

Welsh Assembly Government

Evaluation of the Expenditure and Effectiveness
of the Special Road Safety Grant Issued to
Local Authorities: 2000-2006
Final Technical Report for EIN Committee

Halcrow Group Limited

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Executive Summary

The Special Road Safety Grant was introduced in 2000 in response to concerns regarding the levels of funding specifically for road safety and its effect on casualty numbers. Since the grant was introduced in 2000, approximately £43m has been allocated via the Special Road Safety Grant. This included a £1.5m “Slower Speeds” Grant in 2002/03 and £2.1m for child pedestrian training prior to a separate grant from 2005/06 onwards. The annual sum has risen from £3.66m in the initial year, 2000/01, to £7.44m in 2006/07, all in addition to local authorities highway and traffic engineering budgets.

A total of 72% of the 2005/06 grant has been spent on engineering schemes. Scheme types that have been allocated the most funding are mass action measures (18% of total engineering expenditure), junction improvements (16%) and traffic calming measures (15%). A total of 28% of the 2005/06 grant was spent on Education, training and publicity (ETP) schemes and staff appointments. The ETP schemes with the greatest expenditure are General Publicity (13%), Theatre in Education (12%), Children’s Traffic Club (11%) and Pass Plus (11%).

A total of 390 engineering schemes over £15,000 have been evaluated since the introduction of the grant in 2000. These schemes have recorded an annual average reduction in collisions of 58%, which equates to annual average saving of 372 collisions. The total cost of these schemes is £16.1 million and this has resulted in one-year accident savings of £32.2 million. The schemes that show the highest reduction in KSI casualties are 20mph limits, mini roundabouts and visibility improvements. The most cost-effective engineering measures are warning signs, combined markings and signing schemes and those schemes consisting of a package of measures.

The following recommendations are made based on the key findings of the report:

1. All local authorities should endeavour to allocate a minimum of 20% of their Road Safety Grant allocation to ETP initiatives;
2. Local authorities should be encouraged to develop more road safety initiatives for secondary school pupils;
3. There is a need for local authorities to generate better links between engineering schemes and ETP initiatives. Improvements to the monitoring spreadsheets will assist local authorities when reporting linkages;
4. Local authorities, or specific organisations responsible for delivering ETP initiatives, should be encouraged to undertake more robust evaluations to examine the effectiveness of these measures;
5. Collision data should continue to be scrutinised in detail to understand which schemes have been effective or otherwise at reducing collisions and casualties;
6. That local authorities continue to monitor the collision record of previous schemes. This should provide a beneficial input to future projects;
7. That findings be shared with local authorities to promote good practice.

1 Introduction

1.1 *Background*

1.1.1 Section 39 of the Road Traffic Act (RTA) 1988 places a statutory requirement on each local authority to carry out a programme of measures designed to promote road safety.

1.1.2 Prior to the introduction of the Special Road Safety Grant in 2000, Local Authorities in Wales were able to fund road safety work in three possible ways:

- Transport Grant (TG) for major road engineering schemes;
- Transport Grant (TG) for Safe Routes to Schools;
- The Council's own resources for all other road safety work.

1.2 *Special Road Safety Grant*

1.2.1 The Special Road Safety Grant was introduced in 2000 in response to concerns over the lack of direct funding for Road Safety schemes and its effect on casualty numbers. It is provided to local authorities each year by the Welsh Assembly Government to contribute towards solutions to road safety problems in their respective areas.

1.2.2 Since the grant was introduced in 2000, approximately £43m has been allocated via the Special Road Safety Grant. This included a £1.5m "Slower Speeds" Grant in 2002/03 and £2.1m for child pedestrian training prior to a separate grant from 2005/06 onwards. The annual sum has risen from £3.66m in the initial year, 2000/01, to £7.44m in 2006/07. The grant is in addition to local authorities highway and traffic engineering budgets.

1.2.3 Local authorities are required to submit annual reports with details of the projects undertaken using the grant, including before and after monitoring of collision statistics of measures implemented in previous years using the grant. These reports can be evaluated to assess the effectiveness of expenditure for both the most recent year with completed data, currently 2005/06, and since the grant was introduced in 2000, by

- preparing reports relating to prior expenditure;
- summarising expenditure for different types of schemes and initiatives;
- clarifying the effect of the grant in terms of outputs (work implemented) and outcomes (collision/casualty reduction).

1.3

Changes to the Reporting Procedure

1.3.1

Annual monitoring reports should provide details of the schemes each local authority has implemented using their allocation of the fund in the previous financial year. This monitoring procedure has occurred each year since 2000 with the intention of building a year-by-year profile of all schemes implemented since the grant was introduced.

1.3.2

Unfortunately, in previous years, complete data has not always been forthcoming and this has prompted changes to the reporting procedure this year. These changes are outlined below:

- **Electronic Reporting:** Local Authorities are requested to complete the monitoring spreadsheets electronically and return them by e-mail;
- **No Supporting Documentation:** Local authorities are no longer required to submit supporting documentation in the form of lengthy reports for each scheme listed in the spreadsheets;
- **Spreadsheet Protection:** For 2005/06, cells have been locked and the spreadsheets protected to ensure all submissions are returned in a consistent format;
- **Spreadsheet Restructuring:** There have been alterations to the ordering of columns for ease of interpretation;
- **Spreadsheet Presentation:** Bold font and coloured backgrounds have been used to allow users to easily navigate around the worksheets;
- **Additional Table 5, Staff Appointments:** An additional table has been included for local authorities to provide details of individual posts funded by the grant.

1.3.3 Given this period of transition, it was considered an appropriate time to obtain any missing records from previous submissions provided by local authorities, and to transfer all records to the new reporting format. To achieve this, data readily available to the Welsh Assembly Government has been transferred onto new spreadsheets which have been distributed to each authority to check for accuracy and completeness. The intention is that by undertaking this exercise now there will be no need to provide this data in future years. A robust evaluation of this nature should, in the long run, be beneficial to local authorities as well as the Assembly as evidence of the effectiveness or otherwise of scheme types could assist in developing future work programmes.

1.4 ***Structure of Report***

1.4.1 The analysis of Special Road Safety Grant expenditure is undertaken in Chapters 2 to 4. Chapter 2 reviews how the funds were allocated to local authorities in 2005/06 and how each local authority spent its allocation. Chapter 3 provides a review of expenditure on Education, Training and Publicity (ETP) initiatives including a more detailed review of the target age range of each scheme type, the evaluation methods adopted and their respective results. Chapter 4 analyses the expenditure on engineering schemes in greater detail and provides a comparison with expenditure in 2004/05. Chapter 5 summarises the effectiveness of different engineering scheme types that have been implemented using Special Road Safety Grant funding since its introduction in 2000. This involves a review of the collision statistics in the vicinity of the treated sites before and after the introduction of remedial measures. Chapter 5 also provides a financial summary of the schemes that provide the best value in terms of collision reduction. The report concludes in Chapter 6 by summarising the key findings, making recommendations for future expenditure and monitoring.

1.5 ***Document Review***

1.5.1 Three documents warrant specific mention as they provide guidance to deliver road safety schemes and targets from which progress can be assessed. They are:

Road Safety Strategy for Wales (2003)¹

1.5.2 The Road Safety Strategy for Wales was published in January 2003. The vision for the strategy is to ‘reduce real and perceived danger on Welsh roads in order to promote safe and sustainable access for all members of society’. Accordingly, since 2003, local authorities have been asked to take into account the actions identified in the strategy and how they can help deliver them when allocating the grant in their area.

1.5.3 The strategy identifies how road safety can contribute to the strategic objectives of the Transport Framework for Wales by:

- Improving safety for children – especially as pedestrians and cyclists;
- Promoting safe use of “vulnerable” transport modes – walking, cycling, motorcycling and horse riding;
- Reducing excessive and inappropriate speed of motor vehicles;
- Targeting other poor driving practices – use of mobile phones, drink-driving, drug-driving and driving whilst tired.

1.5.4 The strategy has set ambitious targets for casualty reduction by 2010 compared to the average for 1994-1998:

- 40% reduction in the total number of killed or seriously injured (KSI) casualties;
- 50% reduction in the total number of child KSI casualties;
- 10% reduction in the rate of slight casualties per 100 million vehicle kilometres travelled.

