



RSA

# FREE SPEED STUDY

## Survey Report 2015

Research Department  
July 2015

Údarás Um Shábháilteacht Ar Bhóithre  
Road Safety Authority

## Free-speed Survey - Overview

### Study Objectives:





To determine the incidence of drivers of all vehicle types driving on Irish roads while speeding, and therefore presenting a road safety risk. Speed surveys are designed to monitor changes in the free speeds of vehicles in both urban and rural areas and to measure drivers' choice of speed. Free speeds is defined as the *speed at which drivers choose to travel when unconstrained by road geometry (e.g. sharp bends, intersections or hills), weather conditions (e.g. rain) or traffic conditions (e.g. congestion).*

### Methodology:

In June 2015, Nationwide Data Collection conducted an observational study of 17,421 vehicles on behalf of the Road Safety Authority. The surveys took place at the roadside at 92 sites: 38 urban (60km/h or less speed limit) and 54 rural (80km/h or more speed limit) and cars (12,458), rigid goods vehicles (2,588), semi-articulated vehicles (1,599), single decker buses (620), double decker buses (36) and Motorcyclists (120) were observed. Surveys were carried out at the designated locations during working hours (8.30am to 5.30pm), Monday to Friday. Only speeds of vehicles that were unconstrained - speeds derived from vehicles with a headway / gap of at least 200 metres on roads where it was possible to exceed the speed limit - were recorded.

The target sample size for surveys on urban national roads was: 140 cars, 90 rigid vehicles and 30 articulated vehicles; no quotas were allocated for buses surveyed. The target sample size for urban residential and urban arterial roads was 140 cars (no buses, rigid or articulated vehicles were surveyed for these roads).

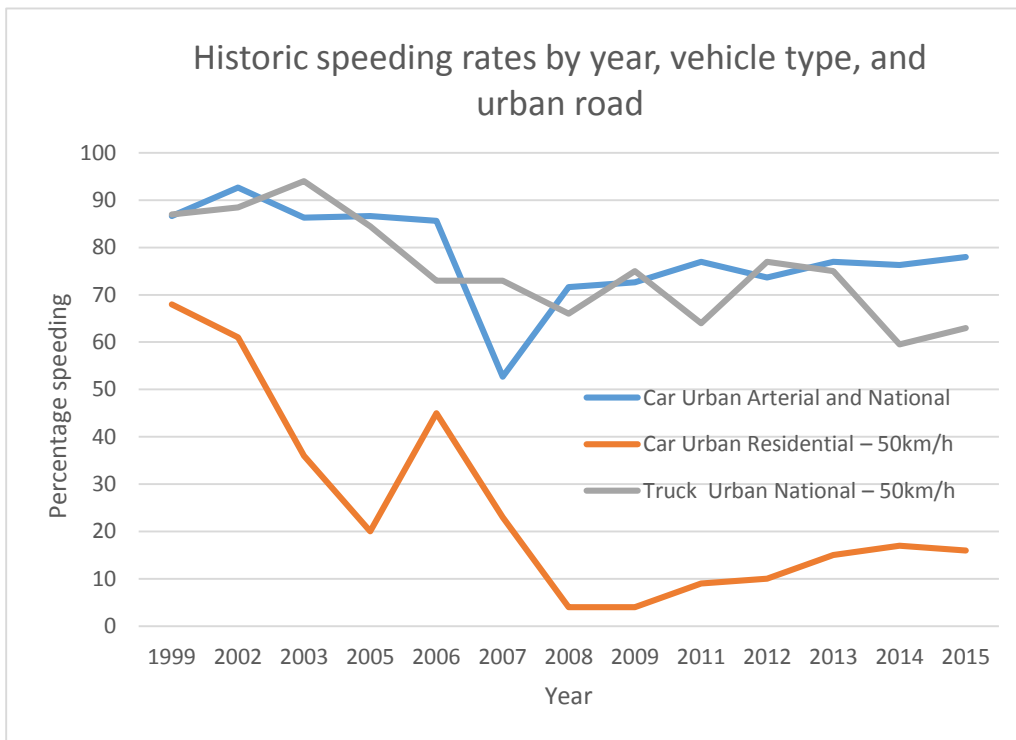
### Key Findings:

- The percentage of car drivers breaking the speed limit on **urban roads** was 60%; when residential roads are excluded, this rises to 74% for all other urban national roads
- The percentage of car drivers breaking the speed limit on **rural roads** was 22%
- The percentage of cars speeding on **motorways** decreased from 28% in 2014 to 21% in 2015
- The percentage of cars speeding on **dual carriageways** decreased from 36% in 2014 to 28% in 2015
- The percentage of cars speeding on **regional 80km/h** roads decreased from 45% in 2014 to 41% in 2015
- Average car free speed:
  - 114km/h in 2015, 115km/h on **motorways** in 2014; posted limit 
  - 95km/h in 2015, 99km/h on **dual carriageways** in 2014; posted limit 
  - 67km/h in 2015, 66km/h on **urban arterial roads** in 2014; posted limit 
  - 58km/h in 2015, 58 km/h on **urban national roads** in 2014; posted limit 

