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Research Note 3

## **Speeding fines**

This is the first report to collate the total amount of money generated from fixed penalties caught on speed cameras and fines for speeding and neglect of traffic directions imposed by the magistrates' courts throughout all of the UK. Previous attempts to collate speeding fine figures have not accounted for fines accrued in magistrates' courts or an aggregate figure for the UK. Speed camera and speeding fines income for England, Wales, Scotland and Northern Ireland can be found in Section 1 of this report.

Fines from speeding offences, particularly those caught by speed cameras, are a contentious issue for those who question the effectiveness of speed cameras in improving road safety. This report presents new analysis, which shows that since the implementation of speed cameras and the increasing focus on speed in road safety policy, road casualty rates have declined more slowly. For the first time a robust statistical test shows that the change in the trend is statistically significant. The slower rate of decline in road casualties has meant that more road casualties have occurred than would be expected based on the road casualty rate prior to the introduction of speed cameras. Analysis of road casualties is in Section 2 of this report.

Swindon is the first town in Britain to scrap speed cameras and has seen no increase in road accidents since.<sup>1</sup> The new coalition government also announced that it would end funding for new fixed speed cameras.<sup>2</sup> The evidence in this report will contribute to the debate if other authorities should follow Swindon's example and scrap the use of speed cameras.

## Key Findings:

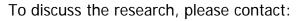
A total of £87,368,227 was collected in speeding and red light offences caught on speed cameras in the financial period 2008-09 in the UK. This also includes fines from magistrates' courts for speeding offences and neglect of traffic directions in 2008.

<sup>&</sup>lt;sup>1</sup> James Tozer, 'Town that scrapped 'motorist tax' speed cameras sees no increase in accident', *Daily Mail*, 24<sup>th</sup> April 2010.

<sup>&</sup>lt;sup>2</sup> David Millward, 'Coalition government: Transport Secretary Philip Hammond ends Labour's 'war on motorists', *The Daily Telegraph*, 14<sup>th</sup> May 2010.



- The total includes £65,748,850 from fixed penalties detected by cameras operated by safety camera partnerships in England and Wales.
- It also includes £19,214,594 in fines from magistrates' courts for speeding offences and neglect of traffic directions in calendar year 2008 in England and Wales.
- It also includes £1,641,630 collected for speeding offences by the Scottish Courts in 2008-09.
- It also includes £763,153 from fixed penalties detected by speed cameras in Northern Ireland.
- The road casualty rate has declined at a slower rate since speed cameras were introduced in the early 1990s.
- Using the road casualty rate from 1978-1990 it can be estimated that 1,555,244 more road casualties have occurred from 1991-2007,<sup>3</sup> than would have if the 1978-1990 trend had continued.



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<sup>&</sup>lt;sup>3</sup> Passenger kilometres statistics needed to calculate the casualty rate are only available until 2007 from Department for Transport.



## Speed camera income: who is accountable?

Throughout the UK speed cameras are operated and deployed by safety camera partnerships usually made up of the police, local authorities and HM Courts. Income from speed cameras has never been retained by the partnerships and prior to 2007 they reclaimed their costs of processing fines from the Department for Transport (DfT) – a system known as "netting off". This meant that prior to 2007 the DfT collated the total amount raised in fines from speeding and red light offences caught on cameras.

However in 2007 this system was abolished. Under the new system the partnerships obtain a fixed amount from the Road Safety Grant.<sup>4</sup> The change in how partnerships are funded has made it very difficult to obtain records of how much money is generated through speed cameras. The DfT no longer administer the reclaimed costs of the safety camera partnerships and therefore no longer collate the amount of money raised in fines.

The partnerships themselves claim to have little record of the amount of fines processed but some partnerships could give information about the amount of fines issued. However, as many of the partnerships stated, a proportion of drivers pay a fixed penalty for the original offence. Others are summoned for the offence, others go on an awareness course and others are cancelled due to being cleared or because no offender is traced within six months.

A Freedom of Information (FOI) request was sent to the Treasury - as all income for speeding fines is retained centrally - who also refused the request. Their refusal stated that "Although, I can confirm that those fines and fixed penalties related to speeding offences captured by safety cameras in 2007-08 and 2008-09 were paid to HM Treasury, following collection by HM Court's Service; this income is not disaggregated to identify it separately from other fines and fixed penalties".

