

Evaluation of the Herefordshire Council Speed Indicator Device Programme April 2011



Contents	3
1. Introduction	5
1.1 Technical Data	6
1.2 Site process and positioning	6
1.3 Power Operation	7
1.4 SID rotation	7
2. Methodology	9
2.1 Qualitative	9
2.2 Quantitative	10
3. Results	11
3.1 Responses from the Parish Councils	11
3.2 Additional comments from Parish Councils	12
3.3 Average 85th percentile speed comparison at 30mph sites	15
3.4 Average 85th percentile speed comparison at 40mph sites	16
3.5 Average 85th percentile speed comparison at Little Marcle	17
3.6 Average 85 th percentile speed comparison at Bartestree	18
4. Conclusions	19
5. Appendices	23
6. Contact details for the SID project and the evaluation	35

1. INTRODUCTION.

Drivers and riders who exceed speed limits cause more crashes, and kill and injure more people, than drivers who do not exceed speed limits. In 2009, nationally, 355 people were killed in crashes involving someone exceeding the speed limit and a further 220 people died when someone was travelling too fast for the conditions.

(Contributory factors to reported road accidents, Department for Transport 2010.)

Speed Indicator Devices (SIDs) are temporary vehicle activated signs which detect and display vehicle speeds. SIDs are activated by radar detecting oncoming vehicles. They are increasingly being deployed at sites across Herefordshire with the aim of reducing vehicle speeds and changing drivers' attitude to excessive speed. The objectives of the intervention are to show a reduction in the speed of vehicles at the site when the SID is deployed and a continued reduction in speed at the site after the SID has been removed. This evaluation presents the results of their effectiveness in reducing speeds in Herefordshire.

Herefordshire Council has been deploying SIDs since 2007. There are currently 10 temporary SIDs owned by Herefordshire Council which are rotated around 24 parishes at 44 sites, remaining at any one site for four weeks. The SIDs are battery powered rather than mains powered due to the rural location of the parishes. SIDs cannot return to the same parish within two months following deployment. In addition to the 10 SIDs owned by Herefordshire Council 5 parishes have purchased their own: Bodenham, Eardisley, Leominster, Winforton, Witney on Wye.

Parish and Town councils can request SID(s) from Herefordshire Council; if the criteria laid down in the procedure and policy document are met a SID(s) will be deployed for the agreed period of time. (See appendices 1, 2 & 3)

Speed data is collected prior to deployment to determine the level of speeds at the site. If the data shows that speeds are in excess of the 85th percentile a SID may be effective at reducing speeds. The 85th percentile is the speed at which 85 percent of vehicles are travelling at or below. E.G. an 85th percentile speed of 40mph shows that 85% of vehicles travel at or below 40mph. It is the nationally accepted method of speed assessment. If the data shows that there is a high percentage of vehicles speeding a site meeting will then be arranged between the parish council and a member from the road safety team. The parish councils are asked to invite a local officer from the policing team to attend the site visit. A risk assessment is carried out by the road safety personal at the proposed deployment site(s) and if it is decided to proceed then the official procedure is carried out.

Generally SIDs are placed at sites where the speed limit changes, on relatively straight roads, not obscured by vegetation, away from junctions, pedestrian crossings and where drivers should not be distracted by the device. The SID should detect vehicle speeds at around 100 metres before the vehicle reaches the sign. This gives the driver sufficient time to react to the sign.

During the deployment SIDs collect the following data: speed the vehicle is travelling, day, date and time of day. This information is collected by the road safety team, if there is a speeding issue the data is sent to the police at their request to enable them to analyse the data and pick up on any issues before the parishes receive the data. The parishes receive the data seven working days after the police.

If the data shows that during deployment the SIDS are not reducing the speed of vehicles the Safer Roads Partnership (SRP) are sent the information highlighting the issues.

For the purpose of this study further data was recorded for 1 week following the removal of the SIDs at the following two sites, Bartestree (by the shop) and Pixley Parish at the Little Marcle site.

1.1 SID Technical Data

Dimensions: 660mm x 770mm x 110mm (w x h x d)

Weight: 8.5kg

Operating Voltage: 11.3 V – 15.0 V

Power Supply Input: 100V – 240 V AC

Output 12V / 100 W, IP55

Battery: When fully charged 12volts

Display: 330mm x 450mm (h x w) 13 segments

Data Memory: 1MB non-volatile flash memory
1000,000 data entries

Radar Frequency: 24.15 GHz – 24.25 GHz

Radar Power: 20dBm, 100mWe.i.r.p.

Radar Detection Range: Approximately 100 metres for average 4 seat – car

GSM Modem: Wavcom 900 MHz / 1800 MHz

1.2 SID site process and positioning

SIDs are installed in accordance with existing criteria and guidelines, (see appendix 1, 2, 3), this is to ensure their use is as effective as possible. The SIDs are battery powered and are mounted onto metal poles in most cases, although existing poles if suitable are used to reduce costs. Each pole is secured by a key into the ground to prevent theft.

