
20		<p>Horse and rider (Vehicle B) travelling east on bitumen leading a horse on the gravel shoulder. Vehicle A pulled out a bit to overtake B. When A was alongside B, B reared up into the path of A. Vehicle A swerved to attempt to avoid B but was still struck. The swerving put A on the wrong side of the road, and it collided head-on with Vehicle C.</p>	<p>Record as DRUM 501.</p>
21		<p>Vehicle A was making a right turn through two lanes of traffic banked back from traffic signals. Vehicle B was proceeding in the third lane and hit Vehicle A. The impact diverted Vehicle A into Vehicle C that was stationary, waiting to turn right.</p>	<p>Record as DRUM 202 if Vehicle B was in a traffic lane or as DRUM 027 if Vehicle B was travelling in the special purpose lanes (including bike lane) or shoulder.</p>

Example #	Example Diagram	Description of Example	DRUM Code used
22		<p>Vehicles A and B travelling west. Vehicle A swerved to avoid a dog and went left into Vehicle B causing Vehicle B to hit light pole. Vehicle B continued and crashed through fence to hit Vehicle D, which was parked in the driveway. Meanwhile Vehicle A continued along the road hitting Vehicle C parked on south kerb. Vehicle A then hit a light pole and continued another 200 m before stopping.</p>	<p>Recorded as DRUM 305.</p>
23		<p>Vehicle A travelling south mounted the traffic island and collided with the signal pole, kerb barrier, retaining wall and power pole. Vehicle A then hit Vehicle B and then Vehicle C. Vehicle A was airborne for 40 m after hitting the power pole. Vehicle A came to rest on the right raised median strip.</p>	<p>Record as DRUM 301 as while there was a DRUM 709 prior, the impact with another vehicle takes precedence.</p>
24		<p>Vehicles A, B and C travelling north. Vehicle C began to overtake Vehicles A and B, and when alongside Vehicle B, Vehicle B began to pull out to overtake Vehicle A. Vehicle C swung to the right to avoid B and ran onto the gravel shoulder on the right-hand side of the road, skidded and swung back across the road striking Vehicle A which then ran off the road and overturned. Vehicle C was deflected back to the right and came to rest on the east side of the road.</p>	<p>Record as DRUM 504 as while there was a DRUM 502 prior, the impact with another vehicle takes precedence.</p>

Example #	Example Diagram	Description of Example	DRUM Code used
25		<p>Vehicle A turned right, hit Vehicle B. B deflected and hit Vehicle C which was waiting to turn right at the intersection, while Vehicle A pushed into Vehicle D which was stationary in the traffic line.</p>	<p>Record as DRUM 202.</p>
26	-	<p>Bicycle was travelling along the footpath when the chain came off causing the rider to fall on the surface.</p>	<p>Record as DRUM 019.</p>
27	-	<p>Vehicle A had to brake sharply when Vehicle B cut across in front of it. No collision took place, but the driver of vehicle A had a neck injury and was admitted to hospital the next day.</p>	<p>Record as DRUM 900.</p>
28	-	<p>A vehicle was travelling along when the bonnet flew open and broke the windscreen. The broken screen injured the passenger.</p>	<p>Record as DRUM 900.</p>
29	-	<p>A vehicle was proceeding along the road and a pedestrian stepped out from the kerb, the vehicle swerved and missed the pedestrian, but the driver lost control and the vehicle hit the kerb buckling the wheel.</p>	<p>Record as DRUM 705.</p>

Example #	Example Diagram	Description of Example	DRUM Code used
30	-	A mobile crane had turned right at an intersection and then the boom became entangled with overhead power lines spanning the road.	Record as DRUM 605 .
31	-	Vehicle A moved left from lane 1 to lane 2 and in doing so caused Vehicle B to take evasive action by dropping the motorcycle on the road to avoid a collision.	Record as DRUM 705 if the motorcycle was in a traffic lane or as DRUM 029 if the motorcycle was travelling in the special purpose lane (including bike lane) or shoulder.

Appendix A Supplementary Crash Codes

The following are provided as examples of what can be done using supplementary codes with the main accident-type to describe further aspects. Space for four codes should be allowed in the computer record.

001-003	For intersection crashes, for vehicle movement code: E for entering or, D for departing the intersection and additionally, L for left turn, T for straight through, R for right turn. Further codes apply if marked: crosswalk (C) and/or a left turn slip lane (S). Example: Code 001 CELS indicates that pedestrian stepped from kerb on a marked crosswalk and was hit by a vehicle entering the intersection and turning left in a slip lane. If associated with boarding/alighting from vehicle, code the vehicle type e.g., bus, taxi.
001-009	Code M - if pedestrian stepped off median.
002	Code vehicle type.
003	Code E - for emerging, and vehicle type as for 002.
004	Code 1 - playing, 2 - working, 3 - lying, 4 - standing, 5 - unknown.
005	Code 0 - no paved footway, 1 - paved footway present, 2 - share path present.
006	as for 005.
007	Type of driveway: H - hostel, hotel, motel, P - private, F - factory, C - commercial (including school, station), L - loading bay.
007, 008	Code R - if vehicle was reversing.
009	Code vehicle type, safety zone, to/from.
011-013	as for 001-003.
014	Code T - straight, C - curve, R - rail crossing.
015	as for 014.