1.5.5 The strategy identifies three organisations as having the ultimate responsibility for delivering the objectives and targets of the strategy: local authorities, Welsh Assembly Government and the police. However, the purpose of the strategy is to ensure that everyone, either as individuals or organisations, play a part in implementing the actions needed to improve safety on Wales’ roads.

¹ Road Safety Strategy for Wales (*Welsh Assembly Government, January 2003*).

Road Casualties in Wales: 2005²

1.5.6

The First Statistical Release of Road Casualties in Wales provides road collision and casualty figures for Wales for 2005. The statistics are based on personal injury collisions on public roads reported to the police and forwarded to the National Assembly for Wales. The results act as a base from which comparisons can be drawn with schemes implemented using the Special Road Safety Grant to identify the impact of the grant in reducing casualties.

1.5.7

The key results for 2005 were:

- There were 8,710 road collisions involving personal injury recorded by the police in Wales, 825 (9 per cent) fewer than in 2004;
- These collisions resulted in 12,733 casualties, 954 (7 per cent) fewer than in 2004;
- Within this total:
 - 180 people were killed on Welsh roads, 21 (10 per cent) fewer than in 2004;
 - 1,146 people were seriously injured in 2005, 190 (14 per cent) fewer than in 2004;
 - 11,407 people were slightly injured, a decrease of 743 (6 per cent) compared to the previous year.

Assessing the Casualty Reduction Performance of Local Highway Authorities³

1.5.8

The report identifies differences in approach between the better performing Local Highway Authorities and others. The key findings of the study were that better performing authorities:

- Are those whose strategic aims make clear reference to road safety;
- have a culture of casualty reduction, the poorer ones do not;
- coordinate all work on the highway network, in particular, schemes relating to safety and maintenance. The officers also actively seek external sponsorship to

² Statistical First Release of Road Casualties in Wales: 2005 (Revised) (*Statistical Directorate, National Assembly for Wales, issued 29th June 2006*).

³ Assessing the Casualty Reduction Performance of Local Highway Authorities (*Department for Transport, August 2004*)

enhance low-cost initiatives, usually associated with education, training and publicity (ETP).

- have Road Safety Engineers working closely with Road Safety Officers, ETP staff, the police and other groups to deliver casualty reduction on an objective basis;
- use their collision databases in an appropriate way to make an objective judgment of where casualty reduction funding can be spent most effectively;
- carry out monitoring on an overall and project-by-project basis. Monitoring enables them to assess and evaluate past projects to give a beneficial input to new projects.

2 Overview of Allocation and Expenditure (Outputs) 2005-06

2.1

Allocation of Funds

2.1.1

The sums allocated to local authorities for the financial year 2005/06 are shown in Table 2.1.

Table 2.1: Allocation of Local Road Safety Grant Funding to Local Authorities 2005-06	
Local Authority	2005/06 Grant Allocation
Cardiff	£850,000
Swansea	£598,000
Rhondda Cynon Taff	£526,000
Carmarthenshire	£448,000
Flintshire	£447,000
Caerphilly	£400,000
Wrexham	£375,000
Newport	£332,000
Bridgend	£323,000
Neath Port Talbot	£318,000
The Vale of Glamorgan	£307,000
Gwynedd	£290,000
Powys	£286,000
Pembrokeshire	£280,000
Conwy	£269,000
Denbighshire	£267,000
Monmouthshire	£208,000
Torfaen	£184,000
Ceredigion	£184,000
Isle of Anglesey	£184,000
Blaenau Gwent	£184,000
Merthyr Tydfil	£184,000
Total	£7,444,000

2.2

Engineering/ETP Split

2.2.1

In 2003-04, the average proportions of Special Road Safety Grant spent on engineering and ETP initiatives was 83% to 17% respectively. For 2004-05, local authorities were encouraged to spend more on ETP schemes. The Welsh Assembly Government specified that local authorities allocate 20% of the Road

Safety Grant to ETP initiatives. Table 2.2 demonstrates that the percentage expenditure on ETP initiatives increased to 25% during 2004-05 and this has risen again in 2005-06, with a total of 28% being spent on ETP.

2.2.2

Changes to the reporting procedure described in 1.3 require staff costs to be considered separately to ETP schemes. For ETP initiatives, staff costs often represent the greater proportion of the scheme cost. For this reason, in previous years, some authorities included staff costs within ETP initiatives, whilst others considered them separately. To allow a meaningful comparison to this element of the evaluation, all ETP and staff costs have been combined for 2005/06.

Table 2.2: A Comparison of the Percentage Expenditure by Local Authority on Engineering and ETP Measures				
Local Authority	2004/05 expenditure (%)		2005/06 expenditure (%)	
	Eng'eeering	ETP & staff	Eng'eeering	ETP & staff
Blaenau Gwent	78	22	84	16
Bridgend	86	14	73	27
Caerphilly	67	33	76	24
Cardiff	67	33	83	17
Carmarthenshire	86	14	75	25
Ceredigion	62	38	72	28
Conwy	68	32	49	51
Denbighshire	77	23	78	22
Flintshire	77	23	72	28
Gwynedd	76	24	59	41
Isle of Anglesey	92	8	81	19
Merthyr Tydfil	89	11	86	14
Monmouthshire	69	31	58	42
Neath Port Talbot	59	41	35	65
Newport	84	16	80	20
Pembrokeshire	66	34	69	31
Powys	61	39	67	43
Rhondda Cynon Taff	75	25	83	17
Swansea	86	14	59	41
Torfaen	54	46	69	31
Vale of Glamorgan	77	23	82	18
Wrexham	77	23	68	32
Wales	75	25	72	28

2.2.3 It is evident from Table 2.2 that six local authorities are not meeting the target of 20% ETP expenditure specified by the Welsh Assembly Government and these are printed in italics in Table 2.2. Six authorities also failed to meet the target in 2004/05. It is interesting to note that, with the exception of Merthyr Tydfil, no authority has failed to meet the desired target in two consecutive years.

2.2.4 Both Conwy and Neath Port Talbot spent more than half of their allocation on ETP and staff initiatives in 2005/06.

3 Education, Training and Publicity Initiatives 2005-06

3.1 *Expenditure on Education, Training and Publicity Initiatives*

3.1.1 Education, Training and Publicity (ETP) initiatives cover a variety of disciplines and target groups and play an essential role in collision reduction by raising the awareness and changing the perception that all road users have towards road safety.

3.1.2 Some ETP schemes span numerous authorities, such as the Children's Traffic Club, Pass Plus and Theatre in Education. A number of local authorities have their own unique schemes funded by the grant, for example the 999 React scheme in Wrexham and the Gari Gosafe scheme in Carmarthenshire.

3.1.3 ETP initiatives have been grouped into categories of similar types for the purpose of analysing expenditure. Individual initiatives spanning a number of authorities remain as separate categories. Some new groups have been created to encompass similar schemes, such as 'Cycle Training & Initiatives'. Table 3.1 shows the expenditure on each scheme category by all authorities in 2005/06 and shows the amount spent on that scheme as a percentage of all ETP expenditure in 2005/06.

3.1.4 It is evident from table 3.1 that local authorities in Wales use the grant to fund a wide range of ETP initiatives. The greatest expenditure is on general publicity, such as advertising and newsletters. The second highest expenditure is on Theatre in Education, which delivers a general road safety message. Theatre in Education also delivers a drink/dangerous driving message which is considered separately in table 3.1 (rank 9). Theatre in Education has the greatest expenditure of all scheme types when the expenditure is aggregated for both target audiences.