SIDs should be mounted high enough to prevent injury to passing people and to prevent vandalism. The pole must not be too near the kerb (a minimum of 0.6m away) so as not to damage passing vehicles. Each SID is fixed to the pole by being mounted onto a pre-fixed backing board and are then locked to the board to prevent theft.

All SID sites are subject to a Risk Assessment, and the staff involved in site visits, deploying and removing SIDs are trained to do so in terms of Health and Safety, working on the highway etc. They all wear high visibility clothing.

The sight line of the SID must be taken into account as the radar will normally detect vehicles approximately 100m before the sign. The SID should be positioned on a fairly straight road and not obscured by vegetation. In some cases the SID may be sited on the opposite side of the road. SIDs can be turned around on the post if necessary to enable data to be collected from on-coming vehicles.

1.3 Power Option

Due to Herefordshire being such a rural county there is an issue regarding access to the mains power to activate the SIDs. For this reason the SIDs run off rechargeable batteries. The life-span of these batteries is approximately one week therefore the SIDs are revisited every seven days when the batteries are replaced.

The SIDs are activated remotely and vehicle speed and volume data can also be downloaded.

1.4 SID Rotation

Research has shown that the effect of SIDs on vehicle speeds reduces as the 'novelty' effect wears off (Poulter and McKenna, 2005). For this reason the temporary SIDs remain in place for no longer than a four week period and are then deployed to another site.

2. METHODOLOGY

The purpose of this study is to assess the effectiveness of the SIDs as a speed reducing measure. The evaluation makes use of both quantitative and qualitative research methods. The quantitative research measure provides statistical evidence that enables us to assess what impact the SID programme has had on reducing the speed of vehicles. The qualitative research method enabled us to gain feedback from the parish councils to ensure that the stakeholders' views are represented in the evaluation.

2.1 Questionnaires

Questionnaires were distributed to all Parishes who have participated in the SID programme. The questionnaire consisted of six questions about the success, quality and organisation of the programme, it also allowed for any other comments to be added. An example of the questionnaire can be found in Appendix 4

The views of the parishes were gathered via a questionnaire and included in the overall evaluation.

Parishes included in the evaluation:

Ashperton
Aymestry
Bartestree & Lugwardine
Bishops Frome & Fromes Hill
Burley Gate
Bodenham
Bosbury
Colwall
Cusop
Eardisley
Leominster
Luston
Marden
Moreton on Lugg
Much Birch
Orleton
Pembridge
Peterchurch
Pixley
Richards Castle
Sutton St. Nicholas
Stoke Lacy
Tarrington
Walford
Wigmore

The number of questionnaires returned, 21 of 25 that is an 80% response.

2.2 Quantitative

The quantitative measures include speed data collected prior to the SIDs being deployed at the agreed site and the speed of vehicles recorded travelling towards the deployed SID. For the purpose of this evaluation post -SID data was also collected at two sites, Bartestree and Little Marcle.

3. RESULTS

The results are presented in six parts. Part 3.1 results of the Parish Councils' questionnaire. Part 3.2 Comments attached to the Parish Councils' questionnaire. Part 3.3 to 3.6 data for the parishes where Herefordshire owned SIDs have been deployed.

3.1 Responses from the Parish Councils.

80% of the Parishes returned the questionnaires (21 out of 25)

Was the SID as effective as you hoped in reducing speeds in your Parish?

- 76% agreed (16)
- 5% didn't answer question (1)
- 19% disagreed (4)

Reasons given were:

- 2 cited lack of enforcement,
- 1 displays speed too late
- 1 was still on deployment, no data yet
- 1 Parish felt SID in wrong location

Were the SIDs well received by parishioners?

- 95% agreed (20)
- 1 parish still on deployment no data yet.

Will you be requesting SID's again in next 12 months?

- 13 wanted 4 deployments
- 3 wanted 2 deployments
- 1 wanted 3 deployments
- 3 replied no as they already use their own.
- 1 didn't answer question

Is your Parish considering purchasing its own SID?

- 57% replied no (12)
- 28.5% replied yes (6)
- 14.5% have already purchased their own (3)

Did you find joining the scheme easy?

- 85.7% replied yes (18)
- 14.2% replied no (3)

Reasons given were:

- Lengthy procedure of site visits and meetings
- Process too slow
- Site assessments were overly bureaucratic
- Data feedback missing due to equipment glitches.

Did you find the Road Safety Team approachable and helpful?