016	Code	E - vehicle entering the bikeway or shoulder from the footway, L - vehicle leaving the bikeway or shoulder into the footway.
017	as for 007.	
018	as for 001-003.	
019	Code, device or object hit: Use codes given in 2.5.1-3.4.	
021	Code	R - if vehicle reversing, S - if in traffic lanes in opposite direction of travel.
022	as for 014.	
023	as for 014.	
024	Code	A - angle parking, P - parallel parking.
025	Code	E - vehicle entering the traffic lane from the bikeway or shoulder, L - vehicle leaving the traffic lane into the bikeway or shoulder.
026-028	as for 001-003.	
029	Code, device or object hit: Use codes given in 2.5.1-3.4.	
201	as for 014.	
202	1st Code	D - driveway, M - median (opening), L – laneway.
	2nd Code	type of driveway (see 007).
203, 204, 205, 206	as for 202.	
207	P - hit parked vehicle, and see 202.	
302, 303	as for 202.	
301, 302, 303, 304	if at intersection, can add code	E - entering, D - departing, I - within intersection.
304	see 202.	
306	Code	P - presence of parked vehicle (i.e., reason for lane change).
307	see 306.	
308, 309	see 202.	
401, 402	1st Code	C - centre of road, K – kerb.
	2nd Code	A - angle parking, P - parallel parking.
403	see 401, 402.	
406	See 007, for types of driveways.	
	Code	R - if vehicle reversing, S - if in traffic lanes in opposite direction of travel.
504	Code	O - presence of opposing direction vehicle.

601, 602	see 401.
609	Code animal (see list in 2.5.1-3.4).
705	Two column code: 1st Code If kerb hit: KL - left, KR – right. If skidding on gravel shoulder GL – left, GR – right. 2nd Code, device hit: Use codes given in 2.5.1-3.4.
701-707	1st Code, any device or object hit is coded as for 2nd code in 705. 2nd Code, X - if vehicle proceeds across the device into the opposing traffic lanes.
706, 707	see 202.
708	Any device mounted is coded as for 2nd code in 705.
709	Any device or object hit is coded as for 2nd code in 705.
801-804	Codes as for 701-705 plus Supp. code for L, R off.
805	Codes as for 705. Code R or L curve.
808	Any device mounted is coded as for 2nd code in 705.
809	Any device or object hit is coded as for 2nd code in 705.
906	Code animal (see list in 2.5.1-3.4).

Codes to be used when vehicle hits object/device/animal

Object codes

- 1.1. POLE (Telephone, light, electricity)
- 1.2. TREE (Including branches)
- 1.3. FENCE or WALL
- 1.4. LETTER BOX (For posting letters)
- 1.5. TRAM/BUS SHELTER'
- 1.6. TELEPHONE BOX
- 1.7. GUIDE POST
- 1.8. TRAFFIC SIGN (Includes post)
- 1.9. TRAFFIC SIGNAL (Includes pole)
- 1.10. METAL GUARD RAIL/CRASH RAIL - In traffic lanes, shoulders or bike lanes
- 1.11. FIRE HYDRANT
- 1.12. BUILDING, HOUSE
- 1.13. BRIDGE
- 1.14. CULVERT
- 1.15. DITCH, DRAIN (Table drain), GULLY
- 1.16. STREAM, RIVER, LAKE, DAM

- 1.17. CLIFF
- 1.18. EMBANKMENT
- 1.19. MOTOR VEHICLE (Not in traffic lanes, shoulders or bike lanes)
- 1.20. FLOODWATER
- 1.21. ROCKS
- 1.22. ROADWORKS - INCLUDING PILES OF STONES, SAND
- 1.23. POTHOLE
- 1.24. POWER LINES
- 1.25. OTHER
- 1.26. WATER ON ROAD (Not floodwater)
- 1.27. CONCRETE GUARD RAIL
- 1.28. WIRE ROPE BARRIER

Device codes

- 2.1. MEDIAN
- 2.2. SEPARATOR
- 2.3. KERB
- 2.4. TRAFFIC ISLAND
- 2.5. ROUNDABOUT – INCLUDING SPLITTER ISLANDS
- 2.6. SAFETY ZONE
- 2.7. METAL GUARD RAIL - In traffic lanes, shoulders or bike lanes
- 2.8. ATM DEVICE (hump, chicane, etc.)
- 2.9. OTHER
- 2.10. CONCRETE GUARD RAIL
- 2.11. WIRE ROPE BARRIER
- 2.12. PEDESTRIAN FENCING

Animal type codes

- 3.1. STOCK (Cows, sheep, horses etc)
- 3.2. WILD (Kangaroos, Wombats, wild horses etc)
- 3.3. OTHER (Includes dogs, cats, birds)