## Speeding on urban roads

Speeding here is defined as driving at a speed greater than the ordinary speed limit for the particular vehicle on the particular road, e.g. the speed limit for a truck is 90km/h on motorways with a posted speed limit of 120km/h (see appendix 5). Of those vehicles surveyed 42% (5,245) of cars, 19% (487) of rigid trucks, 19% (311) of articulated trucks, and 18% (110) of buses were on urban roads.

- 60% of all **cars** observed on all urban roads were speeding;
- 45% of all **rigid trucks** observed on all urban roads were speeding;
- 50% of all **articulated trucks** observed on all urban roads were speeding;
- 41% of all **single decker buses** observed on all urban roads were speeding



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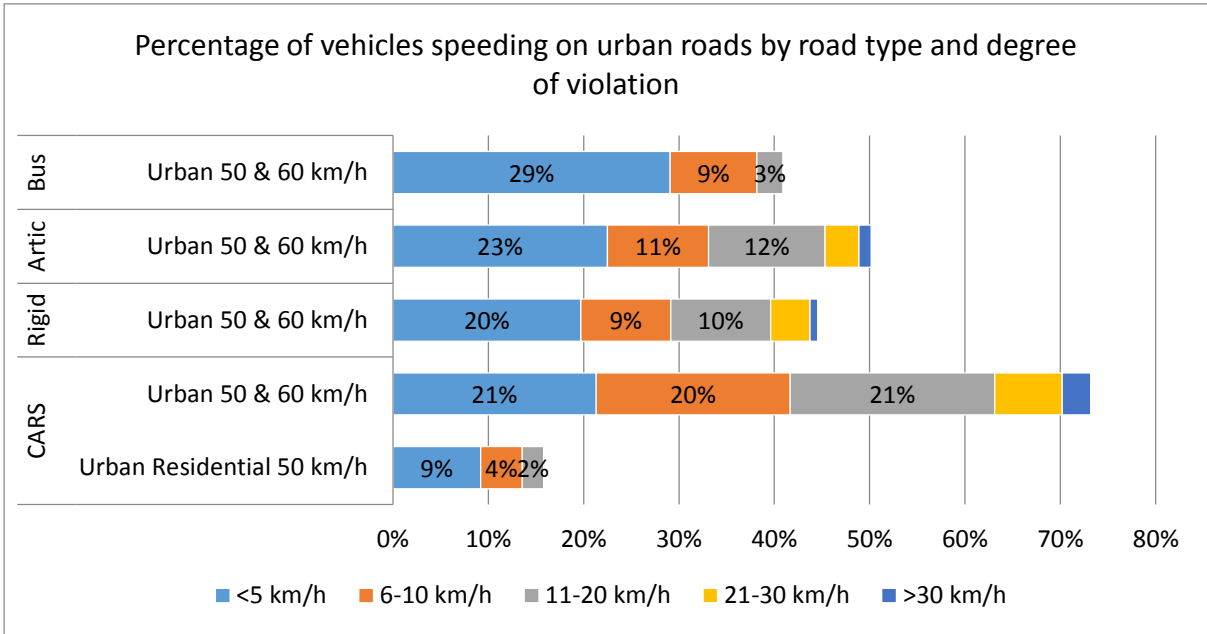
945 CARS WERE SPEEDING IN URBAN ARTERIAL ROADS WITH A SPEED LIMIT OF 50 KM/H. OF THESE, EIGHT WERE DRIVING OVER 90KM/H WITH ONE DRIVING AT 99KM/H

### 30km per hour speed zones:

There was one Urban National site with 140 observations and four Urban Residential sites with 485 observations of cars, one site was near a school but it wasn't at term time.

At the Urban National location, only 1 out of the 140 cars sampled was travelling under the 30 km/h speed limit.