Based on this response a FOI request was sent to the Ministry of Justice (MoJ) requesting how much money was obtained by Her Majesty Courts Service (HMCS) through speeding offences. The MoJ provided information about the receipts of monies resulting from fixed penalties issued in connection with traffic offences – speeding and red light offences - detected by cameras operated by safety camera partnerships for financial years 2007-08 and 2008-09. Also provided were magistrates' courts' fines relating to speeding and neglect of traffic directions – contravening stop and double white lines – imposed by police forces in the calendar years 2007 and 2008.

A FOI was also sent to the Scottish Court Service for the total amount obtained in speeding fines for 2007-08 and 2008-09. Information could only be provided for 2008-09 as the

<sup>&</sup>lt;sup>4</sup> http://www.dft.gov.uk/pgr/roadsafety/secroadsafetygrants/



Scottish Court Service only took over the responsibility of collecting fixed penalty notices when the district courts were unified in March 2008. South Strathclyde, Dumfries and Galloway have not yet unified. Tables showing all the fines paid are on the following pages and the FOI requests sent to the MoJ and the Scottish Court Service are on pages 17-19.

Table 1: Top 10 areas with highest speeding fines caught on speed cameras in the UK

Area	2008-09 (£)
London - 2 police force areas (Metropolitan and City)	6,265,860
Avon and Somerset	3,491,340
Mid and South Wales - 3 police force areas (Gwent, Dyfed, Powys and S Wales)	2,915,340
Greater Manchester	2,876,280
Thames Valley	2,861,880
West Mercia	2,795,340
Nottinghamshire	2,380,980
Lancashire	2,238,960
Hertfordshire	2,168,280
Northumbria	2,130,000

Table 2: Bottom 10 areas with the lowest speeding fines caught on speed cameras in the UK

Area	2008-09 (£)
Lothian & Borders	892,620
Cheshire	800,580
Northern Ireland	763,153
Derbyshire	762,960
Cleveland	597,480
Grampian Highland & Islands	577,110
South Yorkshire	481,560
Gloucestershire	323,400
Tayside Central & Fife	92,520
Glasgow & Strathkelvin	79,380

Table 3: Total amount of fixed penalties from speeding and red light offences detected by safety camera partnership operated cameras by financial year

Partnerships	2007-08 (£)	2008-09 (£)
Avon and Somerset	3,537,960	3,491,340
Bedfordshire and Luton	1,605,060	1,119,000
Cambridgeshire	1,113,290	896,880
Cheshire	1,503,180	800,580
Cleveland	577,560	597,480
Cumbria	1,543,200	1,693,680
Derbyshire	1,302,240	762,960
Devon and Cornwall	1,654,140	1,414,560



Partnerships	2007-08 (£)	2008-09 (£)
Dorset	2,005,200	1,591,920
Essex	2,002,740	1,403,400
Gloucestershire	437,340	323,400
Greater Manchester	2,568,360	2,876,280
Hampshire and The Isle of Wight	2,312,040	1,708,320
Hertfordshire	2,480,280	2,168,280
Humberside	1,538,160	984,900
Kent and Medway	1,902,420	1,372,740
Lancashire	2,714,940	2,238,960
Leicestershire	1,451,160	1,058,880
Lincolnshire	1,099,560	1,357,260
London - 2 police force areas (Metropolitan and City)	5,578,800	6,265,860
Merseyside	1,168,860	1,657,380
Mid and South Wales - 3 police force areas (Gwent, Dyfed, Powys and S Wales)	3,251,640	2,915,340
Norfolk	1,238,820	895,320
North Wales	1,949,160	1,486,860
Northamptonshire	1,433,640	923,220
Northumbria	2,051,160	2,130,000
Nottinghamshire	2,509,560	2,380,980
South Yorkshire	1,767,240	481,560
Staffordshire	1,229,640	1,034,700
Suffolk	1,457,700	1,752,060
Surrey	1,850,520	1,723,260
Sussex	2,348,460	1,834,270
Thames Valley	2,545,320	2,861,880
Warwickshire	1,514,700	1,249,740
West Mercia	2,643,060	2,795,340
West Midlands	2,387,580	2,065,620
West Yorkshire	1,977,600	1,702,800
Wiltshire and Swindon	1,776,840	1,731,840
Total	74,029,130	65,748,850

# Table 4: Magistrates' courts speeding and neglect of traffic direction offences imposed by police force by calendar year