3.1.5 Many individual schemes implemented by numerous authorities are heavily funded, such as:

- The Children's Traffic Club;
- Pass Plus;
- Junior Road Safety Officer;
- Theatre in Education;
- Road Safety Mascot; and
- Pre-Driver Initiatives (including Megadrive)

Table 3.1: Total Expenditure on each ETP scheme type 2005/06			
Rank	Scheme Type	Total Expenditure	% total ETP expenditure
1	General Publicity (Advertising/Newsletter)	£180,051	13
2	Theatre in Education: General Road Safety	£158,898	12
3	Children's Traffic Club	£148,826	11
4	Pass Plus	£146,926	11
5	Resources	£112,568	8
6	Road Safety Vehicle/trailer/mobile unit	£100,661	7
7	Road Safety Mascot	£94,766	7
8	Junior Road Safety Officer Scheme	£64,397	5
9	Theatre in Education: Drink/Dangerous driving	£49,950	4
10	Pre-driver initiatives (inc. MegaDrive)	£46,053	3
11	Other individual lower cost initiatives	£44,547	3
12	Car Seat Checks & Seat Belt Checks	£31,118	2
13	Website (inc. Roadstuff)	£28,304	2
14	Bus Back Advertisements	£24,527	2
15	Staff training fees	£22,667	2
16	School Travel Plans	£19,176	1
17	Other Young Driver initiatives (not Pass Plus)	£18,800	1
18	Early Years (Surestart)	£16,098	1
19	Cycle Training & Initiatives	£15,210	1
20	Walk to school initiatives	£13,635	1
21	Roadshows	£8,850	1
22	Competitions (inc Quizdom)	£8,611	1
23	Crucial Crew	£5,165	0
24	Older Driver Assessments	£4,800	0
25	Be Bright Be Seen/Be Safe Be Seen	£3,261	0
26	Motorcycle & Moped campaigns	£2,875	0
27	Speed Detectors	£2,113	0

- 3.2 ***Comparison of Expenditure (2004/05 – 2005/06)***
- 3.2.1 There are some clear differences between the expenditure on ETP initiatives in 2004/05 and 2005/06. These are demonstrated in Table 3.2.
- 3.2.2 A consistently high proportion of the grant is spent on Theatre in Education, Pass Plus and Children’s Traffic Club, with little percentage change in expenditure on these initiatives, year on year.
- 3.2.3 There has been a significant increase in expenditure on general publicity since 2004/05. There has also been a significant increase in expenditure on road safety vehicles, trailers and mobile units, which could also be categorised as publicity. Only three authorities implemented schemes of this type but all were at high cost. Cardiff, for example, purchased a Motorised Exhibition Vehicle at a cost of £57,000.
- 3.2.4 There has also been a large increase in expenditure on some types of scheme which had little funding in 2004/05, such as car seat and seat belt checks and website design and implementation. In 2004/05, only Wrexham spent part of their grant allocation on car safety seat initiatives at a cost of £10,513. The Welsh Assembly Government launched a child car seat campaign in June 2005 and local authorities supported this by arranging car seat checks in their respective areas. In 2005/06, a total of seven authorities implemented car safety seat or seat belt checks at a total cost of £31,188.
- 3.2.5 There has been a significant decrease in expenditure on both cycle training and bus behaviour initiatives since last year.

Table 3.2: A Comparison of Expenditure on ETP for 2004/05 and 2005/06			
Scheme Type	2004/05	2005/06	+/-
General Publicity (Advertising/Newsletter)	£89,566	£180,051	£90,485
Theatre in Education: General Road Safety	£178,020	£158,898	-£19,122
Children's Traffic Club	£140,947	£148,826	£7,879
Pass Plus	£131,028	£146,926	£15,898
Resources	£105,889	£112,568	£6,679
Road Safety Vehicle/trailer/mobile unit	£25,593	£100,661	£75,067
Road Safety Mascot	£32,932	£94,766	£61,834
Junior Road Safety Officer Scheme	£55,781	£64,397	£8,616
Theatre in Education: Drink/Dangerous driving	£8,000	£49,950	£41,950
Pre-driver initiatives (inc. MegaDrive)	£33,243	£46,053	£12,810
Other individual lower cost initiatives	£63,622	£44,547	-£19,075
Car Seat Checks & Seat Belt Checks	£10,513	£31,118	£20,605
Website (inc. Roadstuff)	£13,593	£28,304	£14,711
Bus Back Advertisements	£19,424	£24,527	£5,103
Staff training fees	£10,000	£22,667	£12,667
School Travel Plans	£23,092	£19,176	-£3,916
Other Young Driver initiatives (not Pass Plus)	£3,343	£18,800	£15,457
Early Years (Surestart)	£19,139	£16,098	-£3,041
Cycle Training & Initiatives	£37,358	£15,210	-£22,148
Roadshows	£186	£8,850	£8,664
Competitions (inc Quizdom)	£5,743	£8,611	£2,869
Crucial Crew	£0	£5,165	£5,165
Older Driver Assessments	£250	£4,800	£4,550
Be Bright Be Seen/Be Safe Be Seen	£0	£3,261	£3,261
Motorcycle & Moped campaigns	£4,950	£2,875	-£2,075
Speed Detectors	£4,213	£2,113	-£2,100
Road Safety Strategy	£55,700	£0	-£55,700
Bus Behaviour Initiative	£23,015	£0	-£23,015
Total	£1,095,140	£1,359,216	£264,076

3.2.6 There has also been a significant decrease in expenditure on Strategies for Road safety. In 2004/05, Neath Port Talbot produced a strategy to assist schools on the production of travel plans, whilst Torfaen developed a strategy to complement the council LTP and regeneration strategy. In 2005/06 none of the authorities used the grant to fund the development of any road safety strategies.

3.3 *Target Age Groups*

3.3.1 As part of their monitoring submissions, local authorities are required to specify the target age group of each ETP scheme implemented in a given year. All ETP schemes implemented in Wales using the grant in 2005/06 have been placed into the most appropriate category in Table 3.3. The total expenditure on schemes directed at each age group has also been calculated.

Table 3.3: ETP Expenditure by Specific Target Age Group 2005/06			
Age Description	Age Range	No. of Schemes	Expenditure
Pre-School	3-4	30	£210,545
Infant School	4-7	5	£37,573
Junior School	7-11	30	£77,454
Primary School	4-11	32	£152,787
Secondary School	11-16	12	£30,551
All School Ages	4-18	20	£138,408
Pre-drivers	16-17	15	£73,753
Young Adults	17-25	24	£190,845
Adults	18+	35	£178,671
Older People	60+	2	£4,800
All ages	-	35	£289,539
Total	-	240	£1,384,926

3.3.2 For children, road safety is an important skill to acquire. The Road Safety Strategy for Wales identifies a 'New Approach to Road Safety Education', which involves changing road user behaviour by analysing tasks that child pedestrians and cyclists need in order to address problems encountered in traffic. It is evident from Table 3.3 that local authorities are investing a significant amount on ETP initiatives in targeting schoolchildren, particularly below the age of eleven. Indeed, 97 ETP schemes for 3-11 year olds were funded by the grant in 2005/06 with 30 of these directed at pre-school children.

3.3.3 There has also been significant expenditure on young people and young adults between the ages of 16 and 25. This is largely attributable to the Megadrive scheme, which aims to promote positive attitudes to the responsibilities of driving in pre-drivers, and to the Pass Plus scheme, which improves driving standards in newly qualified drivers.

3.3.4 Expenditure on adult targeted schemes covered a wide range of initiatives, with publicity campaigns, particularly newsletters, a popular target of expenditure. Other initiatives included Car seat checks, cycle initiatives and driver training.

3.3.5 The target ages have been grouped into fewer categories in Table 3.4. An individual category has been created for 'Pre-school and Primary School' to clearly compare investment in schemes targeted at Primary and Secondary school age groups. A general assumption has been made that the category of 'All school ages' in Table 3.3 is divided as 50% investment in Primary schools and 50% investment in Secondary schools.

Age Description	Age Range	No. of Schemes	Expenditure	Average cost per scheme
Pre school & primary school	3-11	107	£547,563	£5,117.41
Secondary school	11-16	22	£99,755	£4,534.33
Late teens & young adults	16-25	39	£264,598	£6,784.55
Adults	25+	37	£183,471	£4,958.66
All ages	-	35	£289,539	£8,272.55
Total		240	£1,384,926	£5,770.53

3.3.6 The low Road Safety Grant investment in ETP in secondary schools in Wales is apparent in Table 3.4. This is particularly concerning given that, in the UK as a whole, the number of children killed and seriously injured as pedestrians and cyclists peaks in early secondary school⁴. It could be argued that targeting children in the final years of primary school should equip them for their early secondary

⁴ Paragraph 4.27, Road Safety Strategy for Wales (*Welsh Assembly Government, January 2003*).

school years, however the disparity between the number of primary and secondary school initiatives is apparent. Indeed, a total of 107 ETP initiatives have been implemented in Wales in 2005/06 which are targeted at Pre-school and Primary school age groups, compared to 22 targeted at Secondary schools. The total investment in ETP measures targeted at secondary schools is only 18% of the investment in Pre-school and Primary school initiatives.