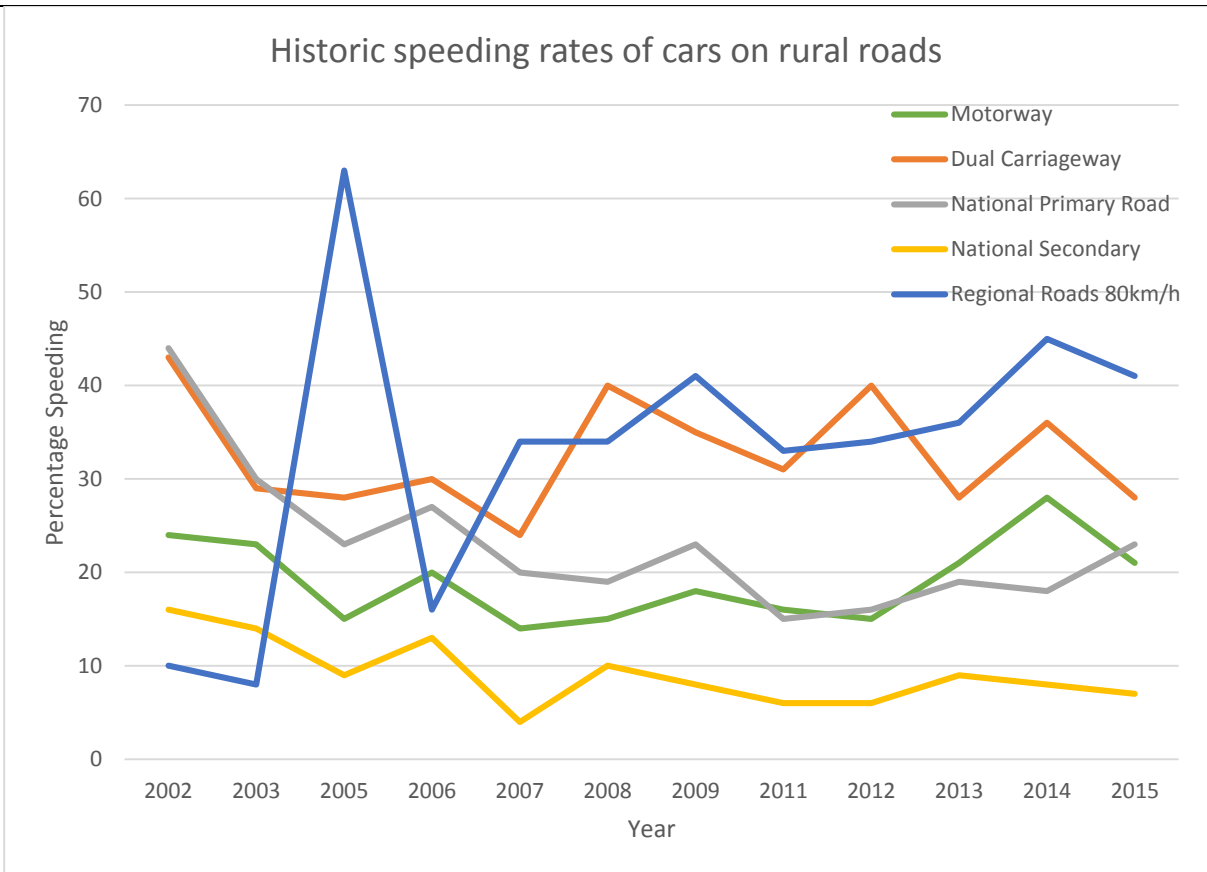
At one of the Urban Residential locations, a vehicle was recorded travelling at 58km/h.

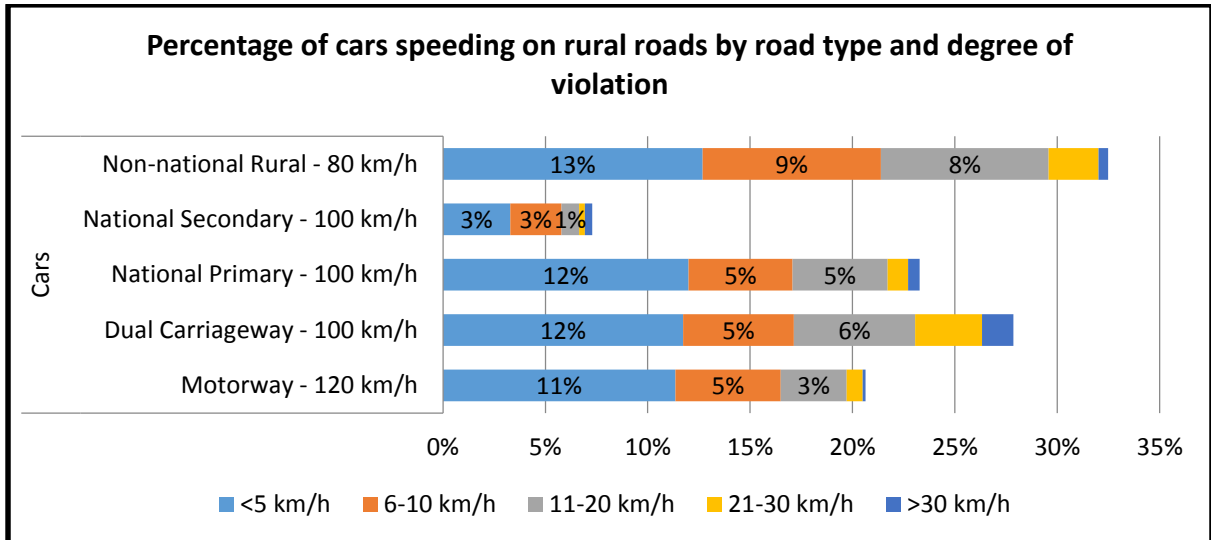


### Speeding on rural roads

58% (7,213) of cars, 81% (2,101) of rigid trucks, 81% (1,288) of articulated trucks, and 82% (510) of buses surveyed were on rural roads.

