

The effectiveness of Speed Indicator Devices (SID)

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Version 1

Introduction:

This evaluation project set out to study the effect on vehicle speeds of a range of Speed Indicator Device (SID) deployment intervals.

This intervention is trying to address the level of reported "speeding" at community concern locations.

The evidence that this road safety issue needed to be addressed was based on:

- Research and evaluation reports
- Complaints from the public
- Local knowledge
- Traffic speed data
- Public consultation
- Road casualty data

The SID programme was introduced to try to address local community speed concerns. The justification for providing a SID is made by assessing the 85th percentile vehicle speeds at a given location in accordance with guidance on speed thresholds agreed by the Association of Chief Police Officers (ACPO). Research both locally and nationally suggests there is some evidence of effectiveness when SIDs are deployed. This project set out to establish the effectiveness of SID's both during and between deployments.

The Intervention

Preston Road, Weymouth – 1 March 2014 to 3 Nov 2014 (Urban location)

Littlemoor Road, Weymouth – 10 Nov 2014 – May 2015 (Urban location)

Leigh July 2015 – 20 July 2015 – 24 August 2015 (Rural location)

SIDs under normal circumstances are deployed for one week in 12, due to the high number of sites established over some years. This intervention looked at deployment periods on and off over many weeks at one location.

Aims

This evaluation set out to establish how often the SID unit should be deployed in order to achieve the greatest impact on traffic speeds.

This was to be achieved by: 24 October 2014

The aim is now to assess how long the SID can be deployed before it becomes less effective.

Objectives:

The objectives were:

- To reduce 85th percentile free flowing vehicle speeds by up to 2 mph by increasing the deployment frequency of SIDs
- To reduce 85th percentile free flowing vehicle speeds by 1mph between deployment periods by October 2014

Cost:

The total financial cost of the intervention was £5,160, including staff time.

Evaluation Method:

The location chosen for the evaluation was on Preston Road which had been receiving a one week SID deployment every 12 weeks, at best. Traffic loops were installed at the site so that real time data could be collected and monitored throughout the evaluation. Colleagues from the Transportation Modeling team deployed the SID unit and collated the recorded vehicle speed data. The SID unit was deployed at varying periods from one week to four weeks with an interim one or two week breaks where there was no SID.

Evaluation at site two Littlemoor Road was deployed almost permanently to assess the effectiveness of the SID unit over a prolonged period up to May 2015.

Type of Evaluation

The purpose of the evaluation was to try to improve the intervention and to show its effectiveness.

Progress towards our aim was measured using a Monitoring Indicator and Short-term Outcomes of vehicle speeds.

The baseline data was:

Pre survey 85th percentile traffic speeds at the evaluation location.

The degree of change we expected was:

An average 85th percentile speed reduction of up to 2 mph throughout the trial period and to maintain this reduction for a lengthy period once the SID was removed permanently.

Evaluation Design

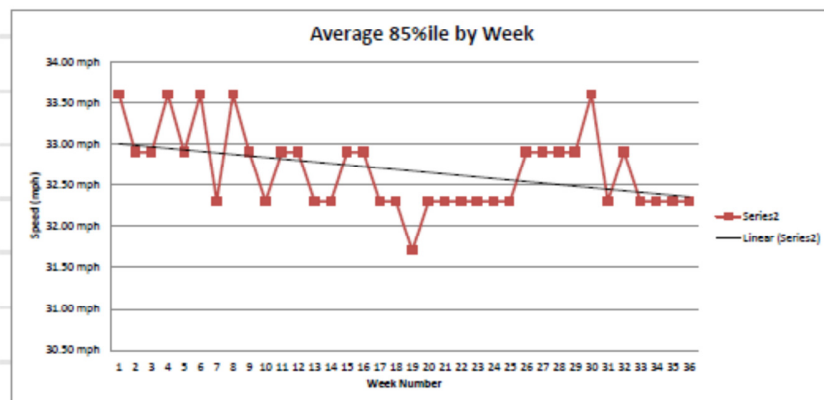
SID evaluation has always been conducted by Dorset County Council, but only for short periods looking at before, during and after data, normally a 3 week period. The results over several years suggest the SID unit works when deployed for a week, but has very little effect thereafter. This evaluation project looked to expand and explore the effectiveness of SIDs over a much longer period.