3.3.7 The average cost per ETP scheme is £5,770.53, yet the average cost of secondary school initiatives is only £4,534.33. The high average cost of schemes targeted at all age groups is attributable to a small number of expensive publicity-related purchases, such as the Cardiff's purchase of a Road Safety Exhibition Vehicle for £57,000.

3.4 ***Links with Engineering Schemes***

3.4.1 A combined approach between engineering and ETP initiatives is implicitly promoted in the Road Safety Strategy for Wales. For example, the strategy states that speed campaigns should be holistic and involve a combination of education, publicity, engineering, environmental design and enforcement. The strategy explains that, to effectively change drivers' behaviour to achieve a reduction in vehicle speeds, publicity and encouragement should be integrated with engineering measures or enforcement campaigns.

3.4.2 For the 2005/06 submissions, 14% of all ETP initiatives are linked to engineering schemes. For publicity campaigns, linkages are primarily recorded as newsletters with information about engineering schemes. Engineering links with training schemes are more wide-ranging, for example Wrexham have undertaken pedestrian training for schoolchildren to show them how to safely use the crossing places recently installed.

3.4.3 The results for 2005/06 cannot be compared with those for 2004/05 as data on links to engineering schemes was not included in many 2004/05 local authority submissions.

3.4.4 In future years it may be advisable to make minor alterations to the monitoring spreadsheets to obtain more meaningful analysis. Firstly, by asking authorities to leave cells blank if there is no link to engineering schemes, they should be asked to clearly state that there is no link, thus not allowing the easy opportunity to leave cells blank if the authority are unsure. Secondly, the engineering worksheet should have a 'link to ETP' column as well as a 'link to engineering' column in the ETP

worksheet so that both parties consider linkages when completing their respective sections.

3.5

Evaluation Methodology

3.5.1

For 2005/06, all authorities were required to provide details of the methodology used to evaluate ETP initiatives implemented using the grant and provide a brief summary of the results.

3.5.2

Every ETP scheme implemented by each authority has been assigned to a category which best reflects the evaluation methodology. The numbers of schemes in each category have been counted and the results are presented in Table 3.5. For some schemes it was not clear what type of evaluation was undertaken. These schemes have been removed from the analysis.

Table 3.5. The Type of Methodology used to Evaluate ETP Initiatives		
Evaluation Method	No. of Schemes Evaluated	Percentage
Number of participants	37	19%
General observations & feedback	29	15%
Questionnaires for participants	22	11%
Feedback forms (teacher/trainer)	20	10%
Feedback forms (participants)	16	8%
Audience reached	16	8%
Statistical analysis (before/after)	10	5%
No evaluation undertaken	8	4%
Media coverage	6	3%
Website hits	6	3%
Number/variety of activities	5	3%
Public response to competition	4	2%
Questionnaires for teachers	4	2%
Consultation/interviews	4	2%
Quiz/exam	3	2%
Classroom surveys	3	2%
Anecdotal	2	1%
Total	195	100%

3.5.3 Table 3.5 demonstrates that six techniques were used to evaluate over 70% of schemes implemented using the grant in 2005/06. A simple record of the number of participants was the most popular evaluation method with 37 schemes evaluated in this way.

3.5.4 The categories in Table 3.5 have been combined to form a more broad description of the type of technique to understand the general approach to ETP evaluation. The results are demonstrated in Table 3.6.

Table 3.6. Broad Categories of Evaluation Methodologies and the Percentage of Schemes Evaluated.		
Evaluation Technique	No. of ETP schemes Evaluated	% of ETP schemes Evaluated
Assessment (Quiz/exam)	3	2%
Feedback form / questionnaire / survey	69	35%
Observation / Anecdotal evidence	31	16%
Statistical analysis	10	5%
No. of people engaged or reached	53	27%
Other / Not evaluated / Not started	29	15%
Total	195	100%

3.5.5 Over a quarter (27%) of schemes implemented using the grant in 2005/06 were evaluated by simply counting the number of people engaged in a given scheme or the number of people reached by publicity. Such techniques do not necessarily evaluate the success of schemes at accomplishing their objectives as no assessment or evaluation of the initiative is undertaken. Similarly observations and anecdotal evidence, which was used to evaluate 16% of schemes, may provide an impression of the success of the scheme but there is no tangible evidence to support it.

3.5.6 A total of 35% of all schemes implemented were evaluated by asking for an assessment through the use of a questionnaire, feedback form, consultation or survey. Only 2% of schemes were evaluated by some form of assessment.

3.5.7 The evaluation methodology has been examined for selected national or widespread schemes as the quantity of schemes and established evaluation

techniques are likely to lend themselves to more meaningful analysis. The results are described in Table 3.7, below.

Table 3.7. The Method of Evaluation for the most Popular ETP Initiatives	
ETP Initiative	Analysis of Evaluation Methodology
Children's Traffic Club	The Children's Traffic Club has been established nationally based on external research and proven effectiveness, therefore 78% of authorities that implemented the Children's traffic Club simply evaluated the scheme by recording the take-up.
JRSO Scheme (Junior road safety officer)	There was a wide range of evaluation techniques. The most popular (37%) was keeping a record of the number and variety of activities.
Megadrive	All authorities evaluated these schemes by either: recording the number of participants, recording the media coverage or distributing questionnaires. 63% of authorities implementing schemes of this nature used all three methods.
Pass Plus	Six different methods were used by the 13 authorities that implemented Pass Plus. Seven authorities (54% of those taking part) evaluated the scheme by simply recording the take-up.
Road Safety Mascot	Four of the six authorities with a road safety mascot evaluated its effectiveness using pupil questionnaires and feedback forms. The remaining two authorities recorded their observations.
Theatre in Education (General)	12 out of 13 authorities used questionnaires or feedback forms for teachers or pupils to evaluate this scheme type.
Theatre in Education (Drink Driving)	Some of these schemes were not evaluated; others were evaluated using questionnaires, feedback forms or consultation.

3.5.8

It is evident from Table 3.7 that some schemes have a clear evaluation technique such as the percentage take-up for the Children's Traffic Club, and the use of questionnaires and feedback forms for Theatre in Education. However, schemes such as Pass Plus and the JRSO scheme have a wide range of evaluation techniques, which are implemented depending on each authority's preference.

3.5.9 The Welsh Assembly Government wishes to improve the way ETP schemes are evaluated in future years. Indeed the Special Grant Report⁵ issued to local authorities in March 2006 referred them to the Department for Transport publication “Guidelines for Evaluating Road Safety Education Interventions⁶”, to assist them to effectively evaluate ETP schemes funded through the grant.

3.6 ***Evaluation Results***

3.6.1 The monitoring submissions provided by each local authority contain the evaluation results of each scheme in isolation. It is difficult to achieve meaningful analysis of these results as the methodology for evaluating each scheme type is different and, as shown in Table 3.7, there are often multiple evaluation methodologies for each scheme type.

3.6.2 A qualitative summary of each of the scheme types implemented across many authorities is presented in Table 3.8. A quantitative summary is provided, where possible.

⁵ Special Grant Report (No.3) (Wales) (Welsh Assembly Government, 2006)

⁶ Guidelines for Evaluating Road Safety Education interventions (DfT, August 2004)

Table 3.8. A Summary of the Evaluation Results of Popular ETP Initiatives	
Scheme Type	Results
Children's Traffic Club	Many local authorities rely on the Children's Traffic Club organisers to monitor the uptake and feedback of the scheme. Such research has shown that club members have had 12% fewer road casualties than non-members and 4% fewer casualties when walking. ⁷ Overall there is positive feedback from parents, schools and health visitors. Individual authorities reported an average take-up of between 35 and 46%.
JRSO Scheme	The scheme is generally well received although five authorities reported a large variance in the activities pursued by individual schools. Neath Port Talbot undertook the most comprehensive evaluation by analysing the results of a feedback form sent to the 46 participating schools. They reported an 86% response rate and all feedback was positive.
Megadrive	A range of between 62 (Torfaen) and 182 (Caerphilly) students were reported as participating in the Megadrive scheme. Five authorities reported coverage in local and national publications and seven authorities reported positive feedback to the monitoring questionnaire. Ceredigion commented that there is an increased demand for the event to be held more frequently.
Pass Plus	Five authorities reported positive feedback and two highlighted the encouraging results from the Approved Driving Instructor (ADI) feedback forms. Four authorities reported the scheme to be rather disappointing with only 50% of possible take-up and these authorities will be dropping the scheme in favour of Pass Plus Cymru.
Road Safety Mascot	All authorities making use of a road safety mascot reported very successful results. Gwynedd had the most positive response to the Carys Ofalys character which was described as "immensely successful" and invitations to events are continually received.
Theatre in Education (all types)	All authorities reported positive feedback with many stating the performances were well received and very educational. Comments from individual authorities included "pupils visibly moved", "Improved behaviour", "welcome future performances" and "memorable with powerful message".