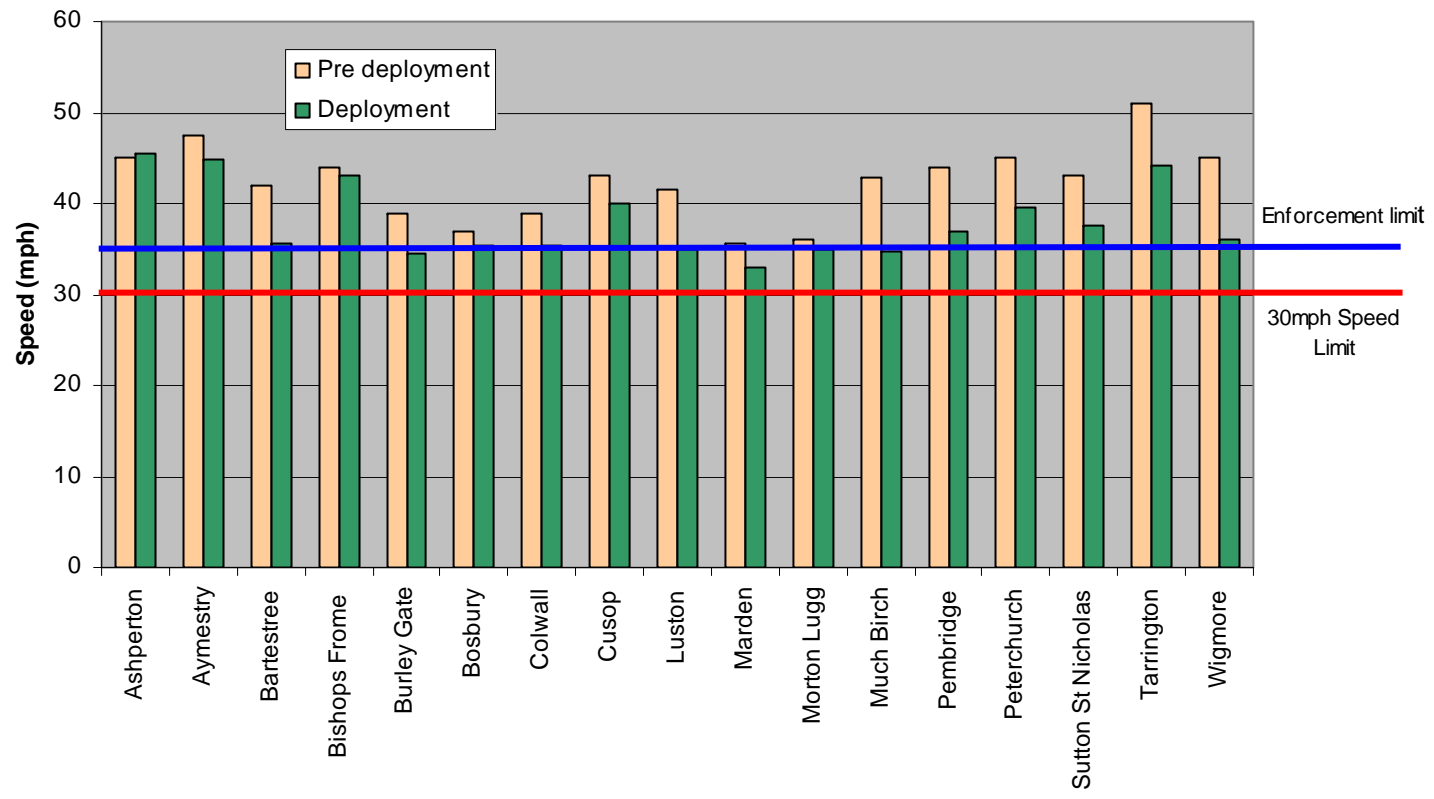
- 95% agreed (20)
- One parish disagreed but did not clarify.

