The Effectiveness of Traffic Calming Schemes in Wakefield District

Prepared by: -

Paul Stevenson and Martin Grace
Traffic and Engineering Design
Newton Bar
Wakefield
WF1 2TN

Tel 01924 306006 or 306329
Fax 01924 306404

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Executive Summary

This report considers the effectiveness of a range of traffic calming measures introduced in 69 schemes in Wakefield District, most installed over the past 6 years.

The *effectiveness* is measured in terms of:- (a) public satisfaction of the schemes taken from completed questionnaires, and (b) the measured indicators of accident reduction and change in traffic speed.

Three of the top seven performing schemes in terms of public satisfaction (West Lane, Sharlston; Park Lane Pontefract; and College Grove Road, Wakefield), are also in the top seven schemes with the most accident savings or reductions in speed. In other words, there appears to be a good correlation between public satisfaction *outcomes*, and the measured *outputs.*

Vehicle Activated Signs (VAS) are the most popular type of feature installed within the District. Speed tables and road humps are more popular than speed cushions, chicanes or mini-roundabouts. The most effective schemes, in terms of the actual reductions in speeds, include speed tables as one of the features.

On average, traffic-calming schemes reduce speeds by 7mph, save almost one personal injury accident per scheme per year, and give a first year rate of return of 300%. This represents a good rate of return, and is reported annually to the Department for Transport.

2. Recommendations

- Carry out a study into the effectiveness of VAS signs.
- Take careful account of public comments in preparing new schemes and in carrying out remedial action.
- Carefully consider design of Speed Cushions, Chicanes and Mini-Roundabouts for use in future schemes.
- Continue to monitor schemes. Use Web page to widen feedback catchments.
- Use feedback for reviewing future scheme design guidance.
- Install and monitor Area-Wide schemes in “areas of deprivation”
- Share findings with other Local Authorities

3 Introduction

In Wakefield District, traffic-calming schemes are only introduced following a comprehensive assessment and consultation process. In a typical year, around 100 requests are received. Each one is assessed in the same manner to obtain an index rating which is ranked to give a priority order. It is usual to implement between 10 and 15 schemes per year.

Solutions are tailor-made to each site, based on extensive consultations with local people, statutory bodies, Bus operators and METRO, emergency services and local councillors.

In order to assess the effectiveness of the schemes an “after-study” is undertaken. Local residents’ perception and satisfaction about the effectiveness of the scheme is measured from feedback gathered in questionnaires (an example is shown in *Appendix 1*); this is the *outcome indicator*. Actual performance is measured by the speed reduction and accident savings for each scheme the *output indicators*.

Sixty Nine schemes of varying size and type of feature, most installed over the past 6 years within Wakefield District, have been assessed in this study. The locations of the schemes are shown in Plan 1, *Appendix 2*. The schemes and locations are considered to be typical for a Metropolitan District.

4 Aims and Objectives

The main aims and objectives of the study are:-

- To identify the public satisfaction and perception of a variety of traffic calming schemes *(Outcomes)*
- To quantify the scheme benefits in terms of speed reductions and accident savings *(Outputs)*
- To determine appropriate improvement actions for individual schemes
- To inform “best practice guidelines” for future traffic calming schemes

5 Methodology

Data is collected in the following way:-

- A questionnaire is delivered by hand to all households in the immediate locality of the scheme (often 200 to 500). The same households are chosen as for the original consultation.

- A prepaid envelope is enclosed for return of the completed questionnaire (generally within a 3 week time-period).

- Speed surveys are taken *before* the scheme is implemented and again *after* the scheme is introduced. To do this speed detection loops are installed across the highway for several days in order to obtain a comprehensive set of data covering both day and night.

- Comparative Accident Data is collected *before* and *after* scheme implementation, from the Authority's personal-injury accident database

- The information is collated and summarised

- Where appropriate, remedial work is recommended and entered into future capital scheme programmes.

6 Results

The results of the study are presented in 6 tables within *Appendix 3* as follows:-

Scheme Types (Table 1)
The 69 schemes assessed for this study together with the type of features installed are set out in Table 1. A location plan showing the distribution of the schemes within the District is shown in *Appendix 2*. Often, more than one feature is included in each scheme.

Residents Responses (Table 2)
In total, 2979 questionnaires were completed from the 69 schemes, representing an average response rate of 35%. Seven schemes had a response rate of greater than 50%.

From the residents' responses, the most effective schemes for *reducing speeds* are those that include speed tables, or a combination of tables and full-width road humps. The road closure at Buxton Place, Newton Bar, is also considered to be very effective at reducing speeds and prevents rat-running through a high density residential area. The Dewsbury Road (Service Road) scheme, running parallel to the principal A638 is also considered by the local residents to be very effective in reducing speeds.

The schemes considered by residents to be less effective are those with narrow cushions (1.3m wide), such as the original features at Wrenthorpe

Road, Wakefield, and Stoney Lane, Hall Green, or those without any vertical deflection features, such as Wakefield Road, Flushdyke, and Cow lane, Havercroft.

Opinion of Features (Table 3)

Vehicle Activated Signs (VAS) which flash a warning such as “SLOW” or indicate to drivers the speed limit, when a vehicle exceeds the speed limit, are the most popular of the traffic calming features installed in the District (with a 90% satisfaction). There are now more than 90 VAS installed throughout the District. Their effectiveness is considered in a separate report.

“20 mph zones” are also very popular with local residents, and a continued programme of installation, associated with traffic calming features, is proposed within the next 5 years.

Speed tables and build-outs are liked by the majority of the local residents (71% and 61%) respectively, and are more popular than road humps or chicanes (53% and 55%).

Mini-roundabouts and Speed cushions are the least popular feature with residents.

Recent improvements to the design and construction of the less popular traffic calming features should make them more effective and popular. For example, the speed cushions are now 1.6m wide, compared to the 1.3m wide cushions typically installed within the District 5 or more years ago; and mini roundabouts now feature a slightly raised dome (50 to 70mm high) to make them more visible and discourage overrun.