Police Force	2007 (£)	2008 (£)
Avon and Somerset	784,337	628,735
Bedfordshire	346,338	264,946
Cambridgeshire	566,451	576,555
Cheshire	399,226	411,357
City of London	607,241	44,628
Cleveland	140,003	116,808
Cumbria	466,211	368,514
Derbyshire	390,814	317,685



Police Force	2007 (£)	2008 (£)
Devon and Cornwall	645,961	556,492
Dorset	264,401	276,612
Durham	81,182	94,955
Dyfed Powys	127,018	157,358
Essex	817,805	798,592
Gloucestershire	165,204	104,411
Greater Manchester	598,419	815,527
Gwent	361,418	107,312
Hampshire	618,492	606,396
Hertfordshire	330,991	349,373
Humberside	283,610	91,430
Kent	541,745	349,870
Lancashire	762,674	833,112
Leicestershire	311,019	422,747
Lincolnshire	374,309	498,303
Merseyside	316,254	279,250
Metropolitan	982,807	2,038,697
Norfolk	443,260	441,915
North Wales	403,230	438,462
North Yorkshire	390,739	537,509
Northamptonshire	234,876	151,478
Northumbria	390,386	427,529
Nottinghamshire	593,767	530,952
South Wales	269,920	279,926
South Yorkshire	464,043	246,041
Staffordshire	552,791	460,593
Suffolk	402,184	487,080
Surrey	633,774	519,888
Sussex	497,712	446,929
Thames Valley	650,455	609,392
Warwickshire	228,318	156,135
West Mercia	447,909	398,215
West Midlands	557,303	529,135
West Yorkshire	712,897	628,301
Wiltshire	920,291	815,449
Total	20,077,785	19,214,594



Table 5: Total amount of fixed penalties from speeding offences detected by cameras in Scotland

Sheriffdom	2008-09 (£)
Grampian Highland & Islands	577,110
Lothian & Borders	892,620
Glasgow & Strathkelvin	79,380
Tayside Central & Fife	92,520
South Strathclyde, Dumfries & Galloway	-
North Strathclyde	-
Total	1,641,630

Table 6: Total amount of fixed penalties from speeding offences by Scottish Courts

Court	2008-09 (£)
Glasgow JP	79,380
Inverness JP	180,450
Aberdeen JP	187,800
Dingwall JP	1,800
Peterhead JP	1,680
Banff JP	8,640
Dornoch JP	4,140
Tain JP	5,100
Fort William JP	6,570
Stornoway JP	90
Stonehaven JP	177,540
Wick JP	1,440
Elgin JP	1,860
Duns JP	112,980
Edinburgh JP	606,960
Selkirk JP	81,600
Jedburgh JP	11,280
Haddington JP	6,180
Peebles JP	11,520
Livingston JP	62,100
Falkirk JP	20,820
Dunfermline JP	12,960
Perth JP	9,300
Cupar JP	4,680
Kirkcaldy JP	8,220
Forfar JP	4,260
Alloa JP	540
Stirling JP	23,400
Dundee JP	7,320
Arbroath JP	1,020
Total	1,641,630



Table 7: Total amount of fixed penalties from speeding offences detected by cameras in Northern Ireland

Police Service of Northern Ireland	Total (£)
2007-08	734,820
2008-09	763,153



## Speed camera effectiveness

This report looks at the road casualty rate, which is the amount of road casualties per passenger kilometre. Both road casualty statistics and passenger kilometre statistics were obtained from the Department for Transport.<sup>5</sup> A casualty rate is calculated by dividing the number of road casualties by passenger kilometres.

## Table 8: Casualty Rates 1979-2007

Year	Road Casualties	Passenger Kilometres (billion)	Road Casualty Rate
1979	334,513	433	773
1980	326,732	453	721
1981	324,840	458	709
1982	334,331	470	711
1983	308,584	474	651
1984	324,314	495	655
1985	317,524	504	630
1986	321,489	525	612
1987	311,473	560	556
1988	322,305	595	541
1989	341,592	639	535
1990	341,141	645	529
1991	311,368	637	489
1992	310,753	635	489
1993 <sup>6</sup>	306,135	636	481
1994	315,359	666	474
1995	310,687	669	464
1996	320,578	674	476
1997	327,803	685	479
1998	325,212	689	472
1999	320,310	697	460
2000	320,283	695	461
2001	313,309	710	441
2002	302,605	733	413