Results

SID evaluation results, Preston Road, Weymouth (March 2014 – Nov 2014)

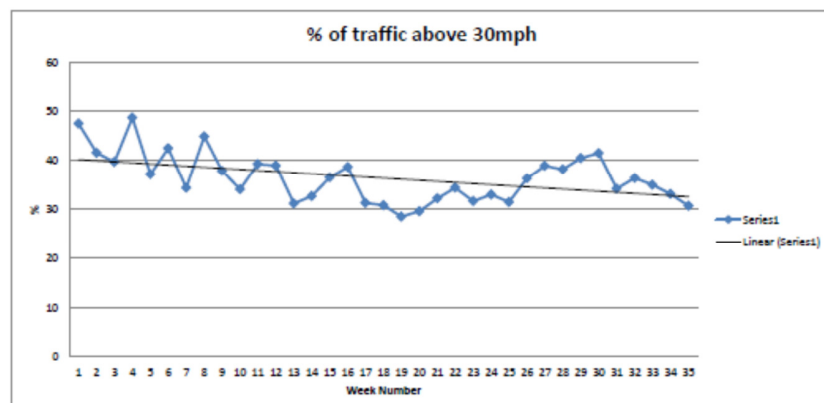
SID EVALUATION SUMMARY

Preston Road, Weymouth

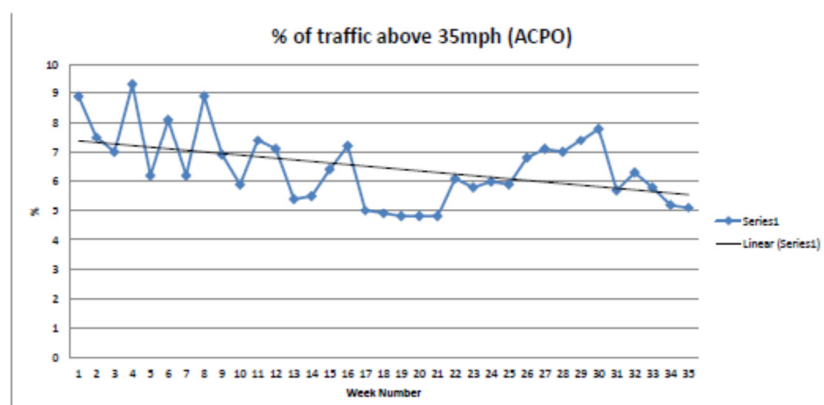


- Before the first SID installation baseline speed was only 33.6mph, over the course of the project the speed dropped to a low of 31.7mph.
- Multiple SID placements have proved to week on week reduce the overall speed of the traffic on the network.
- It took 10 weeks after the final SID placement to return to baseline speeds, proving frequent SID placements are most effective