⁷ The Children's Traffic Club (DBDA) <http://www.trafficclub.co.uk/pros/research.asp>

Example of Good Practice: ETP Evaluation and Results
Crucial Crew, Carmarthenshire County Council

Crucial Crew

The event is mainly for Year 6 pupils, although some from Year 5 also attend. The event aims to promote the concept of good citizenship amongst young people. Through interactive talks and activities, the pupils are encouraged to consider everyday dangers they may face when moving on to a secondary school, and are discouraged from becoming involved in crime.

Evaluation Methodology

Qualitative evaluation was carried out amongst attending pupils and teachers to gauge the response to, and effect of, the input provided. In addition, some of the participating parties provided comments on the event. As accompanying teachers walked around the event, they were asked to complete an evaluation form in order to express their views and record their comments. Before and after the event teachers were also requested to pose a set of six questions to the pupils attending the event, in order to assess whether their understanding and perception of certain issues had been affected. The results of the teacher and pupil assessment were analysed and a report was prepared shortly after the event.

Evaluation Results

A total of 21 teachers completed the forms, and were able to rate the various work-stations as poor, average, good or excellent. In general, the teachers' comments were encouraging with 52% of the ratings recorded as excellent and no poor ratings. Several stated that the event was well organized, and the majority praised the presentations and appreciated the way that pupils were fully engaged in receiving important information.

A total of 319 pupils answered the questions before the event, and 189 after. The proportion of pupils understanding the term "age-related products" rose considerably following the event, as did the appreciation of dangers posed by electricity. There was also was a marked increase in the proportion of correct answers relating to the use of pelican crossings.

Of particular interest is the fall in the proportion of children definitely considering that older people worry when young people play outside their homes, as compared to the rise in awareness following a previous event in March 2004. During the March event pupils benefited from a drama dealing with this issue, whilst pupils attending the May event did not. When pupils were asked 'Do older people worry when young people play outside their home?' 53% answered yes before the March event, which increased to 73% after the event. However, 65% answered yes prior to the May event which dropped to 37% after the event. The relative results of the evaluation from the two events suggest that the drama was very effective.

3.7

Staff Appointments

3.7.1

A total of 37 staff posts were funded by the Special Road Safety Grant in 2005/06 at a total cost of £647,651. This equates to an average cost per staff appointment of £17,504.

3.7.2

A wide range of appointments were recorded as shown in table 3.9. The role most widely implemented was the Road Safety Officer with seven posts in Wales. There were five Kerbcraft Coordinators (in addition to those funded by the child pedestrian training scheme), four Safer Routes to School officers and four School Travel Plan Coordinators. A total of three local authorities stated that no staff were appointed using the Special Road Safety Grant in 2005/06.

Table 3.9. Total Staff Appointments funded by the Special Road Safety Grant in 2005/06		
Position	No. of Appointments	Total Cost
Road Safety Officer	7	£163,468
Other	7	£140,796
Kerbcraft Coordinator	5	£121,812
Safer Routes to School Officer	4	£81,556
School Travel Plan Coordinator	4	£60,823
ETP officer	2	£33,114
Engineering schemes officer	1	£21,313
Driver Training coordinator	1	£16,000
Children's Traffic Club Organiser	2	£5,754
Assistant coordinator	4	£3,015
Total	37	£647,651

3.7.3

The total cost of staff appointments represented 9% of the total grant allocated to local authorities in 2005/06. Given the significant proportion of grant expenditure, it is important that monitoring is undertaken to a sufficient level of detail that the Welsh Assembly are able to understand the purpose and effectiveness of each post funded by the grant. An example of good practice has been shown below. This example demonstrates how Cardiff Council recorded the post of Safe Routes to School Officer in their 2005/06 submission.

***Example of Good Practice: Monitoring of Staff Appointments
Safe Routes to School Officer, Cardiff Council.***

Aim/Objective

*Reduce child road/traffic casualties;
Increase walking, cycling and public transport journeys as an alternative to the car;
Involve schools/communities in all aspects of SRTS projects;
Promote healthier and fitter travel options for children;
Increase practical involvement in teaching road safety skills;
Work in partnership with other agencies and organisations involved in SRTS.*

Evaluation Method

The responsibilities of the post are wide and varied. Evaluation and monitoring takes the form of the number of participating schools involved, specific interventions and the observed outcomes. Weekly reports of work undertaken are submitted to the Principal Road Safety Officer. These are discussed on a regular basis and at full road safety team meetings with the PRSO. Feedback is also encouraged from all road safety team members, in particular the Senior Road Safety Officer, who participates and oversees the SRTS strategy. A link has also been established with the recently established School's Traffic Management Safety Group, which oversees and implements both educational and engineering road safety schemes in and around schools.

Evaluation Result

The creation of this post, which is now in its third year, has enabled the Road Safety Unit to develop and implement a wide-range of projects/initiatives involving an increasing number of schools. The role of the SRTS Officer is closely monitored by the Senior Road Safety Officer, who oversees SRTS strategy and progress. Linked to this is the remit of the newly created School's Traffic Management Safety Group, which was established to address road safety educational and engineering issues, which affect schools across the authority. The SRTS Officer promotes the development and implementation of School Travel Plans (STP) and has a Council template to assist schools in the creation of their individual STP.

Comments

Various schemes/projects and campaigns undertaken include the Park Safe-Walk Safe Scheme, Walking Bus, School Travel Plans, Walk to school initiatives, Liaison with police officers and traffic wardens, Headteachers and other school staff, traffic engineers and consultants etc, Involvement in the development of the road safety resource toolbox, Seatbelt demonstrations, Use of SID (Speed Indicator Display), Input into Crucial Crew event, Liaison with School Crossing Patrols, Analysing school travel survey forms and data, Motoring Green Cone scheme at approximately 20 schools.

4 Engineering Schemes 2005-06

4.1 *Engineering Scheme Expenditure, by Unitary Authority 2005-06*

4.1.1 The categories of engineering schemes used in the analysis relate to the list included in Chapter 5 of the RoSPA Road Safety Engineering Manual⁸. There are occurrences where initiatives undertaken by authorities do not fit naturally with the remedial treatments listed by RoSPA and additional categories have been created to accommodate these. An individual category has also been assigned to 20mph zones.

4.1.2 The sum of expenditure on each type of scheme type by all authorities has been calculated and the results are shown in Table 4.1. It is clear that Mass Action measures have the greatest amount of funding allocated to them. The scheme type entitled 'Package of Measures (Mass Action)', describes a location where a combination of two or more individual measures have been implemented simultaneously to remedy a road safety problem.

4.1.3 Junction improvements and traffic calming were the measures allocated the greatest proportion of grant. However, the average cost of traffic calming measures (£26,416) is less than half the average cost of junction improvement schemes (£61,090). Indeed, there were 30 traffic calming measures implemented with road safety grant funding in 2005/06, the highest number of any scheme type.

4.1.4 There was significant expenditure on 20mph schemes and warning signs, even though, on average, these are low cost schemes. Road markings, signs and speed reductions were other widely used lower cost measures.