3.2 Additional comments:

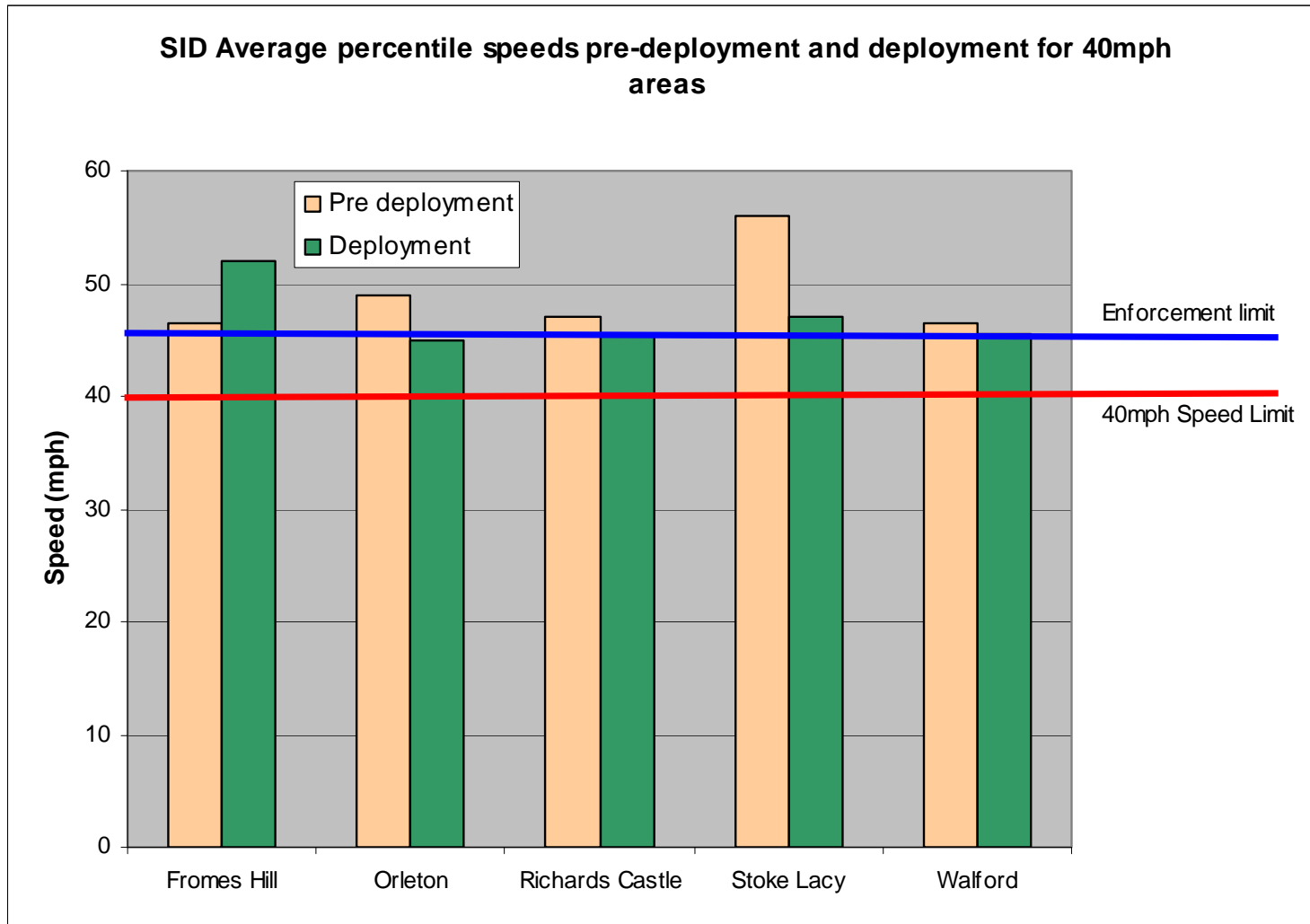
- Much Birch would prefer a permanent VAS (Vehicle Activated Sign) instead of purchasing own SID.
- SID's are ignored by motorists as they have become aware that enforcement does not follow. (Much Birch).
- The SID was very well received by our parishioners and considered it very effective. (Peterstow)
- Concern over lack of frequency of operation, would like them every other month. (Peterstow)
- Considered purchasing own SID but no funds. (Peterstow)
- We are looking at purchasing and sharing a SID with neighbouring parish. (Aymestrey)
- Some parishioners were sceptical of effect after a few days and notice traffic speeds up again. (Aymestry)
- Purchase was considered with another council but decided to hire would be more straightforward. (Ashperton)
- Ideal solution would be combination of SID's and enforcement. (Ashperton)
- It is noticeable that motorists react to the SID whilst in place but then revert to their normal behaviour once SIDs have gone (Bishops Frome/ Fromes Hill)
- Use of SIDs has demonstrated that the PC has 'done something' about local concerns. (Fromes Hill/ Bishops Frome)
- Purchase considered but long way off if costs cannot be shared (Fromes Hill/ Bishops Frome)

- Parish Council would like a follow up speed survey when SIDs are not there.
(Bosbury)
- PCs would like police presence when SIDs not there to do speed checks.
(Bosbury)
- Want 30mph limit sign moved further west as too close to village.
((Bosbury)
- Parishioners felt the SIDs slowed down motorists and reminded them of the speed limit. (Colwall)
- Felt the SID only effective on its 1st session. Awaiting feedback.
(Moreton on Lugg)
- We have had a moderate success but there is a lack of enforcement.
(Much Cowarne)
- Cusop would consider buying their own SID if it could be permanently connected to electric supply not battery
- Peterchurch reported vehicles made a noticeable reduction in speed when approaching the units.
- Process was very slow with a number of surveys and site visits being required – took 2 years from initial enquiry.
(Tarrington's application was received by Road Safety Office in full on 27th January 2009 and first deployment took place January 2010)
- Those who exceed the limit will do so until some action is taken against them. Police observation/presence. (Wigmore)
- Most parishioners welcome the fact that we are being seen to be taking action to resolve the problem (Wigmore)