Collision and Speed Monitoring (Table 4)

The output results can be summarised as follows:

- The average accident saving per scheme per year is 0.80, and the average speed reduction is 7 mph.

- The maximum speed at which 85% of drivers travelled, reduced from 37mph to 30mph.

- 9 out of 10 schemes in the study showed first-year accident savings.

- The schemes having the best reductions in accidents also tend to be those having the greatest reduction in traffic speeds.

- Moreover, the *accident savings* for the schemes in which speeds are reduced by 10mph or more are *twice* those for the schemes in which speeds were reduced by less than 10mph. This indicates that reducing speeds by a significant amount results in the most accident savings.

Value for Money (Table 5)

"Value for Money" is expressed in the traditional way for highway schemes as the "first year rate of return" (ref 1). This is calculated by comparing a monetary value of accident savings in the first year (approximately £82,000 for each accident saved) against the cost of the scheme. The "rate of return" is expressed as a percentage figure.

Although the low-cost schemes (ie less than £20,000) tend to have the highest rate of returns, the more extensive schemes, costing more than £20,000 to install, have an average of 276%. This represents a good rate of return for small safety schemes, as recognised by the Department for Transport (DfT).

The monetary value of accident savings in the first year totals a value of £4.5 millions for the 69 schemes assessed.

Remedial Measures (Table 6)

Based on the feedback from the residents' questionnaires, the schemes are reviewed and remedial action implemented, where appropriate.

For some schemes the recommendation is simply to monitor, but for others traffic-calming features have been upgraded, for example:-

Improved mini roundabouts on Shay Lane, Walton; speed cushions have been widened on Wrenthorpe Lane, Wrenthorpe; a chicane installed at the junction of Kenmore Road / Lingwell Gate Lane, Outwood; a table removed Church Road, Altofts, pedestrian islands and new Traffic Signals on Holywell Lane, more features added at Haigh Lane, Haigh and improved parking facilities provided on Standbride Lane, Kettlethorpe.

Remedial schemes are included in the annual Integrated Transport schemes programme of the Local Transport Plan, funded from Central Government.

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Appendices

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Appendix 1 – Example of Feedback Questionnaire

Do you have any further comments on the traffic-calming measures on Any Road?

Thank-you for taking the time to fill in this questionnaire. Please fill in your name and address below and return the questionnaire using the pre-paid self addressed envelope provided.

Name:
Address:

A reply by Day Month Year would be appreciated

wakefield
City of Wakefield Metropolitan District Council

Any Road, Any Town
Feed back on
Traffic Calming Scheme

Following the introduction of traffic calming on Any Road, Any Town, Wakefield Council would like to know from the local users whether or not they consider the scheme to be successful in achieving its aims.
I would therefore be grateful if you could complete this short questionnaire.

Question 1
How were you made aware of the changes before they took place? Please tick all that apply

Questionnaire		Word Of Mouth	
Letter		Weren't Aware	
Public Display			

Question 2
How would you rate the consultation process? Please tick

Very good	
Good	
OK	
Unsatisfactory	
Very Poor	

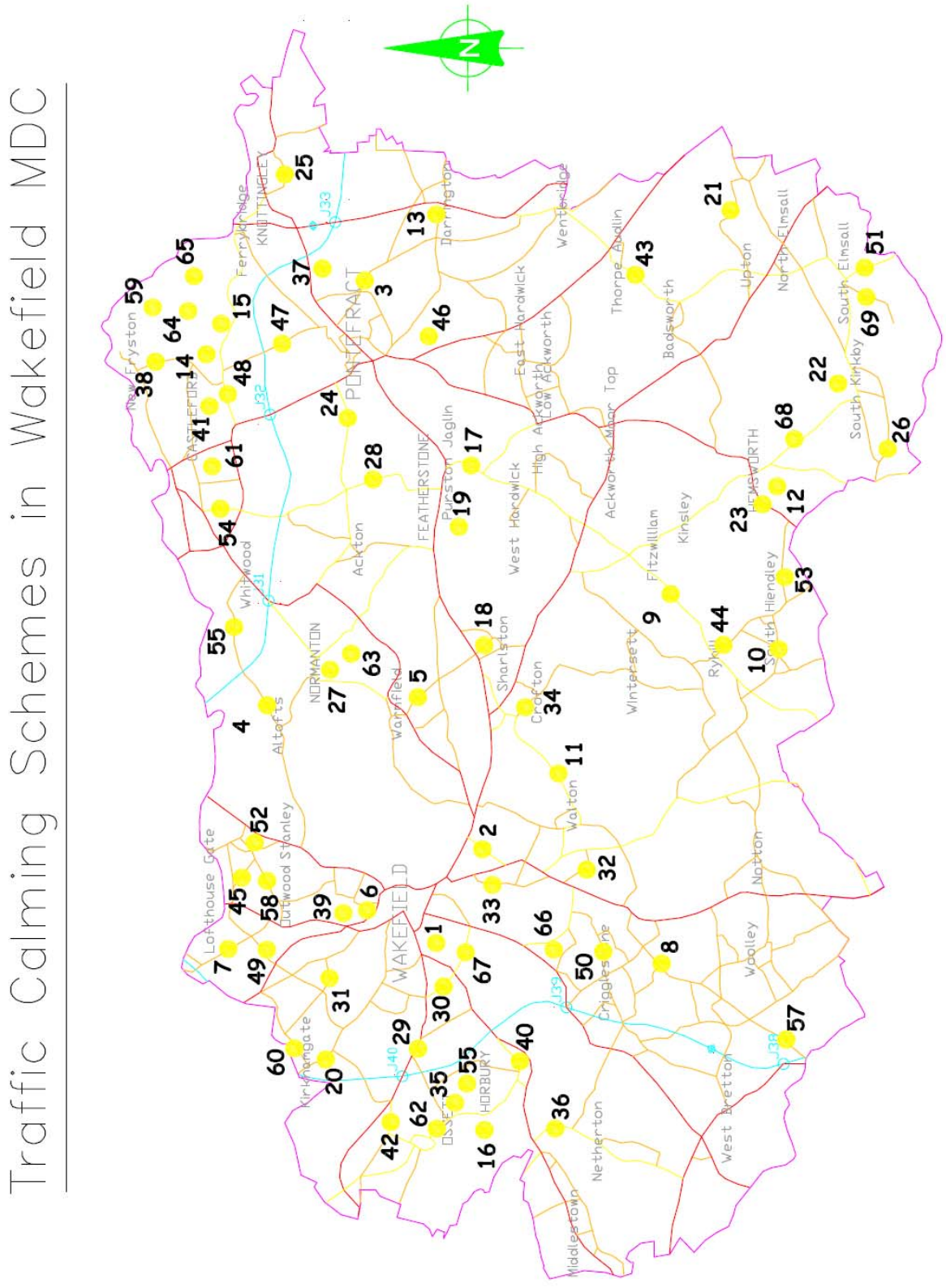
Question 3
How effective have the measures been? Please tick all that apply