| WK No. | Week Commencing | SID? | 85thile | Difference |
|--------|-------------------|---------|-----------|------------|
| 1 | 03 March 2014 | NO SID | 33.60 mph | |
| 2 | 10 March 2014 | SID | 32.90 mph | -0.70 mph |
| 3 | 17 March 2014 | SID | 32.90 mph | -0.70 mph |
| 4 | 24 March 2014 | NO SID | 33.60 mph | 0.00 mph |
| 5 | 31 March 2014 | SID | 32.90 mph | -0.70 mph |
| 6 | 07 April 2014 | NO SID | 33.60 mph | 0.00 mph |
| 7 | 14 April 2014 | SID | 32.30 mph | -1.30 mph |
| 8 | 21 April 2014 | NO SID | 33.60 mph | 0.00 mph |
| 9 | 28 April 2014 | SID | 32.90 mph | -0.70 mph |
| 10 | 05 May 2014 | 1/2 SID | 32.30 mph | -1.30 mph |
| 11 | 12 May 2014 | SID | 32.90 mph | -0.70 mph |
| 12 | 19 May 2014 | NO SID | 32.90 mph | -0.70 mph |
| 13 | 26 May 2014 | SID | 32.30 mph | -1.30 mph |
| 14 | 02 June 2014 | SID | 32.30 mph | -1.30 mph |
| 15 | 09 June 2014 | NO SID | 32.90 mph | -0.70 mph |
| 16 | 16 June 2014 | NO SID | 32.90 mph | -0.70 mph |
| 17 | 23 June 2014 | SID | 32.30 mph | -1.30 mph |
| 18 | 30 June 2014 | SID | 32.30 mph | -1.30 mph |
| 19 | 07 July 2014 | SID | 31.70 mph | -1.90 mph |
| 20 | 14 July 2014 | SID | 32.30 mph | -1.30 mph |
| 21 | 21 July 2014 | NO SID | 32.30 mph | -1.30 mph |
| 22 | 28 July 2014 | NO SID | 32.30 mph | -1.30 mph |
| 23 | 04 August 2014 | NO SID | 32.30 mph | -1.30 mph |
| 24 | 11 August 2014 | NO SID | 32.30 mph | -1.30 mph |
| 25 | 18 August 2014 | NO SID | 32.30 mph | -1.30 mph |
| 26 | 25 August 2014 | NO SID | 32.90 mph | -0.70 mph |
| 27 | 01 September 2014 | NO SID | 32.90 mph | -0.70 mph |
| 28 | 08 September 2014 | NO SID | 32.90 mph | -0.70 mph |
| 29 | 15 September 2014 | NO SID | 32.90 mph | -0.70 mph |
| 30 | 22 September 2014 | NO SID | 33.60 mph | 0.00 mph |
| 31 | 29 September 2014 | SID | 32.30 mph | -1.30 mph |
| 32 | 06 October 2014 | SID | 32.90 mph | -0.70 mph |
| 33 | 13 October 2014 | SID | 32.30 mph | -1.30 mph |
| 34 | 20 October 2014 | SID | 32.30 mph | -1.30 mph |
| 35 | 27 October 2014 | SID | 32.30 mph | -1.30 mph |
| 36 | 03 November 2014 | NO SID | 32.30 mph | -1.30 mph |

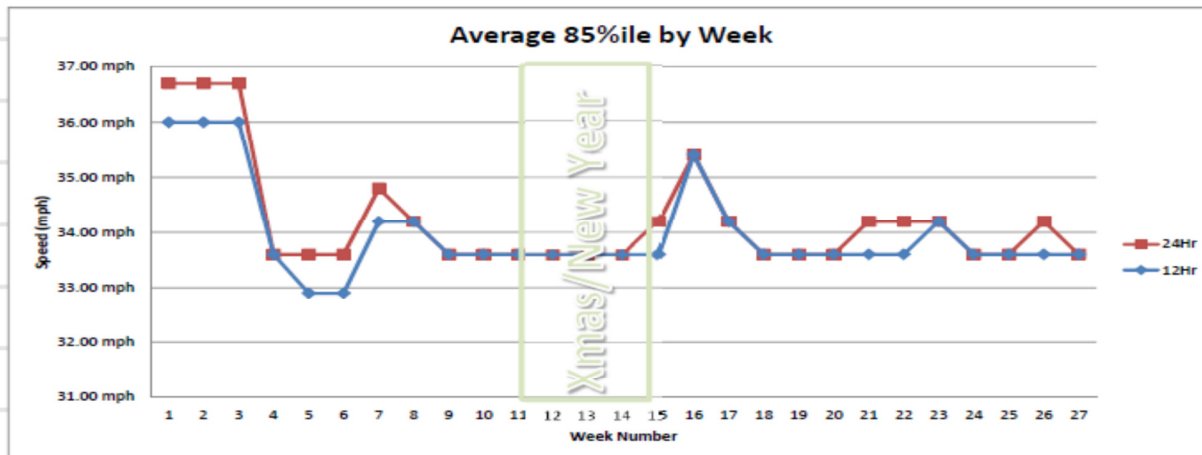


- Before the first SID installation 47% of traffic was in excess of 30mph, by the final SID placement only about 30% was above 30mph.