⁸ Road Safety Engineering Manual. The Royal Society for the Prevention of Accidents (RoSPA)

Table 4.1: Expenditure on Engineering Schemes from the 2005/06 Grant.					
Rank	Scheme Type	Expenditure	% of Total Expenditure	No. of Schemes	Average Cost
1	Package of Measures (Mass action)	£931,526	18%	26	£35,828
2	Junction Improvement	£819,500	16%	14	£61,090
3	Traffic Calming	£792,476	15%	30	£26,416
4	20 mph zones	£428,266	8%	27	£15,862
5	Footway Improvements	£399,864	8%	14	£28,562
6	Warning Signs	£353,117	7%	26	£13,581
7	Controlled Crossing	£309,788	6%	14	£22,128
8	Crossing Improvement	£307,855	6%	15	£20,524
9	Anti Skid Surface	£173,503	3%	12	£14,459
10	Road Improvement	£154,684	3%	5	£30,937
11	Markings and Signs	£131,366	3%	11	£11,942
12	Other	£104,624	2%	10	£10,462
13	Refuges	£87,652	2%	7	£12,522
14	Speed Reductions	£69,746	1%	11	£6,341
15	Visibility Improvement	£34,000	1%	1	£34,000
16	New Traffic Lights	£31,919	1%	5	£6,384
17	Mini Roundabout	£15,501	0%	1	£15,501
18	Markings	£10,500	0%	3	£3,500
19	Guard Rail	£10,331	0%	1	£10,331
20	Signal Improvement	£3,000	0%	1	£3,000
21	Traffic Study	£2,112	0%	2	£1,056
22	Right Turn Lane	£500	0%	1	£500
23	Chevron Signs	£0	0%	0	£0
24	Lighting	£0	0%	0	£0
25	Speed Camera	£0	0%	0	£0
Total		£5,207,593	100%	237	£21,973

4.2

Comparison of Expenditure (2004/05 – 2005/06)

4.2.1

A comparison is made in Table 4.2 between the expenditure on different engineering scheme types in 2005/06 and the expenditure on engineering scheme types in 2004/05. The data differs slightly from Table 4.1 as only engineering schemes over £15,000 are analysed for this comparison.

4.2.2

It is difficult to draw robust conclusions due to a minor change in the methodology for scheme classifications. In 2005/06, the Package of Measures (Mass Action) is defined strictly as any combination of two or more measures. In 2004/05, each scheme was studied in isolation and the most dominant type was often used to describe the scheme, if only two measures were implemented. As a consequence, if the methodology from 2004/05 was implemented this year, there would be a lower proportion of expenditure on Mass Action schemes, and higher expenditure on some other scheme types.

4.2.3

Despite the uncertainty over possible comparisons, there remain some important conclusions to draw from Table 4.2. Firstly, eight scheme types had greater funding in 2005/06 than in 2004/05. The greatest percentage increases in expenditure from the previous year were on Controlled Crossings (171% increase), and Warning Signs (127%). The increase in expenditure on Warning Signs is particularly significant as the previous years' analysis last year of schemes implemented between 2000 and 2004 concluded that, statistically, they are the most cost-effective type of scheme for reducing collisions.

Table 4.2: A Comparison of Expenditure on Engineering Schemes Types over £15,000 2004/05 – 2005/06.

Scheme Type	2004/05	2005/06	+/-	% change
Package of Measures	£224,299	£904,159	£679,860	303%
Junction Improvement	£502,910	£819,500	£316,590	63%
Controlled Crossing	£89,947	£243,648	£153,701	171%
Road Improvement	£0	£141,884	£141,884	n/a
Warning Signs	£108,900	£247,165	£138,265	127%
Footway Improvements	£293,994	£371,047	£77,053	26%
Refuges	£0	£39,000	£39,000	n/a
Other	£30,500	£47,062	£16,562	54%
Mini Roundabout	£0	£15,501	£15,501	n/a
Markings and Signs	£92,366	£86,600	-£5,766	-6%
Visibility Improvement	£49,000	£34,000	-£15,000	-31%
Anti Skid Surface	£114,150	£96,103	-£18,047	-16%
Markings	£21,000	£0	-£21,000	-100%
Crossing Improvement	£284,468	£243,285	-£41,183	-14%
Traffic Calming	£697,817	£653,510	-£44,307	-6%
Right Turn Lane	£75,000	£0	-£75,000	-100%
Signal Improvement	£231,654	£0	-£231,654	-100%
New Traffic Lights	£331,072	£20,765	-£310,307	-94%
20 mph zones	£1,055,342	£231,952	-£823,390	-78%
Total	£4,202,419	£4,195,181	-£7,238	0%

5 Grant Effectiveness (Outcomes) of Engineering Schemes 2000-05

5.1 *Scheme Effectiveness Nationally*

5.1.1 Each local authority is required to provide monitoring details of the engineering schemes over £15,000 implemented using the Special Road Safety Grant since its introduction in 2000. This covers a three year period before implementation of each scheme and annually thereafter. Monitoring data is provided for 2000-2005 as full 12 month data was not available for 2005/06.

5.1.2 Table 5.1 shows the engineering scheme categories and their effectiveness at reducing collisions and casualties during the period 2000-05. The former category of 20mph schemes has been separated into individual categories of limits and zones to highlight differences between the scheme types.

5.1.3 This year a total of 390 schemes were assessed for the period 2000-05, compared to the 134 for the period 2000-04 that were assessed last year. This increase reflects the improved data collection methods and reporting format. As a consequence many schemes implemented in previous years had to be eliminated from last year's analysis but are included this year.

5.1.4 The values in Table 5.1 sum the annual average collision and casualty savings for each scheme type between 2000 and 2005. The collision and casualty data from 3 years before the implementation of each scheme has been divided by 3 to provide an annual average. Up to 3 years collision and casualty data after the implementation of each scheme has been divided by the number of years provided to give an annual average after the implementation of the scheme. All data is for the closest full 12 month periods before and after implementation.

5.1.5 The table is sorted in descending order by percentage KSI casualty savings. For the purposes of this analysis, categories with fewer than five schemes are not considered to be statistically accurate. For example, anti-skid surfacing and road improvements demonstrate very high percentage KSI casualty savings. However, with small sample sizes we would not expect conclusions to be statistically accurate because an individual scheme, could have a disproportionate influence on the results even if its performance was atypical.

- 5.1.6 In total, engineering schemes over £15,000 funded by the Special Road Safety Grant between 2000 and 2005 saved an annual average of 372 PIAs and 90 KSI casualties, a reduction of 58% and 65% respectively.
- 5.1.7 Locations where 20mph limits were implemented produce the greatest casualty savings. However, given data is only available for engineering schemes over £15,000 since 2000, only five schemes of this nature were analysed. However, the five schemes recorded an annual average of 1.3 KSI casualties before implementation compared with an annual average of zero after implementation. Table 5.1 also suggests that 20mph zones effectively reduce casualties. A total of 79 zones were implemented with an annual average reduction in casualties of 88.57%. However, despite saving a high percentage of KSI casualties, 20mph limits and zones were not as effective at saving Personal Injury Collisions, with savings of 70% and 62% respectively. This suggests that 20mph schemes are particularly effective at reducing the most severe collisions.
- 5.1.8 New or improved pedestrian footways provided the greatest annual average collision savings. A total of 23 of these schemes reduced the annual average number of PIAs from 18 to 3, a saving of 81%. Clearly by targeting pedestrian safety and eliminating potential conflict with traffic, a significant number of collisions can be saved.
- 5.1.9 Controlled crossings were the only category not to reduce KSI casualties. However, despite demonstrating a slight increase in KSI casualties, controlled crossings did reduce overall collisions by nearly 50%. Therefore, although the number of PIAs reduced by implementing controlled crossings, the remaining collisions produced, on average, more KSIs per collision than before implementation. Although there remains an obvious benefit in terms of collision reduction, schemes of this nature should continue to be monitored closely.
- 5.1.10 Right Turn Lanes also did not demonstrate an ability to save collisions or casualties, however there are not enough schemes of this nature to produce sound statistical analysis.

Table 5.1: Annual Average Change in PIAs and KSI Casualties after Implementation of Engineering Measures over £15,000.