Helped:	A lot	A little	No help
A)Crossing the Road			
B)Parking problems			
c)Speeding Traffic			

Question 4
What is your opinion of the traffic-calming features that have been introduced on Any Road? Please Tick

	Like	No Opinion	Dislike
♦ VMS Signs (Flashing 30/Slow Down sign)			
♦ Mini Roundabouts			
♦ Traffic Signals on Bridge			
♦ Road Narrowing			
♦ Signing/Lining			
♦ Red Surfacing			

Appendix 2 – Plan showing location of schemes assessed



Appendix 3 – Tables of results

Table 1.
Scheme Types

Vol	Ref	Scheme	Cycle Lane	Road Humps	Speed Tables	Cushions	Dummy Cush'n	Build Outs	Chicanes	Central Islands	Gateway	20mph Zones	VAS	Mini R-bout	Signing /Lining	Red Surfacing	Schools
Vol 1	1	Lawefield Lane, Wakefield			X										X		X
	2	Agbrigg Road, Wakefield			X	X					X	X			X		
	3	Carlton Road, Pontefract											X	X	X	X	X
	4	Church Road, Altofts			X	X	X						X		X	X	X
	5	Crossley Street, Streehouse			X	X					X				X	X	
	6	College Grove Road, Wakefield			X	X						X			X		X
	7	Lingewell Gate Lane, Outwood				X					X			X	X	X	
	8	Stoney Lane, Hall Green									X			X	X	X	
Vol 2	9	Cow Lane, Havercroft							X		X		X		X	X	
	10	George Street South Heindley			X	X					X			X	X	X	X
	11	Shay Lane, Walton			X				X					X	X	X	X
	12	Moorshutt Road, Hemsworth				X									X		X
	13	Estcourt Road, Darrington			X	X	X				X		X		X	X	
	14	Poplar Avenue Castleford			X	X									X	X	X
	15	Hillcrest Avenue Castleford		X											X		
	16	South Terrace, Ossett		X											X		
	17	Ackworth Road, Purston				X					X				X		
Vol 3	18	West Lane, Sharlston		X											X	X	
	19	Priory Road Estate, Featherstone		X	X	X		X						X	X		
	20	Batley Road, Kirkhamgate											X		X	X	
	21	Tom Wood Ash Lane S Kirkby		X	X	X	X	X			X			X	X		
	22	White Apron Street South Kirkby								X			X		X	X	
	23	Barnsley Road, Hemsworth			X	X					X		X		X		
	24	Park Lane, Pontefract			X	X					X		X		X		X
	25	Spawd Bone Lane Knottingley			X				X						X	X	X
Vol 4	26	Common Lane, South Kirkby			X		X						X		X	X	
	27	Church Lane,Normanton				X		X							X	X	X
	28	Featherstone Lane, Featherstone						X							X	X	X
	29	Dewsbury Road service road		X											X		
	30	George-a-Green Road				X								X	X	X	
	31	Wrenthorpe Road, Wakefield				X									X	X	
	32	Woodthorpe lane, Wakefield				X									X		
	33	Manygates lane,Wakefield		X										X	X	X	X
	34	High Street Crofton			X	X		X				X			X	X	X
	35	Fairfield Road, Ossett			X										X	X	
	36	Netherton Lane, Netherton				X								X	X	X	
Vol 5	37	Cobblers Lane, Pontefract			X	X			X						X	X	
	38	Fryston Road, Airedale			X	X		X	X						X	X	
	39	Buxton Place, Newton Hill (closure)													X		
	40	HighStreet, Horbury			X							X			X		
	41	Redhill Drive, Airedale			X	X									X	X	
	42	Wakefield Road, Flushdyke	X							X				X	X	X	X

Table 1 - Continued
Scheme Types

Vol	Ref	Scheme	Cycle Lane	Road Humps	Speed Tables	Cushions	Dummy Cush'n	Build Outs	Chicanes	Central Islands	Gateway	20mph Zones	VAS	Mini R-bout	Signing /Lining	Red Surfacing	Schools
Vol 6	43	Thorpe Lane Thorpe Audlin		x											x	x	
	44	Brier Lane, Ryhill				x								x	x		
	45	Baker Lane, Stanley			x	x	x								x		
	46	Lyon Road and Sides Road, Pontefract		x													
	47	Spittal Hardwick & Monkhill Lne Ponte											x		x	x	
	48	Holywell Lane & Sheepwalk Lane Cas											x		x	x	
	49	Potovens Lane, Stanley				x									x	x	x
	50	Standbridge Lane, Kettlethorpe							x						x	x	x
Vol 7	51	Doncaster Road, South Elmsall						x						x	x	x	
	52	Limepit Lane and Lake lock Rd Stanley			x	x		x				x			x	x	x
	53	High Street South Heindley				x		x			x		x		x	x	
	54	Aketon Road, Castleford	x		x	x		x							x	x	
	55	Pope Street, Altofts				x									x	x	
	56	Manor Road, Ossett			x	x									x	x	
	57	Haigh Lane, Haigh						x			x		x		x	x	
	58	Rooks Nest Road, Outwood			x	x			x						x	x	
	59	The Lakes, Ferry Fryston		x		x					x				x	x	x
	60	Wrenthorpe Lane, Wrenthorpe		x		x	x								x		
	61	Beancroft Road, Castleford				x		x		x	x				x	x	
	62	Church Stree,t Ossett			x	x		x							x	x	
	63	Favell Avenue, Normanton				x									x	x	x
	64	Elizabeth Drive, Airedale		x	x	x		x							x	x	
	65	Kendal Drive, Airedale			x	x		x							x		
	66	Durkar Low Lane, Durkar				x					x		x		x		
	67	Thornes Rd Thornbury Road Wake								x					x	x	x
	68	Kirkby Rd Hemsworth				x							x			x	
	69	Westfield Lane, South Kirkby		x	x	x		x							x	x	x
		TOTAL	**2**	**13**	**30**	**42**	**6**	**16**	**7**	**4**	**16**	**4**	**15**	**13**	**67**	**48**	**22**