- 22% of all **cars** observed on all rural roads were speeding;
- 29% of all **rigid trucks** observed on all rural roads were speeding;
- 42% of all **articulated trucks** observed on all rural roads were speeding;
- 31% of all **single decker buses** observed on all rural roads were speeding

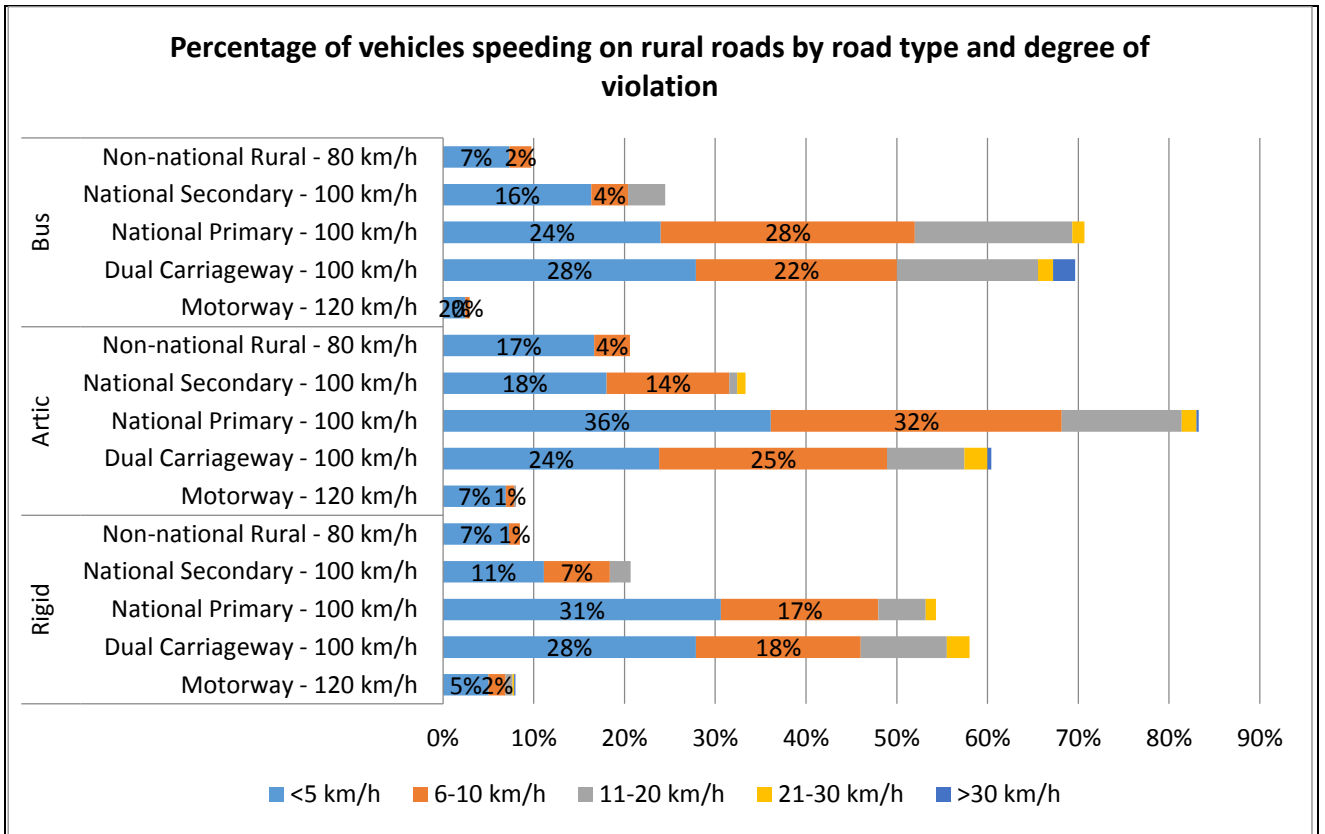




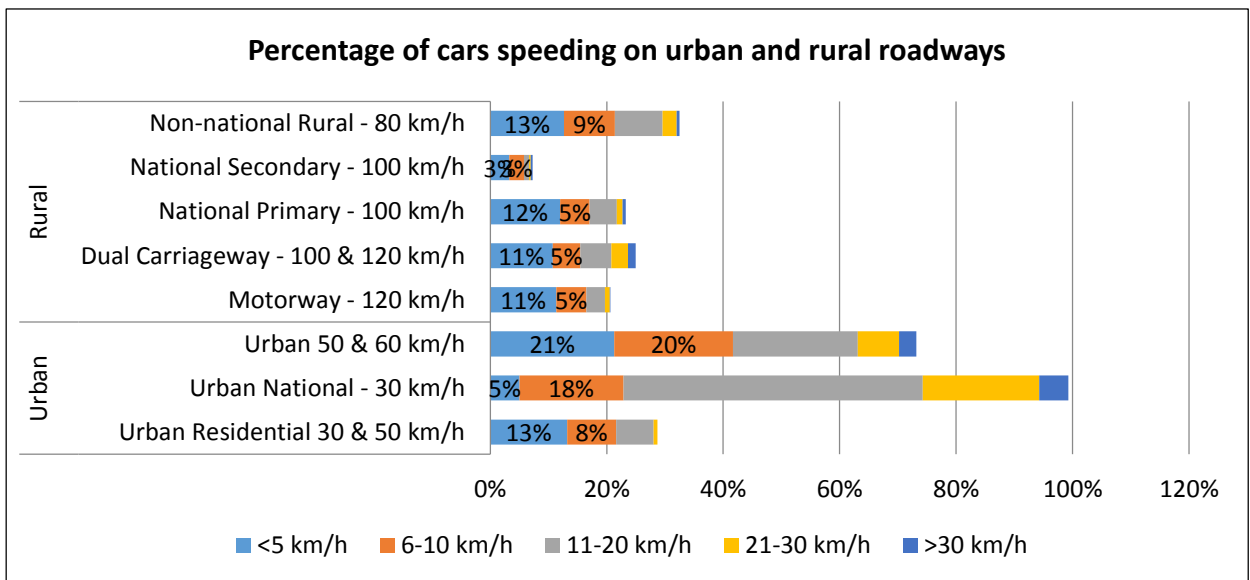
*At one Dual Carriageway site the default speed limit was 120 km/h, there was 140 observations of cars and 95% of cars were travelling under the speed limit. With two cars found travelling at 134 km/h.*

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ONE DRIVER WAS TRAVELLING AT **140KM/H** ON AN 80KM/H LOCAL ROAD, WHICH IS 1.8 TIMES OVER THE SPEED LIMIT  
**47 CARS** WERE DRIVING OVER 120KM/H ON DUAL CARRIAGEWAYS WITH THE HIGHEST SPEED RECORDED AT **144KM/H**  
**2 CARS** WERE DRIVING OVER 150KM/H ON MOTORWAYS WITH THE HIGHEST SPEED RECORDED AT **158KM/H**



*Articulated trucks on National Primary Roads exceeded the speed limit by the greatest margin, with 15% travelling at 11-20km/h over the limit.*



### Who's up and who's down: Speeding by cars

Historic speeding rates for vehicles and road types can be found in the tables in appendix 2 and 3.

The following urban location changes are:

Urban National – 50km/h and urban residential – 50km/h decreased by 1%

Urban National – 60km/h and Urban Arterial – 60km/h increased by 5%

Urban Arterial – 50km/h increased by 1%

Urban Residential – 30km/h increased by 9%

The following rural location changes are:

Motorway – 120km/h decreased by 7%

Dual Carriageway – 100km/h decreased by 8%

National Primary – 100km/h increased by 5%

National Secondary - 100km/h decreased by 1%

Regional Roads – 80km/h decreased by 4%

Appendix 1

Detailed Tables - Free-speed by Road Type 2015

<i>Cars</i>	Sample No.	No. Speeding	% Speeding	Avg. Speed (km/h)	Percentile Free Speed	
					50th	85th
<i>Road Type – km/h</i>						
Urban National - 30	140	139	99.3	46	45	53
Urban National - 50	700	526	75.1	58	56	69
Urban National - 60	700	356	50.9	62	61	70
Urban Arterial - 50	1120	945	84.4	60	59	70
Urban Arterial - 60	980	735	75.0	67	66	77
Residential - 30	485	283	58.4	33	32	42
Residential - 50	1120	178	15.9	42	42	51
Motorways - 120	1400	289	20.6	114	114	123
Dual Carriageways - 100	980	273	27.9	95	94	106
Dual Carriageways - 120	140	7	5.0	105	104	115
National Primary Road - 100	1400	326	23.3	94	93	103
National Secondary Road - 100	1400	102	7.3	83	82	94
Regional Roads - 80	924	380	41.1	78	78	90
Local Roads – 80	969	235	24.3	72	70	86