<sup>&</sup>lt;sup>5</sup> For road casualties see Department for Transport, 'Regional tables on Reported Road Accidents and Casualties' in *Regional Transport Statistics: Current live tables,* 

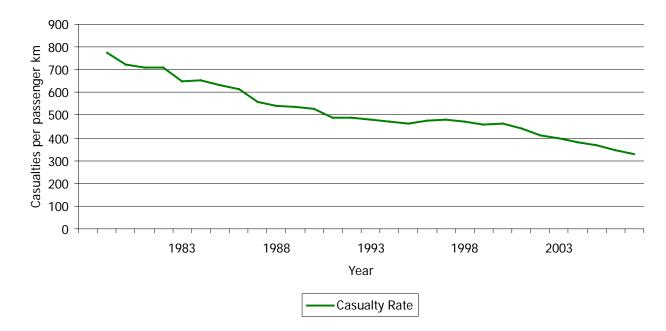
<sup>&</sup>lt;u>http://www.dft.gov.uk/pgr/statistics/datatablespublications/regionaldata/516214/rtslivetables</u>. Please note road casualties are only for Great Britain as road casualty statistics for Northern Ireland are only available after 1986. For passenger kilometres see Department for Transport, 'Section 1 – Modal Comparisons' in *Transport Statistics Great Britain 2009 Edition,* November 2009.

<sup>&</sup>lt;sup>6</sup> There was a change in methodology for measuring passenger kilometres in 1993, which caused a noted increase in passenger kilometres. This increase would lower the casualty rate as the denominator in the casualty rate sum has been increased.



Year	Road Casualties	Passenger Kilometres (billion)	Road Casualty Rate
2003	290,607	731	398
2004	280,840	736	382
2005	271,017	733	370
2006	258,404	746	346
2007	247,780	749	331

The casualty rate was then plotted to produce the following graph:



### Graph 1: Casualty rate 1978-2007

The graph appears to show a change in the trend - in terms of a slower rate of decline - from the early 1990s. Using the trend line equation for period 1978-1990 a projection could be made of the casualty rates if the earlier trend had continued. The figures for the projected casualty rates are shown in the table below.

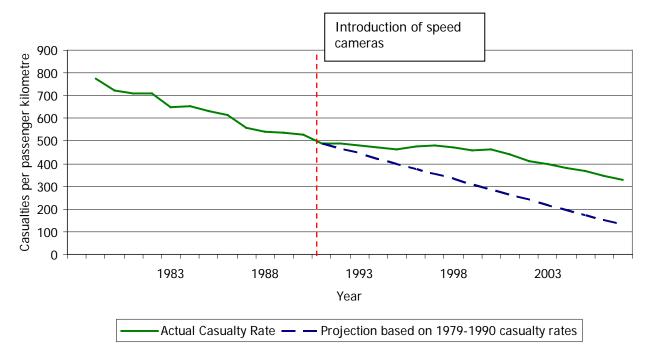
Year	Actual Casualty Rate	Projected Casualty Rate (based on 1978- 1990)	Passenger Kilometres (billions)	Actual minus projected casualties
1991	489	489	637	-110
1992	489	466	635	14,574
1993	481	444	636	23,833
1994	474	421	666	34,761
1995	464	399	669	43,913

#### Table 9: Actual casualties and predicted casualties



Year	Actual Casualty Rate	Projected Casualty Rate (based on 1978- 1990)	Passenger Kilometres (billions)	Actual minus projected casualties
1996	476	376	674	67,011
1997	479	354	685	85,547
1998	472	331	689	97,080
1999	460	309	697	105,249
2000	461	286	695	121,513
2001	441	263	710	126,262
2002	413	241	733	126,030
2003	398	218	731	131,000
2004	382	196	736	136,740
2005	370	173	733	144,036
2006	346	151	746	145,995
2007	331	128	749	151,811
Total				1,555,244

#### Graph 2: Actual casualty rate and predicted casualty rate



The 1978-1990 trend is demonstrated by the dotted blue line in the graph above. The projected casualty rate is obtained by using the line equation for the period 1979 - 1990, which is as follows: Road Casualties =  $45,392 + (Year^{*}-22.553)$ . The figure -22.553 is the decline in the casualty rate for each additional year. The new road casualty rate for each year was then subtracted from the actual road casualty rate and multiplied by the passenger kilometres for the same year. The resulting number for each year is the difference between the actual casualty rate and the projected casualty rate in terms of casualty numbers.