Table 2.
Scheme Effectiveness:- Perception/satisfaction by Local User

Ref	Scheme	Date Installed	Number of responses	Response Rate %	Crossing Road %	Parking %	Reducing Speed %
1	Lawefield Lane, Wakefield	Mar-02	35	26	62	35	73
2	Agbrigg Road, Wakefield	Sep-02	54	43	72	34	60
3	Carlton Road, Pontefract	Oct-01	0	0	0	0	0
4	Church Road, Altofts	Aug-01	102	43	48	21	61
5	Crossley Street, Streehouse	Apr-02	43	33	65	39	52
6	College Grove Road, Wakefield	Oct-02	60	43	53	8	67
7	Lingwell Gate Lane, Outwood	Mar-01	54	45	26	32	27
8	Stoney Lane, Hall Green	Apr-01	80	67	24	18	21
9	Cow Lane, Havercroft	Nov-00	85	53	56	26	30
10	George Street South Heindley	Aug-01	36	36	41	9	31
11	Shay Lane, Walton	Feb-00	83	42	62	20	46
12	Moorshutt Road, Hemsworth	Apr-00	25	42	20	15	25
13	Estcourt Road, Darrington	Apr-02	85	71	35	23	44
14	Poplar Avenue Castleford	Nov-02	25	40	71	18	57
15	Hillcrest Avenue Castleford	Apr-00	26	52	52	16	67
16	South Terrace, Ossett	Jan-02	8	36	66	0	20
17	Ackworth Road, Purston	Nov-03	31	38	29	19	37
18	West Lane, Sharlston	Mar-04	60	57	87	42	86
19	Priory Road Estate, Featherstone	Apr-03	60	17	51	36	45
20	Batley Road, Kirkhamgate	May-02	30	38	17	12	34
21	Tom Wood / Ash Lane, S Kirkby	May-02	60	17	51	36	45
22	White Apron St S. Kirkby	Jun-03	33	37	69	25	34
23	Barnsley Road, Hemsworth	Feb-04	39	30	51	44	54
24	Park Lane, Pontefract	Dec-03	30	60	57	17	67
25	Spawd Bone Lane Knottingley	Feb-01	5	N/A	N/A	N/A	N/A
26	Common Lane, South Kirkby	May-02	17	22	85	23	40
27	Church Lane, Normanton	Oct-02	34	34	38	21	58
28	Featherstone Lane, Featherstone	Dec-03	69	35	36	50	24
29	Dewsbury Road service road, Wake	Sep-03	21	30	92	47	100
30	George-a-Green Road, Wake	Apr-03	40	31	48	59	26
31	Wrenthorpe Road, Wakefield	Jun-98	58	32	19	13	22
32	Woodthorpe lane, Wakefield	Nov-02	29	48	26	20	48
33	Manygates lane,Wakefield	Jun-96	46	46	49	13	50
34	High Street, Crofton	Mar-03	17	21	62	20	50
35	Fairfield Road, Ossett	Jun-01	14	54	54	0	69
36	Netherton Lane, Netherton	Jun-98	72	39	23	18	21
37	Cobblers Lane, Pontefract	Apr-03	89	31	53	23	47
38	Fryston Road, Airedale	Jun-99	84	23	42	48	28
39	Buxton Place, Wake (Road Closure)	Nov-03	47	52	73	54	91
40	HighStreet, Horbury	Jun-02	31	26	48	16	52
41	Redhill Drive, Airedale	Mar-04	32	27	52	50	55
42	Wakefield Road, Flushdyke	Dec-02	15	23	62	23	13

Table 2. Continued
Scheme Effectiveness:- Perception/satisfaction by Local User

Ref	Scheme	Date Installed	Number of responses	Response Rate %	Crossing Road %	Parking %	Reducing Speed %
43	Thorpe Lane Thorpe Audlin	Apr-01	27	39	36	19	33
44	Brier Lane, Ryhill	Mar-03	18	32	12	13	17
45	Baker Lane, Stanley	Apr-04	27	34	14	5	29
46	Lyon Road & Sides Road, Ponte	Jun-98	32	37	54	26	48
47	Spittal Hardwick , Monkhill Ponte	Apr-00	61	25	8	11	7
48	Holywell Lane /Sheepwalk Cas	Oct-03	131	46	10	6	10
49	Potovens Lane, Stanley		44	21	24	19	11
50	Standbridge Lane, Kettlethorpe	Mar-06	33	39	69	30	45
51	Doncaster Road, South Elmsall	Apr-03	23	46	17	9	9
52	Limepit Lane/Lake lock Rd	Mar-00	28	21	38	22	31
53	High Street South Heindley	Oct-00	12	18	36	27	33
54	Aketon Road, Castleford	Apr-04	40	33	35	19	46
55	Pope Street, Altofts	Jan-05	8	24	71	66	86
56	Manor Road, Ossett	Mar-06	41	33	54	30	58
57	Haigh Lane, Haigh	Nov-06	28	42	23	17	22
58	Rooks Nest Road, Outwood	Nov-99	57	36	30	10	34
59	The Lakes, Ferry Fryston	Mar-00	75	18	41	24	35
60	Wrenthorpe Lane, Wrenthorpe	Jun-05	59	37	23	8	21
61	Beancroft Road, Castleford	Jun-06	95	24	29	10	39
62	Church Street, Ossett	Jan-06	28	29	42	15	48
63	Favell Avenue, Normanton	Oct-05	15	27	8	9	23
64	Elizabeth Drive, Airedale	Jan-07	29	14	46	19	57
65	Kendal Drive, Airedale	Jan-07	51	23	37	24	35
66	Durkar Low Lane, Durkar	Oct-05	29	45	72	20	61
67	Thornes Rd Thornbury Road W	Apr-07	80	47	70	26	19
68	Kirkby Rd Hemsworth	Nov-06	22	28	30	32	21
69	Westfield Lane, South Kirkby	Jan-06	22	16	56	56	42
	TOTAL		**2979**	**35%**	**46%**	**24%**	**43%**