<i>Articulated Trucks</i>	Sample No.	No. Speeding	% Speeding	Avg. Speed (km/h)	Percentile Free Speed	
					50th	85th
<i>Road Type – km/h</i>						
Urban National - 50	169	111	65.7	56	53	67
Urban National - 60	142	45	31.7	57	57	65
Motorways - 120	434	35	8.1	84	85	89
Dual Carriageways - 100	235	142	60.4	81	83	89
Dual Carriageways - 120	35	14	40.0	76	76	84
National Primary Road - 100	371	309	83.3	85	85	91
National Secondary Road - 100	111	37	33.3	76	75	86
Regional Roads - 80	63	17	27.0	76	75	82
Local Roads – 80	39	4	10.3	64	63	74



<i>Rigid Trucks</i>	Sample No.	No. Speeding	% Speeding	Avg. Speed (km/h)	Percentile Free Speed	
<i>Road Type – km/h</i>					50th	85th
Urban National - 50	268	162	60.4	55	53	66
Urban National - 60	219	55	25.1	56	56	62
Motorways - 120	639	51	8.0	83	84	88
Dual Carriageways - 100	517	300	58.0	81	82	89
Dual Carriageways - 120	90	40	44.4	78	79	86
National Primary Road - 100	346	188	54.3	81	81	88
National Secondary Road - 100	261	54	20.7	74	73	82
Regional Roads - 80	153	17	11.1	70	70	80
Local Roads – 80	95	4	4.2	63	63	71

<i>Single Decker Buses</i>	Sample No.	No. Speeding	% Speeding	Avg. Speed (km/h)	Percentile Free Speed	
<i>Road Type – km/h</i>					50th	85th
Urban National - 50	36	16	44.4	50	49	58
Urban National - 60	74	29	39.2	59	59	64
Motorways - 120	205	6	2.9	90	91	98
Dual Carriageways - 100	122	85	69.7	84	84	92
Dual Carriageways - 120	18	0	0	93	94	97
National Primary Road - 100	75	53	70.7	85	85	92
National Secondary Road - 100	49	12	24.5	73	73	82
Regional Roads - 80	26	3	11.5	73	74	80
Local Roads – 80	15	1	6.7	56	58	70

Appendix 2

Percentage speeding (Urban) 1999 to 2015

Vehicle Class	1999	2002	2003	2005	2006	2007	2008	2009	2011	2012	2013	2014	2015
<i>Urban National – 30 km/h</i>													
Car	-	-	-	-	-	-	-	-	-	-	-	-	99.3
Articulated	-	-	-	-	-	-	-	-	-	-	-	-	-
Rigid	-	-	-	-	-	-	-	-	-	-	-	-	-
S.D. Buses	-	-	-	-	-	-	-	-	-	-	-	-	-
Motor Cycle	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Urban National – 50 km/h</i>													
Vehicle Class	1999	2002	2003	2005	2006	2007	2008	2009	2011	2012	2013	2014	2015
Car	94	97	98	89	82	86	78	83	82	85	82	76	75
Articulated	89	92	92	89	69	74	68	77	64	78	77	63	66
Rigid	85	85	96	80	77	72	64	73	64	76	73	56	60
S.D. Buses	-	-	-	79	74	80	-	-	-	89	77	61*	44
Motor Cycle	-	-	-	-	88	-	-	-	-	-	100	75*	77*
<i>Urban National – 60 km/h</i>													
Vehicle Class	1999	2002	2003	2005	2006	2007	2008	2009	2011	2012	2013	2014	2015
Car	-	-	-	-	-	-	-	-	-	-	61	46	51
Articulated	-	-	-	-	-	-	-	-	-	-	29	31*	32
Rigid	-	-	-	-	-	-	-	-	-	-	32	26	25
S.D. Buses	-	-	-	-	-	-	-	-	-	-	22	34*	39
Motor Cycle	-	-	-	-	-	-	-	-	-	-	-	-	33*
<i>Urban Arterial – 50 km/h</i>													
Vehicle Class	1999	2002	2003	2005	2006	2007	2008	2009	2011	2012	2013	2014	2015
Car	99	99	86	91	86	40	70	68	77	74	81	83	84
Articulated	-	-	-	-	-	-	-	-	-	-	-	-	-
Rigid	-	-	-	-	-	-	-	-	-	-	-	-	-
S.D. Buses	-	-	-	-	-	-	-	-	-	-	-	-	-
Motor Cycle	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Urban Arterial – 60 km/h</i>													
Vehicle Class	1999	2002	2003	2005	2006	2007	2008	2009	2011	2012	2013	2014	2015