In order to determine if the projected casualty rate based on the 1978-1990 casualty rates is significantly different from the actual casualty rate that occurred after 1990 a statistical test was performed on the two periods, 1978-1990 and 1991-2007.

## The Chow Test (the F Statistic)

A Chow Test was used because we specifically want to look at what happens to the *trend* of casualty rates per passenger kilometre between 1978 and 2007.<sup>7</sup> As we already know from plotting the trend on the graph we can see that casualty rates have been falling since 1978. This decline can be explained by successful road safety policies and technological change, which has made driving safer. The question is whether that improvement has significantly accelerated or decelerated since the introduction of speed cameras in the early 1990s?

This Chow Test examines whether a sample consisting of two subsamples should be combined into a pooled regression, P. Or whether there is a significant improvement from splitting the pooled regression into two subsamples, A (1978-1990) and B (1991-2007). We have two variables in this regression: the year (independent variable); and casualty rates per passenger kilometre (dependent variable).

The Chow Test uses the residual sum of squares (RSS) for the subsample regressions  $RSS_A$  and  $RSS_B$  and the residual sum of squares for the pooled regression  $RSS_P$ . Therefore the RSS for the subsample regressions must fit the subsample regressions significantly better than the pooled regression. The Chow Test is as follows:

$$F(k, n-2k) = \frac{(RSS_p - RSS_A - RSS_B)/k}{(Rss_A + RSS_B)/(n-2k)}$$

- 1. Firstly we regress the whole sample (1978-2007); this is the pooled regression. The RSS for the whole sample is 26,537.38
- 2. We run the same regression for the two subsamples. The RSS for 1978-1990 is 2,426.22 and the RSS for 1991-2007 is 6,273.39. These figures are then added together for the total RSS from the subsample regressions, which is 8,699.61.
- The numerator is the improvement in fit on splitting the sample, divided by the cost (having to estimate two sets of parameters instead of only one). Therefore it is 2,6537.8 – 8,699.61 divided by 2. This equals 8,918.87.
- 4. The denominator is the joint RSS remaining after splitting the sample, divided by the joint number of degrees of freedom remaining. In this case it is 8,699.61 divided by 26

<sup>&</sup>lt;sup>7</sup> For an outline of the Chow Test see Dougherty C. 'The Chow Test', *Introduction to econometrics*, p. 191- 194.



(30 observations less 4 degrees of freedom, because two parameters were estimated in each equation). This equals 334.60.

The calculation is therefore as follows:

$$F(2,26) = \frac{17837.77/2}{8699.61/26} = 26.66$$

The critical value of F (2,26) at the 0.1 significance level is 5.526, so we come to the conclusion that there is a significant improvement in the fit on splitting the sample and that we should not use the pooled regression. The Chow Test shows that the two time periods are different and the slower rate of decline in road casualties from 1991 onwards shows that road safety policy has not been fulfilling its objective.

The regressions are reported on pages 14 – 16.



## Summary outputs for pooled regression 1978-2007

Regression Statistics								
Multiple R	0.965997761							
R Square	0.933151674							
Adjusted R Square	0.93067581							
Standard Error	31.35069401							
Observations	29							
					Significance	_		
	df	SS	MS	F	F	_		
					2.16231E-			
Regression	1	370441.629	370441.629	376.899418	17			
Residual	27	26537.38241	982.866015					
Total	28	396979.0114				_		
		Standard					Lower	
	Coefficients	Error	t Stat	P-value	Lower 95%	Upper 95%	95.0%	Upper 95.0%
				1.3346E-				
Intercept	27441.64973	1386.788609	19.78791111	17	24596.19457	30287.1049	24596.1946	30287.10488
				2.1623E-	-			
X Variable 1	-13.50864764	0.695823577	-19.41389755	17	14.93635967	-12.080936	-14.93636	-12.0809356



## Summary outputs for subsample regression 1978-1990

Regression	Statistics							
Multiple R	0.983727538							
R Square	0.96771987							
Adjusted R Square	0.964491857							
Standard Error	15.57633636							
Observations	12							
	df	SS	MS	F	Significance F	-		
Regression	1	72735.26354	72735.26354	299.788095	8.74383E-09	-		
Residual	10	2426.222543	242.6222543					
Total	11	75161.48609				_		
	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
				7.6257E-				
Intercept	45391.80795	2584.931616	17.56015814	09	39632.22141	51151.3945	39632.22141	51151.39449
				8.7438E-	-			
X Variable 1	-22.55300881	1.302558682	-17.31438984	09	25.45529041	-19.650727	-25.4552904	-19.65072722