Table 3.

Opinion of Features:- Percentage like / neutral

Ref	Scheme	Cycle Lane %	Road Humps %	Speed Tables %	Cushions %	Dummy Cush'n %	Build Outs %	Chicanes %	Central IsInds %	Gateway %	20mph Zones %	VAS %	Mini R-bout %	Signing /Lining %	Red Surfacing %	AVERAGE % OF FEATURES USED
1	Lawefield Lane, Wakefield			85										94		**90**
2	Agbrigg Road, Wakefield			80	55					76	84			70		**73**
3	Carlton Road, Pontefract											nr	nr	nr	nr	**NR**
4	Church Road, Altofts			39	48	65						91		88	88	**70**
5	Crossley Street, Streehouse			82	50					65				77	91	**74**
6	College Grove Road, Wakefield			77	54									84		**72**
7	Lingwell Gate Lane, Outwood				31					84			27	73	88	**60**
8	Stoney Lane, Hall Green									70			61	84	93	**74**
9	Cow Lane, Havercroft							16		61		89		73	84	**61**
10	George Street South Heindley			76	39					70			59	79	94	**72**
11	Shay Lane, Walton			80				83					36	90	86	**79**
12	Moorshutt Road, Hemsworth				22									64		**43**
13	Estcourt Road, Darrington			59	50	51				70		77			86	**66**
14	Poplar Avenue Castleford			63	77									74	74	**72**
15	Hillcrest Avenue Castleford		63											77		**70**
16	South Terrace, Ossett		14											100		**62**
17	Ackworth Road, Purston				48					85				80		**66**
18	West Lane, Sharlston		73											95	90	**86**
19	Priory Road Estate, Featherstone		57	78	65		72						48	90		**72**
20	Batley Road, Kirkhamgate											84		76	78	**80**
21	Tom Wood Ash Lane, S Kirkby		73	55	30	60	43			59			53	86		**72**
22	White Apron St S. Kirkby								90			94		89	96	**87**
23	Barnsley Road, Hemsworth			58	35					74		92		88		**74**
24	Park Lane, Pontefract			76	50					79		96		92		**87**
25	Spawd Bone Lane Knottingley			100				75						100	100	**94**
26	Common Lane, South Kirkby			73		38						93		79	93	**76**
27	Church Lane, Normanton				54		92							92	92	**82**
28	Featherstone Lane, Featherstone						70							81	90	**76**
29	Dewsbury Road service road, Wak		70											88		**79**
30	George-a-Green Road, Wake				36								45	79	85	**69**
31	Wrenthorpe Road, Wakefield				19									55	67	**47**
32	Woodthorpe lane, Wakefield				39									88		**64**
33	Manygates lane,Wakefield		56										69	91	93	**69**
34	High Street, Crofton			87	64		73				93			100	100	**86**
35	Fairfield Road, Ossett			42										75	66	**56**
36	Netherton Lane, Netherton				26								59	79	78	**61**
37	Cobblers Lane, Pontefract			60	31			74						85	90	**68**
38	Fryston Road, Airedale			60	50			34						76	84	**65**
39	Buxton Place, Wake (Road Closure)													79		**79**
40	HighStreet, Horbury			90							90			90		**90**
41	Redhill Drive, Airedale			57	54									93	93	**77**
42	Wakefield Road, Flushdyke	92					100		83					89	90	**91**

Table 3. Continued

Opinion of Features:- Percentage like / neutral

Ref	Scheme	Cycle Lane %	Road Humps %	Speed Tables %	Cushions %	Dummy Cush'n %	Build Outs %	Chicanes %	Central Islnds %	Gateway %	20mph Zones %	VAS %	Mini R-bout %	Signing /Lining %	Red Surfacing %	AVERAGE % OF FEATURES USED
43	Thorpe Lane Thorpe Audlin		36											96	72	**68**
44	Brier Lane, Ryhill				40								77	100		**72**
45	Baker Lane, Stanley			74	30	73								89		**67**
46	Lyon Road and Sides Road, Pontefract		50													**50**
47	Spittal Hardwick & Monkhill Lne Ponte											62		69	72	**68**
48	Holywell Lane & Sheepwalk Lane Cas											81		79	79	**80**
49	Potovens Lane, Stanley				14									91	91	**71**
50	Standbridge Lane, Kettlethorpe							52						82	85	**73**
51	Doncaster Road, South Elmsall						27						45	70	74	**49**
52	Limepit Lane, Lake lock Rd Stanley			76	61						82			90	89	**81**
53	High Street South Heindley			82				42			80			91	91	**80**
54	Aketon Road, Castleford	86		60	53									94	90	**76**
55	Pope Street, Altofts				14									40	60	**38**
56	Manor Road, Ossett			76	60									91	96	**81**
57	Haigh Lane, Haigh						62					71		77	86	**74**
58	Rooks Nest Road, Outwood			67	35			60						81	91	**62**
59	The Lakes, Ferry Fryston		42		50					60				83	88	**65**
60	Wrenthorpe Lane, Wrenthorpe		37		48	56								78		**55**
61	Beancroft Road, Castleford				40		38		78	60				74	79	**62**
62	Church Stree,t Ossett			73	52		42							86	95	**70**
63	Favell Avenue, Normanton				0									78	100	**59**
64	Elizabeth Drive, Airedale		58	62	70		52							78	76	**66**
65	Kendal Drive, Airedale			72	49		40							74		**59**
66	Durkar Low Lane, Durkar				64					100		100		92		**89**
67	Thornes Rd Thornbury Road Wake								74					68	71	**72**
68	Kirkby Rd Hemsworth				27							78			84	**62**
69	Westfield Lane, South Kirkby		63	75	67		75							64	60	**67**
	AVERAGE %	**89**	**53**	**71**	**44**	**57**	**61**	**55**	**81**	**72**	**86**	**85**	**53**	**82**	**85**	**70**