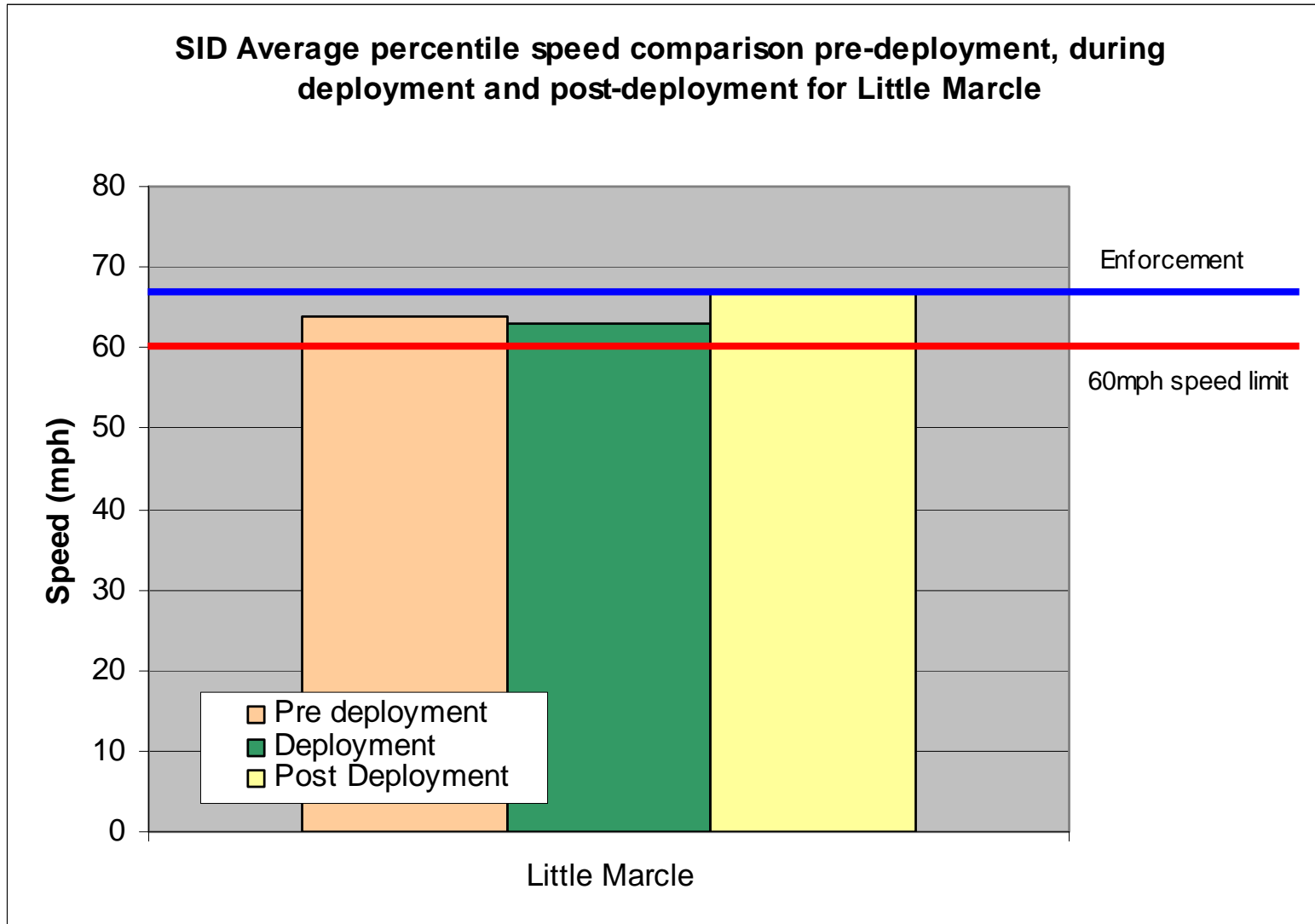
3.3 Average 85th percentile speed comparison pre deployment and during deployment for 30mph areas



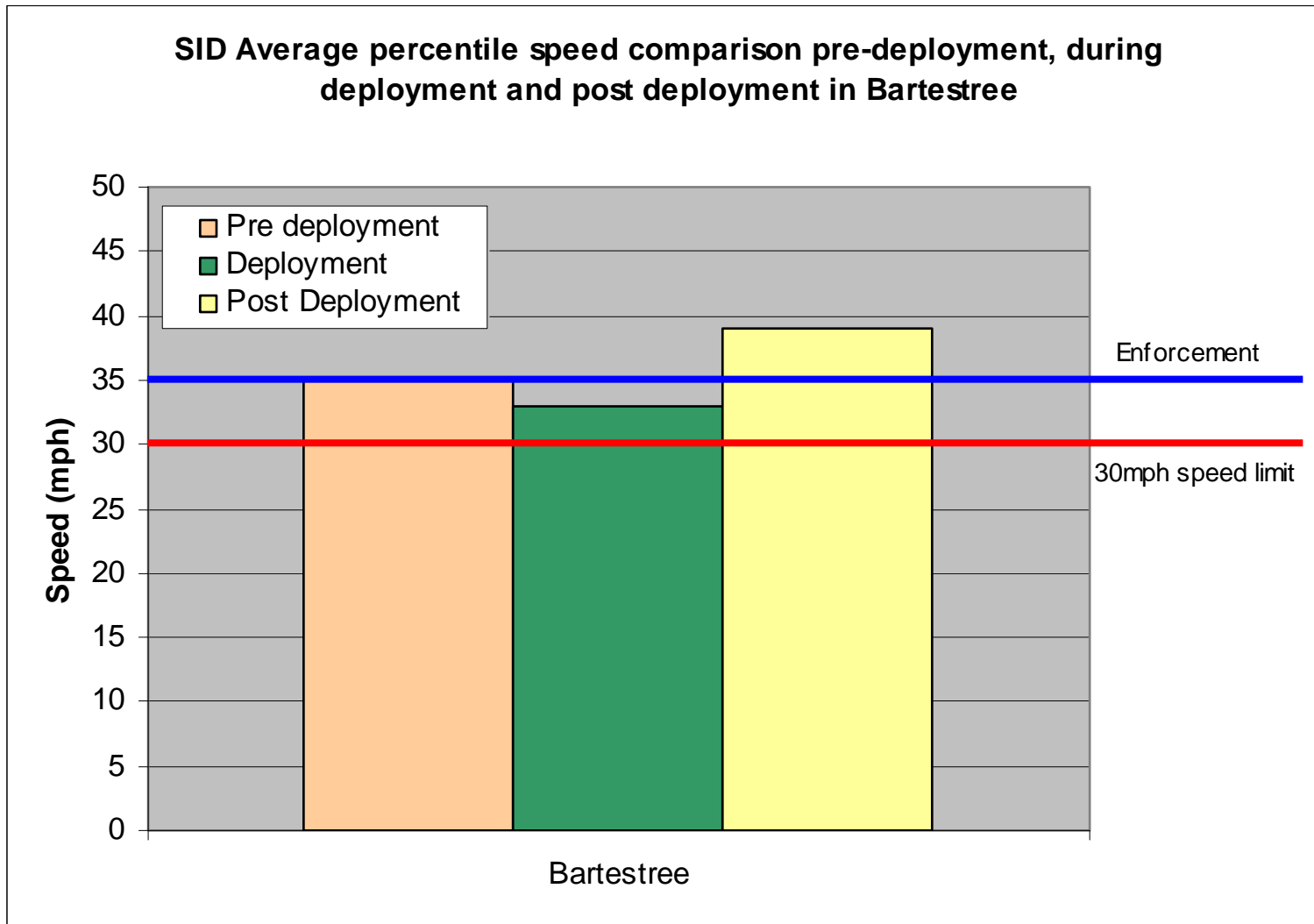
3.4 Average 85th Percentile Speed comparison data 40 mph sites