Scheme Type	No. of Schemes	Personal Injury Collisions (per year)				Killed or Seriously Injured Casualties (per year)			
		Before	After	Savings	% Savings	Before	After	Savings	% savings
20 mph limits	5	3.3	1.0	2.3	70.00%	1.3	0.0	1.3	100.00%
Anti Skid Surface	2	5.7	6.3	-0.7	-11.76%	0.3	0.0	0.3	100.00%
Road Improvement	3	1.3	0.0	1.3	100.00%	0.3	0.0	0.3	100.00%
Mini Roundabout	6	6.7	2.3	4.3	65.00%	2.3	0.0	2.3	100.00%
Visibility Improvement	6	7.3	3.0	4.3	59.09%	5.3	0.3	5.0	93.75%
New Traffic Lights	6	24.0	7.5	16.5	68.75%	5.0	0.3	4.7	93.33%
Speed Reductions	4	10.0	7.3	2.7	26.67%	6.0	0.7	5.3	88.89%
20mph zones	79	65.7	24.7	41.0	62.44%	11.7	1.3	10.3	88.57%
Warning Signs	27	114.7	32.5	82.2	71.66%	18.0	2.3	15.7	87.04%
Signal Improvement	9	31.3	9.7	21.7	69.15%	13.0	1.8	11.2	85.90%
Markings and Signs	39	52.3	22.3	30.0	57.32%	10.7	3.0	7.7	71.88%
Junction Improvement	17	48.0	29.2	18.8	39.24%	13.3	5.5	7.8	58.75%
Footway Improvements	23	18.0	3.3	14.7	81.48%	7.3	3.5	3.8	52.27%
Crossing Improvement	36	30.0	19.7	10.3	34.44%	6.7	3.8	2.8	42.50%
Refuges	5	3.0	1.0	2.0	66.67%	1.7	1.0	0.7	40.00%
Package of Measures (Mass action)	51	117.7	54.8	62.8	53.40%	21.7	13.7	8.0	36.92%
Traffic Calming	47	72.7	23.5	49.2	67.66%	10.0	6.7	3.3	33.33%
Other	5	0.3	1.0	-0.7	-200.00%	0.0	0.3	-0.3	0.00%
Markings	2	3.0	0.0	3.0	100.00%	0.3	0.3	0.0	0.00%
Guard Rail	0	0.0	0.0	0.0	0.00%	0.0	0.0	0.0	0.00%
Traffic Study	2	3.0	2.5	0.5	16.67%	0.0	0.0	0.0	0.00%
Chevron Signs	0	0.0	0.0	0.0	0.00%	0.0	0.0	0.0	0.00%
Lighting	0	0.0	0.0	0.0	0.00%	0.0	0.0	0.0	0.00%
Speed Camera	0	0.0	0.0	0.0	0.00%	0.0	0.0	0.0	0.00%
Controlled Crossing	13	11.7	6.0	5.7	48.57%	2.7	3.0	-0.3	-12.50%
Right Turn Lane	3	6.3	6.7	-0.3	-5.26%	0.3	0.8	-0.5	-150.00%
Total	390	636.0	264.3	371.7	58.44%	138.0	48.5	89.5	64.86%

5.2 ***Grant Effectiveness by Scheme Type (Nationally)***

5.2.1 This chapter demonstrates the value for money achieved by each scheme type by calculating the return on investment in the form of First Year Rates of Return (FYRR). The results are presented in Table 5.2. A cost has been assigned to the collision savings achieved by each scheme type according to the average value provided in table 4a of the Highways Economic Note (HEN) No.1 2004⁹. The HEN provides cost estimates for road collisions by severity: fatal, serious and slight. The average value of preventing a collision is £86,810¹⁰, based on the following elements:

- Loss of output due to injury;
- Ambulance costs and the costs of hospital treatment;
- Human costs.

5.2.2 A total of 14 scheme types provide a total return on investment (100% or more) within one year. A further five schemes provide a return on investment of between 50% and 100% suggesting that the scheme might provide a full return on investment after the second year.

5.2.3 It is evident that a number of lower-cost schemes achieved high returns on investment. The best performing scheme type in terms of value for money are Warning Signs with a FYRR of 1987%. This suggests that local authorities would achieve an average 1987% return on their investment in the first year for each Warning Sign scheme implemented.

5.2.4 A comparison of tables 5.1 and 5.2 demonstrates some clear differences between schemes that significantly reduce collisions and those which represent good value for money. For example, Markings and Signs provide below average collision savings in table 5.1, but schemes of this nature clearly demonstrate value for money in table 5.2. There are some schemes that perform well in both tables, such as footway improvements.

⁹ Department for Transport, Highways Economic Note No.1: 2004. 2004 Valuation of the Benefits of Prevention of Road Accidents and Casualties.

¹⁰ Based on 2004 prices and values.

5.2.5

It is evident that controlled crossings and crossing improvements are below average for both the annual average collision savings and return on investment. However, despite their low rankings in each criterion, both scheme types still demonstrate considerable collision savings and FYRR over 75%.

Table 5.2: The First Year Rate of Return for each Scheme Category

Scheme Type	No. of Schemes	Total Value	Annual Average PIA savings		Actual FYRR
			Number	Value of savings	
Warning Signs	27	£358,900	82	£7,132,888	1987%
Markings and Signs	39	£439,100	30	£2,604,300	593%
Markings	2	£66,000	3	£260,430	395%
Package of Measures (Mass action)	51	£2,818,291	63	£5,454,562	194%
Traffic Calming	47	£2,324,436	49	£4,268,158	184%
Footway Improvements	23	£712,277	15	£1,273,213	179%
Speed Reductions	4	£134,547	3	£231,493	172%
20mph zones	79	£2,108,214	41	£3,559,210	169%
Signal Improvement	9	£1,132,009	22	£1,880,883	166%
New Traffic Lights	6	£944,228	17	£1,432,365	152%
Visibility Improvement	6	£250,686	4	£376,177	150%
Refuges	5	£141,389	2	£173,620	123%
Junction Improvement	17	£1,357,325	19	£1,634,922	120%
20 mph limits	5	£177,049	2	£202,557	114%
Road Improvement	3	£141,705	1	£115,747	82%
Crossing Improvement	36	£1,172,016	10	£897,037	77%
Controlled Crossing	13	£647,419	6	£491,923	76%
Traffic Study	2	£59,000	1	£43,405	74%
Mini Roundabout	6	£630,442	4	£376,177	60%
Guard Rail	0	£0	0	£0	0%
Chevron Signs	0	£0	0	£0	0%
Lighting	0	£0	0	£0	0%
Speed Camera	0	£0	0	£0	0%
Right Turn Lane	3	£131,000	0	-£28,937	-22%
Anti Skid Surface	2	£216,370	-1	-£57,873	-27%
Other	5	£152,500	-1	-£57,873	-38%
Total	390	£16,114,903	372	£32,264,383	202%

***Example of Good Practice: 20mph Schemes
Slower Speeds for Safer Streets Initiative: Neath Port Talbot CBC***

When the Slower Speeds for Safer Streets grant was allocated to all local authorities in 2002/03, Neath Port Talbot spent their allocation on advisory 20mph zones outside all schools with controlled crossings. Due to the proven effectiveness (see last paragraph) of these schemes, Neath Port Talbot decided to continue the implementation of 20mph zones in the vicinity of all schools in the County Borough using the Special Road Safety Grant. Since 2002/03, Neath Port Talbot have allocated a proportion of their grant allocation to ETP initiatives and allocated the remainder to 20mph schemes.

The design of the traffic signs to accompany the limit allows for the addition of a supplementary plate to emphasize the message to drivers to slow down. The Council organised a competition, in both primary and secondary schools, to design this supplementary plate. The winning junior design is used outside primary schools and the winning senior design is used outside secondary schools. The inclusion of children in the design proved to be an effective initiative to raise awareness of road safety and combine education with road safety engineering schemes.

Neath Port Talbot have now introduced 48 advisory schemes of this type through their 'Slower Speeds for Safer Streets' initiative at an average cost of approximately £5,000 per scheme. The cost of each advisory zone includes the signs and markings only. In some instances, traffic calming is included to help enforce the advisory nature of the zones.

The schemes have proved to be very effective, particularly at reducing KSI casualties. A total of 24 KSI casualties were recorded in the vicinity of the 48 sites during a three year period before the schemes were implemented. There have been no KSI casualties since the implementation of the zones.