Table 4.

Effectiveness:- Collision and Speed Monitoring

Ref	Scheme	Average Accidents per year				Vehicle Speed(mph) 85th%ile		
		Before	After	Saving		Before	After	Diff
1	Lawefield Lane, Wakefield	0.40	0.00	0.40		31	23	-8
2	Agbrigg Road, Wakefield	2.60	1.50	1.10		35	19	-16
3	Carlton Road, Pontefract	4.80	2.80	2.00		36	31	-5
4	Church Road, Altofts	4.60	1.00	3.60		38	30	-8
5	Crossley Street, Streehouse	0.60	0.00	0.60		42	32	-10
6	College Grove Road, Wakefield	3.40	1.00	2.40		35	25	-10
7	Lingwell Gate Lane, Outwood	3.00	1.30	1.70		39	36	-3
8	Stoney Lane, Hall Green	1.60	1.30	0.30		34	34	0
9	Cow Lane, Havercroft	5.00	3.00	2.00		46	31	-15
10	George Street South Heindley	0.40	0.25	0.15		35	29	-6
11	Shay Lane, Walton	2.60	1.60	1.00		37	35	-2
12	Moorshutt Road, Hemsworth	0.40	0.40	0.00		36	28	-8
13	Estcourt Road, Darrington	1.00	0.80	0.20		42	35	-7
14	Poplar Avenue Castleford	0.20	0.30	-0.10		33	24	-9
15	Hillcrest Avenue Castleford	0.00	0.00	0.00		30	19	-11
16	South Terrace, Ossett	0.00	0.00	0.00		25	17	-8
17	Ackworth Road, Purston	1.20	0.00	1.20		39	30	-9
18	West Lane, Sharlston	0.60	0.00	0.60		45	27	-18
19	Priory Road Estate, Featherstone	1.20	1.00	0.20		35	30	-5
20	Batley Road, Kirkhamgate	2.80	3.30	-0.50		40	36	-4
21	Tom Wood Ash Lane, S Kirkby	7.20	3.50	3.70		40	32	-8
22	White Apron St S. Kirkby	3.40	3.00	0.40		39	33	-6
23	Barnsley Road, Hemsworth	3.00	2.00	1.00		39	31	-8
24	Park Lane, Pontefract	2.60	0.50	2.10		39	28	-11
25	Spawd Bone Lane Knottingley	0.00	0.00	0.00		39	31	-8
26	Common Lane, South Kirkby	2.00	1.60	0.40		40	29	-11
27	Church Lane, Normanton	0.80	0.60	0.20		34	26	-8
28	Featherstone Lane, Featherstone	3.00	3.00	0.00		38	34	-4
29	Dewsbury Road service road, Wake	0.20	0.00	0.20		36	29	-7
30	George-a-Green Road, Wake	4.80	4.50	0.30		33	26	-7
31	Wrenthorpe Road, Wakefield	1.60	0.60	1.00		32	28	-4
32	Woodthorpe lane, Wakefield	0.20	0.00	0.20		36	27	-9
33	Manygates lane,Wakefield	0.20	0.10	0.10		27	22	-5
34	High Street, Crofton	2.60	0.60	2.00		36	25	-11
35	Fairfield Road, Ossett	0.00	0.00	0.00		37	29	-8
36	Netherton Lane, Netherton	2.60	0.20	2.40		35	33	-2
37	Cobblers Lane, Pontefract	1.60	1.60	0.00		40	31	-9
38	Fryston Road, Airedale	6.20	6.80	-0.60		42	34	-8
39	Buxton Place, Wake (Road Closure)	1.00	0.00	1.00		30	N/A	N/A
40	HighStreet, Horbury	3.60	3.00	0.60		29	21	-8
41	Redhill Drive, Airedale	0.60	1.00	-0.40		38	29	-9
42	Wakefield Road, Flushdyke	3.20	2.50	0.70		43	35	-8