## Summary outputs for subsample regression 1991-2007

Regression	Statistics							
Multiple R	0.926386251							
R Square Adjusted R	0.858191486							
Square	0.848737585							
Standard Error	20.45057105							
Observations	17							
					Significance			
	df	SS	MS	F	F			
Regression	1	37965.05495	37965.05495	90.77644143	9.4081E-08			
Residual	15	6273.387844	418.2258563					
Total	16	44238.44279						
	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
				7.02664E-				
Intercept	19719.72279	2023.901891	9.743418331	08	15405.87804	24033.5675	15405.87804	24033.56754
X Variable 1	-9.646326	1.012454134	-9.527667156	9.4081E-08	-11.8043209	-7.4883311	- 11.80432089	- 7.488331105



## Freedom of Information sent to the Ministry of Justice

## Freedom of information request for the amount of fines and fixed penalties imposed through speeding offences and red light offences.

Dear Sir/Madam,

I am writing to obtain information about the total fines imposed on all roads (including motorways) for speeding offences and red light offences; including those caught on safety cameras or caught by the police for financial periods 2007-08 and 2008-09.

To outline my query as clearly as possible, I am requesting:

- 1. All fines imposed for speeding offences and red light offences; this includes fines and fixed penalties paid to the magistrates' courts or the Fixed Penalty Officer.
- 2. All fines and fixed penalties imposed to be broken down by the amount obtained by the areas covered by the 38 Safety Camera Partnerships who deploy and operate speed cameras. For clarity, a list of these Safety Camera Partnerships is attached below. I understand that HMCS is structured into 25 regions, which is dissimilar to the structure of the Safety Camera Partnerships. Therefore if the total fines imposed cannot be broken down in this way I will accept fine and fixed penalties imposed to be broken by the 25 regions structure of HMCS.

My preferred format to receive this information is electronically, but if that is not possible I will gladly accept letters at the address below.

I would be grateful if you would acknowledge receipt of this request as soon as possible.

Kind regards

### Jennifer Dunn

Below please find a list of Safety Camera Partnerships that deploy and operate speed cameras:

Avon & Somerset Bedfordshire & Luton Cambridgeshire Cheshire Cleveland Cumbria Derbyshire Devon & Cornwall Dorset



Essex Gloucestershire **Greater Manchester** Hampshire & The Isle of Wight Hertfordshire Humberside Kent & Medway Lancashire Leicestershire London - 2 police force areas (Metropolitan & City) Merseyside Mid & South Wales - 3 police force areas (Gwent, Dyfed Powys & S Wales) Norfolk North Wales Northamptonshire Northumbria Nottinghamshire South Yorkshire Staffordshire Suffolk Surrey Sussex Thames Valley Warwickshire West Mercia West Midlands West Yorkshire Wiltshire & Swindon

### Freedom of Information Request sent to the Scottish Court Service

## Freedom of information request for gross income obtained through the use of speed cameras

Dear Sir/Madam,

I am writing to obtain information about the gross income obtained on all roads (including motorways) through the use of speed cameras for financial periods 2007-08 and 2008-09.

To outline my query as clearly as possible, I am requesting:

3. All income obtained through speeding offences; this includes fixed penalty charges and income obtained from Scottish courts for speeding offences. If fixed penalty charges income is not available, please continue to provide details for income collected from courts. If income obtained through courts is not available, please continue to provide details for income of fixed penalty charges. Of course where both



fixed penalty charge income and income obtained from courts for speeding offences is available I expect these figures to be provided separately.

4. All income to be broken down by the amount obtained by the 5 Scottish Camera Partnerships who deploy and operate speed cameras. For clarity, a list of these local authorities is attached below. If income cannot be broken down in this way I will accept a single figure for total income obtained from speeding offences from fixed penalty charges and through the courts.

My preferred format to receive this information is electronically, but if that is not possible I will gladly accept letters at the address below. I understand that under the Freedom of Information Act, I am entitled to a response within 20 working days.

I would be grateful if you would acknowledge receipt of this request as soon as possible.

## Kind regards Jennifer Dunn

Below please find a list of local authorities that deploy and operate speed cameras:

Fife Camera Partnership Grampian Camera Partnership Lothian and Border Camera Partnership Strathclyde Camera Partnership Tayside Camera Partnership