5.3

Comparison with National Casualty Trends

5.3.1

Road collision and casualty figures for Wales¹¹ for 2005 were published in July 2006. The statistics provide a detailed analysis of road collisions reported to the police in 2005 including comparisons with previous years. Some of the key statistics can be used to compare the impact that the Special Road Safety Grant has on casualty statistics nationally. However, direct examination of the impact of the road safety grant on national casualty reductions is difficult because:

- The collision and casualty monitoring data available to the Welsh Assembly Government since 2000 is for engineering schemes over £15,000 only. The impact of engineering schemes under £15,000 and the impact of education, training and publicity initiatives are not taken into account;
- Monitoring of the road safety grant is undertaken over the financial year, 2004/05 whereas Road Casualties in Wales statistics are a comparison of calendar years, 2004 and 2005.

5.3.2

Table 5.3 shows the reduction in KSI casualties in Wales between 2004 and 2005, compared to the reduction in KSI casualties resulting from the engineering schemes over £15,000 implemented in 2004/05 with the road safety grant. The latter was calculated by subtracting the annual average KSI casualties in the vicinity of sites after the implementation of schemes (12) from the annual average KSI casualties before the implementation of the schemes (43). This resulted in a saving of 31 KSI casualties.

Table 5.3: A Comparison of the KSI Casualty Reduction in Wales and the Contribution of Road Safety Grant Funded Schemes					
All Wales			Road Safety Grant		
Year	No. of KSIs	Change in KSI	Year	Ave. annual reduction in KSIs	% of All Wales saving
2004	1537				
2005	1326	-211	2004/05	31	15%

¹¹ Road Casualties in Wales: 2005 (Revised) (Statistical Directorate, National Assembly for Wales, 20th June 2006).

5.3.3 For Wales as a whole KSI casualties reduced by 211 in 2005 when compared to the figure of 1537 in 2004¹². An average annual reduction¹³ of 31 KSI casualties was calculated for the engineering schemes in 2004/05. Therefore it is fair to conclude that 15% of the Principality's reduction in 2005 can be attributed to the larger engineering schemes funded from the Road Safety Grant. The actual effect of the grant is likely to be significantly higher due to the additional impact of engineering schemes costing less than £15,000, and the contribution of ETP interventions.

5.3.4 As stated in 1.5.4, the Welsh Assembly Government published a series of road safety targets to be achieved by 2010 in its Road Safety Strategy for Wales. One of these was to achieve a reduction in KSI casualties by 40% between 2000 and 2010. A total of 390 engineering schemes over £15,000 have been implemented using the road safety grant since 2000. The average one-year KSI casualties for these 390 schemes have reduced from 138 to 49, which equates to 65%. It is clear that the grant will continue to contribute significantly towards the KSI reduction target if future schemes funded by the road safety grant achieve an average KSI casualty reduction of 65% compared with the average year before implementation.

¹² Statistical First Release of Road Casualties in Wales: 2005 (Revised) (*Statistical Directorate, National Assembly for Wales, issued 29th June 2006*)

¹³ The term 'Average Annual' is explained in 5.1.4.

6 Conclusions

6.1 *Lessons Learnt*

6.1.1 The DfT document ‘Assessing the Casualty Reduction Performance of Local Highway Authorities (September 2004)’, found that better performing Local Highway Authorities carry out monitoring on an overall and project-by-project basis. Monitoring enables them to assess and evaluate past projects to give a beneficial input to new projects. It is not known whether this practice currently occurs, however comparisons can be made between the effectiveness of schemes undertaken since 2000 and the expenditure on schemes in 2005/06.

6.1.2 There is significant correlation between the most effective schemes at reducing casualties and collisions and the schemes most widely implemented in 2005/06. Analysis of scheme types since 2000 showed that Warning signs and 20 mph limits and zones were amongst the top performing scheme types at reducing KSI casualties and Personal Injury Collisions and also recorded high FYRR. Both schemes have been widely implemented in 2005/06 and are in the top-five scheme types in terms of the amount of expenditure and number of schemes implemented.

6.1.3 Footway Improvements are also amongst the top five scheme types for cost effectiveness and collision reduction since 2000, and traffic calming schemes have also proved to be cost effective. Both scheme types have been widely implemented in 2005/06 in terms of total expenditure and number of schemes.

6.2 *Reporting Feedback*

6.2.1 Changes have been made to the reporting procedure for 2005/06. These changes helped deliver a marked improvement to the quality of data received from local authorities which, in turn, has allowed a greater degree of analytical accuracy and more robust conclusions. However, as expected during any period of transition, a number of impediments to progress have been exposed which will inform development of the evaluation procedures in future years.

6.3 *Summary and Recommendations*

6.3.1 This section summarises the key findings of the study and makes recommendations based on these findings.

6.3.2 The Welsh Assembly Government specified that local authorities allocate 20% of the Road Safety Grant to ETP initiatives. In 2003-04, the average spending proportion of the Road Safety Grant on ETP initiatives was 17%. This increased to 25% during 2004-05 and has risen again in 2005-06, with a total of 27% being spent on ETP. However, there is a large disparity between the expenditure by local authorities on ETP with a range of between 7% and 65% with total of six local authorities failing to meet the 20% target.

All local authorities should endeavour to allocate a minimum of 20% of their Road Safety Grant allocation to ETP initiatives.

6.3.3 There has been little expenditure in Road Safety Grant investment in ETP initiatives for secondary school aged pupils (11-16 year olds). This is particularly alarming given that, in the UK as a whole, the number of children killed and seriously injured as pedestrians and cyclists peaks in early secondary school. A total of 107 ETP initiatives have been implemented in Wales in 2005/06 which are targeted at Pre-school and Primary school age groups, compared to 22 targeted at Secondary schools.

Local authorities should be encouraged to develop more road safety initiatives for secondary school pupils.

6.3.4 Combining engineering and ETP schemes can achieve greater success at treating road safety problems in some areas, yet the analysis of monitoring submissions demonstrated a clear need for local authorities to link more ETP schemes with engineering measures. Only 14% of ETP schemes implemented in 2005/06 demonstrated a link of this nature. Whilst this statistic appears low, it may be that the structure of the monitoring spreadsheets contributed to this low figure on two counts. Firstly, there is no 'link to ETP initiatives' in the engineering worksheets. Secondly, local authorities were asked to leave cells blank if there were no linkages, which may have provided an easy solution if there uncertainty regarding the existence of particular linkages.

There is a need for local authorities to generate better links between engineering schemes and ETP initiatives. Improvements to the monitoring spreadsheets will assist local authorities when reporting linkages.

6.3.5 Many of the evaluation methodologies adopted do not provide a robust appraisal of the effectiveness of many schemes. Nearly a quarter of schemes (22%) implemented using the grant in 2005/06 were evaluated by simply counting the

number of people engaged in a given scheme or the number of people reached by publicity. Such techniques do not necessarily evaluate the success of schemes at accomplishing their objectives as no assessment or evaluation of the initiative is undertaken. Similarly observations and anecdotal evidence, which was used to evaluate 13% of schemes, may provide an impression of the success of the scheme but there is no tangible evidence to support its effectiveness. A total of 29% of all schemes implemented were evaluated by asking for an assessment through the use of a questionnaire, feedback form, consultation or survey. Only 1% of schemes were evaluated by assessment.

Local authorities, or specific organisations responsible for delivering ETP initiatives, should be encouraged to undertake more robust evaluations to examine the effectiveness of these measures.

6.3.6

The best performing engineering scheme types at reducing Personal Injury Collisions since the grant was introduced in 2000 are footway improvements, warning signs and 20mph limits. The most effective scheme types at reducing Killed or Seriously Injured casualties are 20mph limits, mini roundabouts and visibility improvements. A total of 14 out of 26 scheme types provide a total return on investment (100% or more) within one year. The most cost-effective engineering measures are warning signs, combined markings and signing schemes and those schemes consisting of a package of measures.

Collision data should continue to be scrutinised in detail to understand why certain schemes have been effective or otherwise at reducing collisions and casualties.

6.3.7

Local Highway Authorities with a more successful history of casualty reduction carry out monitoring on an overall and project-by-project basis. This enables them to make an objective judgement of where casualty reduction funding can be spent most effectively.

That local authorities continue to monitor the collision record of previous schemes. This should provide a beneficial input to new projects.

6.3.8

The findings of this study summarise the local authority expenditure on road safety schemes using the grant and analyse the cost effectiveness of engineering scheme types at reducing collisions and casualties.

That findings be shared with local authorities to promote good practice.