Table 4. Continued

Effectiveness:- Collision and Speed Monitoring

Ref	Scheme	Average Accidents per year				Vehicle Speed(mph) 85th%ile		
		Before	After	Saving		Before	After	Diff
43	Thorpe Lane Thorpe Audlin	1.00	0.50	0.50		37	30	-7
44	Brier Lane, Ryhill	0.33	0.00	0.33		35	35	0
45	Baker Lane, Stanley	0.80	0.50	0.30		39	38	-1
46	Lyon Road and Sides Road, Pontefract	0.20	0.60	-0.40		N/A	22	N/A
47	Spittal Hardwick & Monkhill Lne Ponte	5.20	2.80	2.40		N/A	42	N/A
48	Holywell Lane & Sheepwalk Lane Cas	6.40	7.30	-0.90		N/A	36	N/A
49	Potovens Lane, Stanley	4.00	1.80	2.20		N/A	35	N/A
50	Standbridge Lane, Kettlethorpe	2.60	1.00	1.60		40	40	0
51	Doncaster Road, South Elmsall	0.20	0.00	0.20		40	32	-8
52	Limepit Lane and Lake lock Rd Stanley	1.20	1.00	0.20		N/A	33	N/A
53	High Street South Heindley	0.60	1.00	-0.40		N/A	33	N/A
54	Aketon Road, Castleford	0.80	0.60	0.20		38	35	-3
55	Pope Street, Altofts	2.00	1.00	1.00		41	35	-6
56	Manor Road, Ossett	1.40	1.00	0.40		34	30	-4
57	Haigh Lane, Haigh	1.20	0.00	1.20		42	37	-5
58	Rooks Nest Road, Outwood	3.00	2.00	1.00		N/A	33	N/A
59	The Lakes, Ferry Fryston	2.40	1.00	1.40		N/A	32	N/A
60	Wrenthorpe Lane, Wrenthorpe	1.20	1.00	0.20		34	31	-3
61	Beancroft Road, Castleford	5.20	4.00	1.20		33	28	-5
62	Church Stree,t Ossett	2.20	1.00	1.20		34	27	-7
63	Favell Avenue, Normanton	1.20	0.00	1.20		34	24	-10
64	Elizabeth Drive, Airedale	2.80	0.00	2.80		35	28	-7
65	Kendal Drive, Airedale	1.00	1.00	0.00		37	30	-7
66	Durkar Low Lane, Durkar	0.20	0.00	0.20		38	32	-6
67	Thornes Rd Thornbury Road Wake	1.60	3.00	-1.40		37	33	-4
68	Kirkby Rd Hemsworth	3.20	1.00	2.20		38	39	-9
69	Westfield Lane, South Kirkby	1.40	0.60	0.80		40	29	-11
	Total	**140.13**	**88.35**	**51.78**		**2242**	**2053**	**-321**
	Average	**2.0**	**1.2**	**0.8**		**37**	**30**	**-7**

Table 5.

Value for money:- FYRR (First Year Rate of Return)

Ref	Scheme	Cost of Scheme £000's	Accident Savings No	FYRR %
1	Lawefield Lane, Wakefield	35	0.40	92
2	Agbrigg Road, Wakefield	50	1.10	176
3	Carlton Road, Pontefract	35	2.00	457
4	Church Road, Altofts	52	3.60	554
5	Crossley Street, Streehouse	20	0.60	240
6	College Grove Road, Wakefield	35	2.40	549
7	Lingwell Gate Lane, Outwood	20	1.70	680
8	Stoney Lane, Hall Green	20	0.30	120
9	Cow Lane, Havercroft	30	2.00	533
10	George Street South Heindley	15	0.15	80
11	Shay Lane, Walton	35	1.00	229
12	Moorshutt Road, Hemsworth	15	0.00	0
13	Estcourt Road, Darrington	20	0.20	800
14	Poplar Avenue Castleford	15	-0.10	0
15	Hillcrest Avenue Castleford	15	0.00	0
16	South Terrace, Ossett	5	0.00	0
17	Ackworth Road, Purston	25	1.20	384
18	West Lane, Sharlston	72	0.60	67
19	Priory Road Estate, Featherstone	85	0.20	19
20	Batley Road, Kirkhamgate	10	-0.50	0
21	Tom Wood Ash Lane, S Kirkby	40	3.70	740
22	White Apron St S. Kirkby	50	0.40	64
23	Barnsley Road, Hemsworth	47	1.00	170
24	Park Lane, Pontefract	27	2.10	622
25	Spawd Bone Lane Knottingley	12	0.00	0
26	Common Lane, South Kirkby	20	0.40	160
27	Church Lane, Normanton	14	0.20	1143
28	Featherstone Lane, Featherstone	38.5	0.00	0
29	Dewsbury Road service road, Wake	13	0.20	123
30	George-a-Green Road, Wake	30	0.30	80
31	Wrenthorpe Road, Wakefield	15	1.00	533
32	Woodthorpe lane, Wakefield	15	0.20	107
33	Manygates lane,Wakefield	8	0.10	1000
34	High Street, Crofton	65	2.00	267
35	Fairfield Road, Ossett	10	0.00	0
36	Netherton Lane, Netherton	50	2.40	384
37	Cobblers Lane, Pontefract	60	0.00	0
38	Fryston Road, Airedale	15	-0.60	0
39	Buxton Place, Wake (Road Closure)	10	1.00	800
40	HighStreet, Horbury	30	0.60	160
41	Redhill Drive, Airedale	43	-0.40	0
42	Wakefield Road, Flushdyke	30	0.70	187

Table 5. Continued

Value for money:- FYRR (First Year Rate of Return)

Ref	Scheme	Cost of Scheme £000's	Accident Savings No	FYRR %
43	Thorpe Lane Thorpe Audlin	25	0.50	164
44	Brier Lane, Ryhill	12	0.33	226
45	Baker Lane, Stanley	33	0.30	75
46	Lyon Road and Sides Road, Pontefract	10	-0.40	0
47	Spittal Hardwick & Monkhill Lne Ponte	8	2.40	2460
48	Holywell Lane & Sheepwalk Lane Cas	10	-0.90	0
49	Potovens Lane, Stanley	20	2.20	902
50	Standbridge Lane, Kettlethorpe	25	1.60	525
51	Doncaster Road, South Elmsall	8	0.20	205
52	Limepit Lane and Lake lock Rd Stanley	40	0.20	41
53	High Street South Heindley	20	-0.40	0
54	Aketon Road, Castleford	18	0.20	91
55	Pope Street, Altofts	20	1.00	410
56	Manor Road, Ossett	50	0.40	66
57	Haigh Lane, Haigh	15	1.20	656
58	Rooks Nest Road, Outwood	40	1.00	205
59	The Lakes, Ferry Fryston	23	1.40	500
60	Wrenthorpe Lane, Wrenthorpe	12	0.20	137
61	Beancroft Road, Castleford	62	1.20	159
62	Church Stree,t Ossett	35	1.20	281
63	Favell Avenue, Normanton	25	1.20	394
64	Elizabeth Drive, Airedale	30	2.80	765
65	Kendal Drive, Airedale	40	0.00	0
66	Durkar Low Lane, Durkar	30	0.20	55
67	Thornes Rd Thornbury Road Wake	27	-1.40	0
68	Kirkby Rd Hemsworth	30	2.20	601
69	Westfield Lane, South Kirkby	35	0.80	187
	Average	**28.3**	**0.8/yr**	**300%**

Table 6.