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Car	67	82	75	80	89	32	67	67	72	62	68	70	75
Articulated	-	-	-	-	-	-	-	-	-	-	-	-	-
Rigid	-	-	-	-	-	-	-	-	-	-	-	-	-
S.D. Buses	-	-	-	-	-	-	-	-	-	-	-	-	-
Motor Cycle	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Urban Residential – 30 km/h</i>													
Vehicle Class	1999	2002	2003	2005	2006	2007	2008	2009	2011	2012	2013	2014	2015
Car	-	-	-	-	-	-	-	-	-	-	57	49*	58
Articulated	-	-	-	-	-	-	-	-	-	-	-	-	-
Rigid	-	-	-	-	-	-	-	-	-	-	-	-	-
S.D. Buses	-	-	-	-	-	-	-	-	-	-	-	-	-
Motor Cycle	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Urban Residential – 50 km/h</i>													
Vehicle Class	1999	2002	2003	2005	2006	2007	2008	2009	2011	2012	2013	2014	2015
Car	68	61	36	20	45	23	4	4	9	10	15	17	16
Articulated	-	-	-	-	-	-	-	-	-	-	-	-	-
Rigid	-	-	-	-	-	-	-	-	-	-	-	-	-
S.D. Buses	-	-	-	-	-	-	-	-	-	-	-	-	-
Motor Cycle	-	-	-	-	-	-	-	-	-	-	-	-	-

\*Small sample size; S.D. Buses = Single Decker Buses

Appendix 3

Percentage Speeding (Rural) 1999 to 2015

<i>Motorway – 120 km/h</i>													
Vehicle Class	1999	2002	2003	2005	2006	2007	2008	2009	2011	2012	2013	2014	2015
Car	29	24	23	15	20	14	15	18	16	15	21	28	21
Articulated	81	81	85	94	89	86	91	77	86	85	81	9^	8
Rigid	74	82	83	88	85	70	83	72	84	78	77	6^	8
S.D. Buses	-	-	-	100	0	70	87	85	95	94	96	3	3
Motor Cycle	-	-	-	-	-	-	-	-	-	-	9	7*	19*
<i>Dual Carriageway – 100 km/h</i>													
Vehicle Class	1999	2002	2003	2005	2006	2007	2008	2009	2011	2012	2013	2014	2015
Car	52	43	29	28	30	24	40	35	31	40	28	36	28
Articulated	78	70	60	87	69	54	63	69	75	74	76	80	60
Rigid	65	67	55	78	68	48	59	61	59	69	70	62	58
S.D. Buses	-	-	-	77	63	77	59	82	76	88	78	88*	70
Motor Cycle	-	-	-	-	-	-	-	-	-	-	18	20*	17*
<i>Dual Carriageway – 120 km/h</i>													
Vehicle Class	1999	2002	2003	2005	2006	2007	2008	2009	2011	2012	2013	2014	2015
Car	-	-	-	-	-	-	-	-	-	-	-	-	5
Articulated	-	-	-	-	-	-	-	-	-	-	-	-	40
Rigid	-	-	-	-	-	-	-	-	-	-	-	-	44
S.D. Buses	-	-	-	-	-	-	-	-	-	-	-	-	0
Motor Cycle	-	-	-	-	-	-	-	-	-	-	-	-	0
<i>National Primary Road – 100 km/h</i>													
Vehicle Class	1999	2002	2003	2005	2006	2007	2008	2009	2011	2012	2013	2014	2015
Car	51	44	30	23	27	20	19	23	15	16	19	18	23
Articulated	75	74	73	83	87	64	70	67	65	70	71	75	83
Rigid	66	61	72	76	76	48	57	57	52	53	60	64	54
S.D. Buses	-	-	-	76	78	71	60	78	44	49	59	69*	71
Motor Cycle	-	-	-	-	-	-	-	-	-	-	-	50*	44*
<i>National Secondary Road – 100 km/h</i>													
Vehicle Class	1999	2002	2003	2005	2006	2007	2008	2009	2011	2012	2013	2014	2015
Car	18	16	14	9	13	4	10	8	6	6	9	8	7
Articulated	19	37	34	48	58	25	49	41	31	32	37	47	33
Rigid	27	29	46	30	41	13	28	33	25	21	27	35	21
S.D. Buses	-	-	-	38	20	16	19	26	15	10	24	29*	25
Motor Cycle	-	-	-	-	-	-	-	-	-	-	-	67*	0