3.5 Average 85th Percentile Speed comparison pre-deployment, during deployment and post-deployment for Little Marcle.



3.6 Average 85th Percentile Speed comparison pre-deployment, during deployment and post-deployment for Bartestree.



4. Conclusion regarding the effectiveness of SIDS.

Sites showing a reduction in vehicle speed:
(see 3.3 & 3.4)

At 30mph sites:

Aymestry
Bartestree (at shop site)
Bishops Frome
Bosbury
Burley Gate
Colwall
Cusop
Luston
Marden
Moreton on Lugg
Much Birch
Pembridge
Peterchurch
Sutton St Nicholas
Tarrington
Wigmore

At 40mph sites:

Orleton
Richards Castle
Stoke Lacy
Walford

At 60mph sites:

Little Marcle – Pixley

Sites that the show a vehicle speed reduction to below the 85th percentile enforcement figure:

Little Marcle – Pixley
Orleton
Burley Gate
Marden
Much Birch

Sites not showing a reduction in vehicle speed:

At 30mph sites:

Ashperton

At 40mph sites:

Fromes Hill

- = 'A' road
- = 'B' road
- = 'C' road

- 23 out of the 25 (92%) sites have seen a reduction in vehicle speed during the deployment of SIDs.
- 5 out of the 25 (20%) sites have seen a reduction in vehicle speeds to below enforcement.
- 7 out of the 9 (77%) sites on 'A' roads have seen a reduction in vehicle speed.
- 9 out of the 9 (100%) sites on 'B' roads have seen a reduction in vehicle speed.
- 5 out of the 5 (100%) sites on 'C' roads have seen a reduction in vehicle speeds.

Therefore the biggest change has been on the 'B' and 'C' roads.

30 mph sites:

During deployment 16 out of the 17 sites in 30mph zones, 94%, saw a reduction in the speed vehicles were travelling when comparing pre and deployment data (see appendices 5) The only site not to show a reduction in vehicle speeds was Ashperton, this has now become a Community Concern Site where the Safer Roads Partnership regularly deploy a mobile speed camera vehicle.

40 mph sites:

During deployment 4 out of the 5 sites in 40mph zones, 80%, saw a reduction in the speed vehicles where travelling when comparing pre and deployment data (see appendices 5) The only site not to show a reduction in vehicle speeds was Fromes Hill and this has now become a Community Concern Site where the Safer Roads Partnership regularly deploy a mobile speed camera vehicle.

Site comparisons using the average 85th percentile at pre-deployment, during deployment and during post deployment of SIDs.

Little Marcle and Bartestree

Little Marcle (see 3.5)

During deployment there was a reduction in the speed that vehicles were travelling when comparing data collected pre and post deployment. This shows that the SIDs did influence some of the driver' behaviour and resulted in speed reduction.

Bartestree – Shop site. (see 3.6)

During pre and deployment of SIDs the data revealed that vehicles were travelling at or below the enforcement level of 35mph. Also during deployment

vehicle speeds reduced when compared with the pre speed data collected. This proved that SIDs can change driver behaviour and reduce speed. Post data revealed that vehicle speeds increased to above the enforcement level of 35mph.