Remedial Measures :- As a result of post consultation

Ref	Scheme	Remedial Action - Proposed/Implemented
1	Lawefield Lane, Wakefield	None necessary
2	Agbrigg Road, Wakefield	None necessary
3	Carlton Road, Pontefract	Continue to monitor
4	Church Road, Altofts	Table removed - new dummy cushions added 04/05
5	Crossley Street, Streehouse	None necessary
6	College Grove Road, Wakefield	None necessary
7	Lingwell Gate Lane, Outwood	Chicane installed 04/05
8	Stoney Lane, Hall Green	Re-assess cushions 06/07
9	Cow Lane, Havercroft	Re-assess chicanes - amendments proposed 06/07
10	George Street South Heindley	None necessary
11	Shay Lane, Walton	Mini-roundabouts upgrade- 05/06
12	Moorshutt Road, Hemsworth	Continue to monitor
13	Estcourt Road, Darrington	Continue to monitor
14	Poplar Avenue Castleford	Continue to monitor
15	Hillcrest Avenue Castleford	Continue to monitor
16	South Terrace, Ossett	None necessary
17	Ackworth Road, Purston	Continue to monitor
18	West Lane, Sharlston	No issues, very effective
19	Priory Road Estate, Featherstone	No issues, very effective
20	Batley Road, Kirkhamgate	Continue to monitor
21	Tom Wood / Ash Lane, S Kirkby	Features now worn out renew- upgraded 06/07
22	White Apron St S. Kirkby	No issues - continue to monitor
23	Barnsley Road, Hemsworth	No issues - continue to monitor
24	Park Lane, Pontefract	Very effective
25	Spawd Bone Lane Knottingley	Continue to monitor
26	Common Lane, South Kirkby	Continue to monitor
27	Church Lane, Normanton	None necessary
28	Featherstone Lane, Featherstone	None necessary
29	Dewsbury Road service road, Wake	Very effective
30	George-a-Green Road, Wake	Check Mini Roundabout design for effectiveness
31	Wrenthorpe Road, Wakefield	Cushions upgraded 05/06 and table added
32	Woodthorpe lane, Wakefield	Continue to monitor
33	Manygates lane,Wakefield	Continue to monitor
34	High Street, Crofton	Very effective
35	Fairfield Road, Ossett	Very effective - but check gradient of tables
36	Netherton Lane, Netherton	Continue to monitor
37	Cobblers Lane, Pontefract	Re-assess chicanes 06/07
38	Fryston Road, Airedale	Continue to monitor
39	Buxton Place, Wake (Road Closure)	Check need for a box junction
40	HighStreet, Horbury	Continue to monitor
41	Redhill Drive, Airedale	Continue to monitor
42	Wakefield Road, Flushdyke	Continue to monitor

Table 6. Continued

Remedial Measures :- As a result of post consultation

Ref	Scheme	Remedial Action - Proposed/Implemented
43	Thorpe Lane Thorpe Audlin	None necessary
44	Brier Lane, Ryhill	Continue to monitor
45	Baker Lane, Stanley	None necessary
46	Lyon Road and Sides Road, Pontefract	None necessary
47	Spittal Hardwick & Monkhill Lne Ponte	Consider for upgrading of features
48	Holywell Lane & Sheepwalk Lane Cas	Consider for upgrading of features, new features now in
49	Potovens Lane, Stanley	None necessary
50	Standbridge Lane, Kettlethorpe	Continue to monitor
51	Doncaster Road, South Elmsall	None necessary
52	Limepit Lane and Lake lock Rd Stanley	None necessary
53	High Street South Heindley	Continue to monitor
54	Aketon Road, Castleford	None necessary
55	Pope Street, Altofts	Check size of features
56	Manor Road, Ossett	None necessary
57	Haigh Lane, Haigh	Up grading of scheme is proposed
58	Rooks Nest Road, Outwood	Scheme working well, continue to monitor chcaine
59	The Lakes, Ferry Fryston	Proposed inclusion in 20mph area scheme
60	Wrenthorpe Lane, Wrenthorpe	Up grading scheme works well
61	Beancroft Road, Castleford	Continue to monitor
62	Church Street, Ossett	Continue to monitor
63	Favell Avenue, Normanton	Very good reduced vehicle speeds well adj school
64	Elizabeth Drive, Airedale	Proposed inclusion in 20mph area scheme
65	Kendal Drive, Airedale	Proposed inclusion in 20mph area scheme
66	Durkar Low Lane, Durkar	Good scheme none necessary
67	Thornes Rd Thornbury Road Wakefield	Possible for up grading continue to monitor
68	Kirkby Rd Hemsworth	Continue to monitor
69	Westfield Lane, South Kirkby	Works well none necessary

Appendix 4 – Scheme Photographs

Mini Roundabout - Shay Lane Walton

Zebra Crossing on Speed Table - Shay Lane Walton

Chicane – Standbridge Lane, Kettlethorpe.

Cushions – Kirkby Road, Hemsworth

Speed Table - Estcourt Road Darrington

Build Out – Fryston Road, Ferry Fryston

Traffic Calming – Favell Avenue Normanton (Feeston Enterprise College)

Traffic Calming – Favell Avenue Normanton (Feeston Enterprise College)

Acknowledgments

Background reports and references.

WMDC scheme files
WMDC Scheme assessment files

References

Ref 1 - Department for Transport; Highways Economic Note 1 – Valuation of the Benefits of Prevention of Road Accidents and Casualties, Table 4a