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<i>Regional Roads – 80 km/h</i>													
Vehicle Class	1999	2002	2003	2005	2006	2007	2008	2009	2011	2012	2013	2014	2015
Car	-	10	8	63	16	34	34	41	33	34	36	45	41
Articulated	-	39	17	45	9	30	21	26	8	2	0	29*	27
Rigid	-	42	22	45	22	22	14	21	6	10	6	17*	11
S.D. Buses	-	-	-	9	0	16	0	-	0	15	-	27*	12
Motor Cycle	-	-	-	-	-	-	-	-	-	-	-	-	50*
<i>Local Roads – 80 km/h</i>													
Vehicle Class	1999	2002	2003	2005	2006	2007	2008	2009	2011	2012	2013	2014	2015
Car	-	7	10	37	22	30	21	15	15	13	17		24
Articulated	-	-	-	-	-	10	5	2	0	0	0		10
Rigid	-	-	-	-	-	17	10	3	3	1	3		4
S.D. Buses	-	-	-	-	-	-	5	-	0	0	-		7
Motor Cycle	-	-	-	-	-	-	-	-	-	-	-	-	20*

\*Small sample size; S.D. Buses = Single Decker Buses; ^ please see page 14 for methodological note

## Appendix 4

## Breakdown of sites by road type and speed limit, 2015

Road Type	Speed Limit km/h	Number of Sites	Number of Observations*
<i>Urban Sites</i>			
Urban national	30	1	140
Urban national	50	5	1186
Urban national	60	5	1158
Arterial	50	8	1120
Arterial	60	7	980
Residential	30	4	485
Residential	50	8	1120
<i>Rural Sites</i>	Total	38	6189
Motorway	120	10	2721
Dual Carriageway	100	7	1884
Dual Carriageway	120	1	292
National Primary	100	10	2213
National Secondary	100	10	1829
Regional	80	7	1170
Local	80	9	1123
	Total	54	11232

\*All vehicles

## Appendix 5

### Survey Details

The same sites were chosen as in previous surveys, where the sites were chosen according to the following criteria:

- Long, straight sections of roadway;
- Carriageway of at least seven metres (except for urban residential);
- Sites where speed is relatively unaffected by geometry, traffic, traffic lights, traffic calming measures, junctions, road works or parking;
- Sites where it is feasible to drive faster than the speed limit.

### Methodology

Nationwide Data Collection (NDC) on behalf of the Road Safety Authority carried out national surveys in relation to traffic speeds in 2015. Survey results are used to monitor trends, determine the effectiveness of safety initiatives and to inform the on-going review of public policy in relation to road safety.

The methodology developed for and used by the Road Safety Authority in all previous surveys is applied to this survey. Speed surveys are conducted annually at randomly selected sites on the Irish road network to provide an estimate of the speed at which drivers choose to travel. The target population is the entire Irish road network. There were 54 rural road sites and 38 urban road sites surveyed.

On urban arterial roads, speeds were measured between 5.30am and 7.30am. However, in some locations in Dublin, few readings of vehicles were taken after 7.00am, as the traffic conditions could not be described as free-flowing. The speed measurements on residential roads were carried out in normal daylight hours (typically between 8.30am and 5.30pm). For national roads, the speeds of cars, rigid and articulated vehicles were recorded separately.

All surveys were carried out in dry conditions. Speed was measured with calibrated radar meters. Surveyors were instructed to choose vehicles in a random manner to avoid bias. Where a cluster of vehicles arrived together, the speed of the first vehicle only was taken. Every effort was made for surveyors to be as inconspicuous as possible. Surveyors had set targets for vehicle classes. They were instructed to continue surveying until either

- a. these targets were reached or
- b. for a maximum of 2.5 hours, whichever occurred earlier

Due to low sample sizes, no figures are provided for double decker buses and caution should be taken in the interpretation of results provided for single decker buses, as they are based on very limited sample sizes.

## Legal speed limits by vehicle type

Type of Vehicle	Built up Areas	Regional or Local Roads	Ordinary Speed limit on National Roads (Primary or Secondary)	Ordinary Speed limit on a Dual Carriageway	Ordinary Speed limit on a Motorway
Car or Motorcycle	50 km/h	80 km/h	100km/h	100 km/h	120 km/h
Bus	50 km/h	80 km/h	80 km/h	80 km/h	100 km/h
Bus (designed to carry standing passengers)	50 km/h	65 km/h	65 km/h	65 km/h	65 km/h
Truck	50 km/h	80 km/h	80 km/h	80 km/h	90 km/h

Some drivers must obey speed limits for the particular vehicles they drive. If vehicle and road speeds are different, the driver must obey the lower of the two.

Methodological note: There was change in speed limits for vehicles with a design gross weight of more than 3,500kg on motorways from 80km/h to 90km/h. This change has resulted in a large drop in the numbers of rigid and articulated vehicles recorded as speeding on motorways and should be taken into account when quoting the historic figures.



# Working To Save Lives

## Údarás Um Shábháilteacht Ar Bhóithre Road Safety Authority

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