Conclusion of Parish responses to the SID programme

- 76% of the parishes agreed that the deployment of a SID reduced the speed of vehicles.
- 95% of the parishes agreed that the SIDs were well received by their parishioners.
- 85% of the parishes agreed that the SID programme was very accessible.
- 95% of the parishes agreed that they found the Road Safety Team approachable and helpful.
- 95% of the parishes said they will continue with the programme.

Consideration regarding the characteristics of the two SID sites where there was not a reduction in vehicle speeds, Ashperton, A417 and Fromes Hill, A4103:

- both are straight road
- both are rural sites
- both have good visibility
- both are main routes
- both are busy routes
- both have traffic passing through from and to main towns/cities
- both have many HGVs passing through
- both sites do not have many residential properties
- both do not have many pedestrians
- Traffic not local drivers

Suggestions for further analysis:

- Look further into the characteristics of the sites that saw a reduction in vehicle speeds.
- Look further into the characteristics of the sites that did not see a reduction in vehicle speeds.

Appendices content

Appendix 1: Procedures for use of a SID.....25

Appendix 2: Application form for the loan of a SID.....27

Appendix 3: Flo Chart showing procedure for SID deployment.....29

Appendix 4: Parish questionnaire.....31

Appendix 5: Average 85th percentile speed data table.....33

Appendix 1: Procedures for use of Speed Indicator Devices



PROCEDURES FOR USE OF SPEED INDICATOR DEVICES (SID)

Applies to Speed Indicator Devices owned by Herefordshire Council or Parish Councils

Speed Indicator Devices (S.I.D's) are deployed on a temporary basis in support of Herefordshire's Road Safety Strategy. They are an educational device informing drivers of their vehicle's speed, with the aim of encouraging safer driver behaviour. Their use complements a wider range of speed management and road safety educational initiatives in Herefordshire.

- The signs display vehicle speed to the approaching driver and records, speed, time and date
- A site visit and analysis of speed data taken from the site is undertaken prior to any installation to ensure that a SID is the most appropriate form of speed management.
- As temporary devices the signs will be deployed for one month at any one site and cannot return within 2 months, maximum deployment for any site is 4 per year.
- The use of SID's must be supported by the Local Member in writing and the Parish must confirm that their Local Policing Team have been consulted and have no objections.
- Parish Council's can purchase and install SID's at their own expense subject to agreement with Herefordshire Council and by following the installation procedure set out below. They will also need to provide sufficient liability insurance.
- Data gathered from the SID deployment will be forwarded to the Parish Council.

APPLICATION PROCEDURE:

1. Application for SID received from Parish Council needs to include:
 - Completed Application Form:
 - Letter of support from Local Member
 - Location map indicating proposed sites
2. Site Visit to mark locations for initial speed data collection.
3. Speed Data analysed by Road Safety Unit, data and decision sent to Parish Council
4. If data supports use of a SID a second site visit will take place to confirm location of SID with Parish representatives and Police invited.
5. Installation of Socket
6. Deployment of SID/s
7. Deployment speed data sent to Parish Council.

Appendix 2: Application for loan of Speed Indicator Device



**APPLICATION FOR LOAN OF
SPEED INDICATOR DEVICE
FROM HEREFORDSHIRE COUNCIL**

The Parish Council confirm that by submitting this application form they accept the conditions and costs and have informed their Local Policing Team

Cost to Install socket to take SID - £247.89 per socket
Cost to deliver, set up and remove - £100.00 per SID
All costs plus VAT at the current rate.

Name of Parish Council

Person to be contacted regarding S.I.D deployment.
Name
Contact Number..... DayEvening
Email.....

Name of Parish Clerk
Signed.....
Date.....

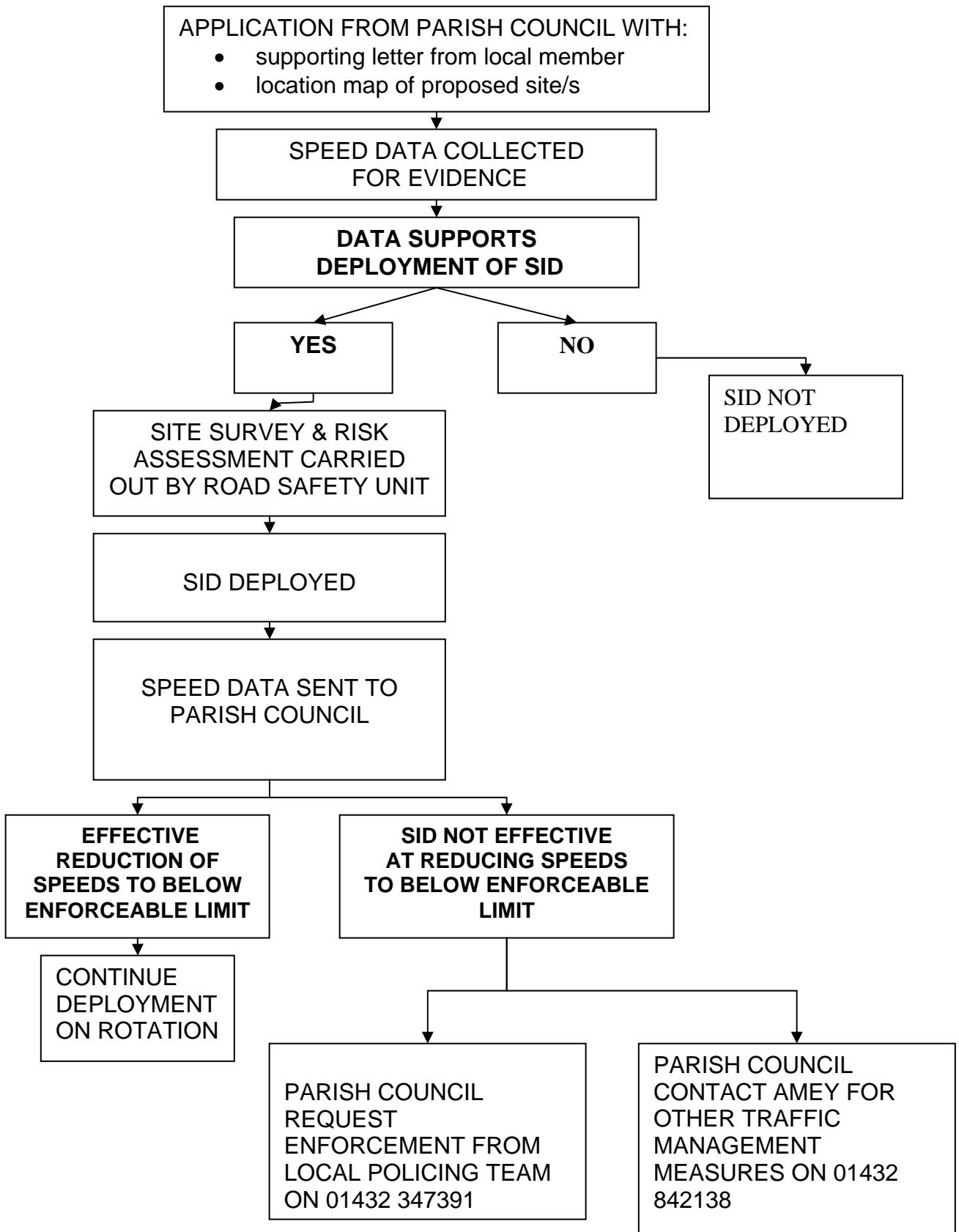
Name of Councillor supporting application
Signature
Date

Please return this signed Application together with:

- **Map showing your proposed location/s**
- **Letter of support from your Councillor**

**To: Road Safety Unit, Transportation, Herefordshire Council,
PO Box 236, Hereford HR4 9ZZ**

Appendix 3: Flow Chart showing the procedure for SID deployment.



Appendix 4: Parish Questionnaire

Dear Parishes

We are looking at producing an evaluation of the Speed Indicator Device (SID) Scheme. For this to be a true and relevant document it is vital the parishes that have joined the scheme are involved.

Would you therefore please complete the feedback form below and return by e mail, address below.

Name of Parish:

Date:

*** Delete as appropriate.**

1. Did you find the SID's as effective as you had hoped in reducing vehicle speeds in your Parish? **Yes/No***

If not, what do you think prevented them from being successful?

2. Were the SIDs well received by your parishioners? **Yes/No***
Positive Comments would be helpful:

If not what comments did they make?

3. Will you be requesting SID's again in the next 12 months? **Yes/No***

If yes, how many times (max 4)

If not, could you tell us why?

4. Is your Parish considering purchasing your own SID? **Yes/No***

5. Did you find the procedure of joining the scheme easy? **Yes/No***

If not how could it have been improved?

6. When contacting the road safety team did you find them approachable and helpful? **Yes/No***

If not please explain why.

PTO

7. We would appreciate any other comments:

Many thanks for your time.

Kind regards

Ann Mann

Ann Mann
Road Safety Officer
Tel: 01432 260947
email: amann@herefordshire.gov.uk

Appendices: 5
Average 85th percentile speed data collected at Speed Indicator Sites.

30 mph sites

	Pre deployment	Deployment
Ashperton	45	45.5
Aymestry	47.5	44.8
Bartestree	35	33
Bishops Frome	44	43
Burley gate	39	34.5
Bosbury	37	35.4
Colwall	39	35.3
Cusop	43	40
Luston	41.5	35
Marden	35.5	33
Morton on Lugg	36	35
Much Birch	42.8	34.7
Pembridge	44	37
Peterchurch	45	39.7
Sutton St Nicholas	43	37.5
Tarrington	51	44.3
Wigmore	45	36

40 mph sites

	Pre deployment	Deployment
Fromes Hill	46.5	52
Orleton	49	45
Richards Castle	47	45.5
Stoke Lacy	56	47
Walford	46.5	45.5

60 mph sites

Pixley	62	62.3
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Bartestree and Little Marcle SID Analysis

	Pre deployment	Deployment	Post Deployment
Bartestree	35	33	39
Little Marcle	64	63	67

For further information on this project or this evaluation please contact:

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