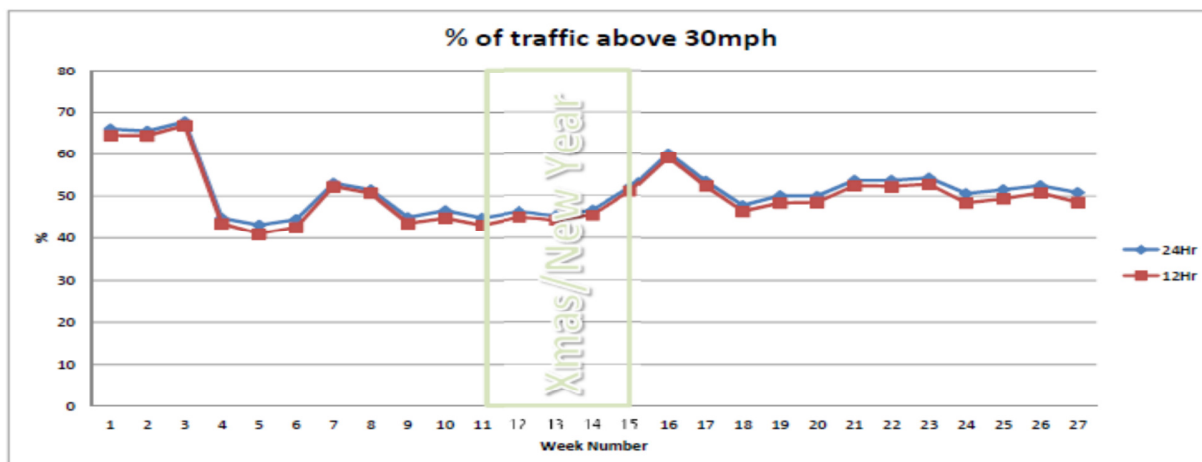


- Before the first SID installation 9% of traffic was in excess of 35mph, by the final SID placement only about 4.8% was above 35mph.

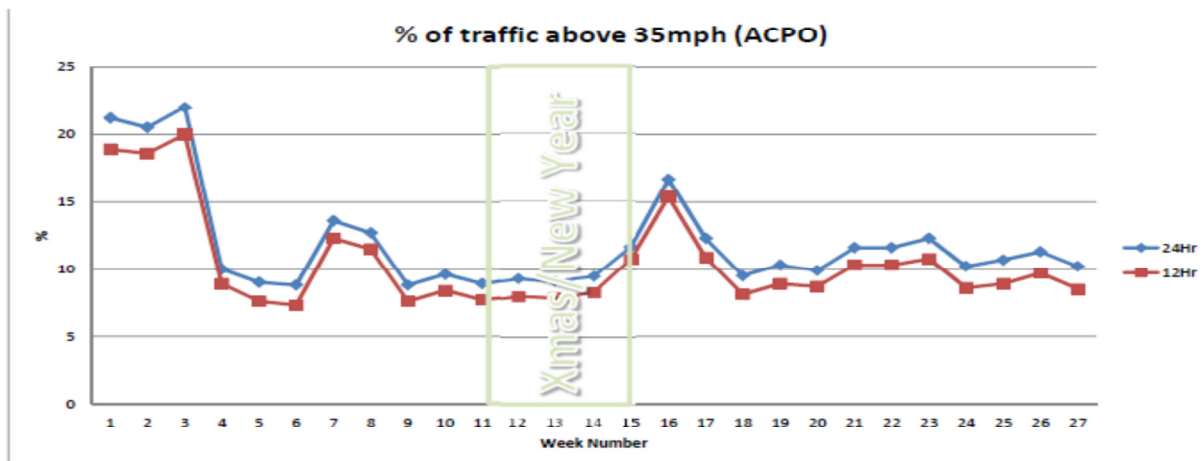
SID evaluation results – Littlemoor Road, Weymouth (Nov 14 – May 2015)



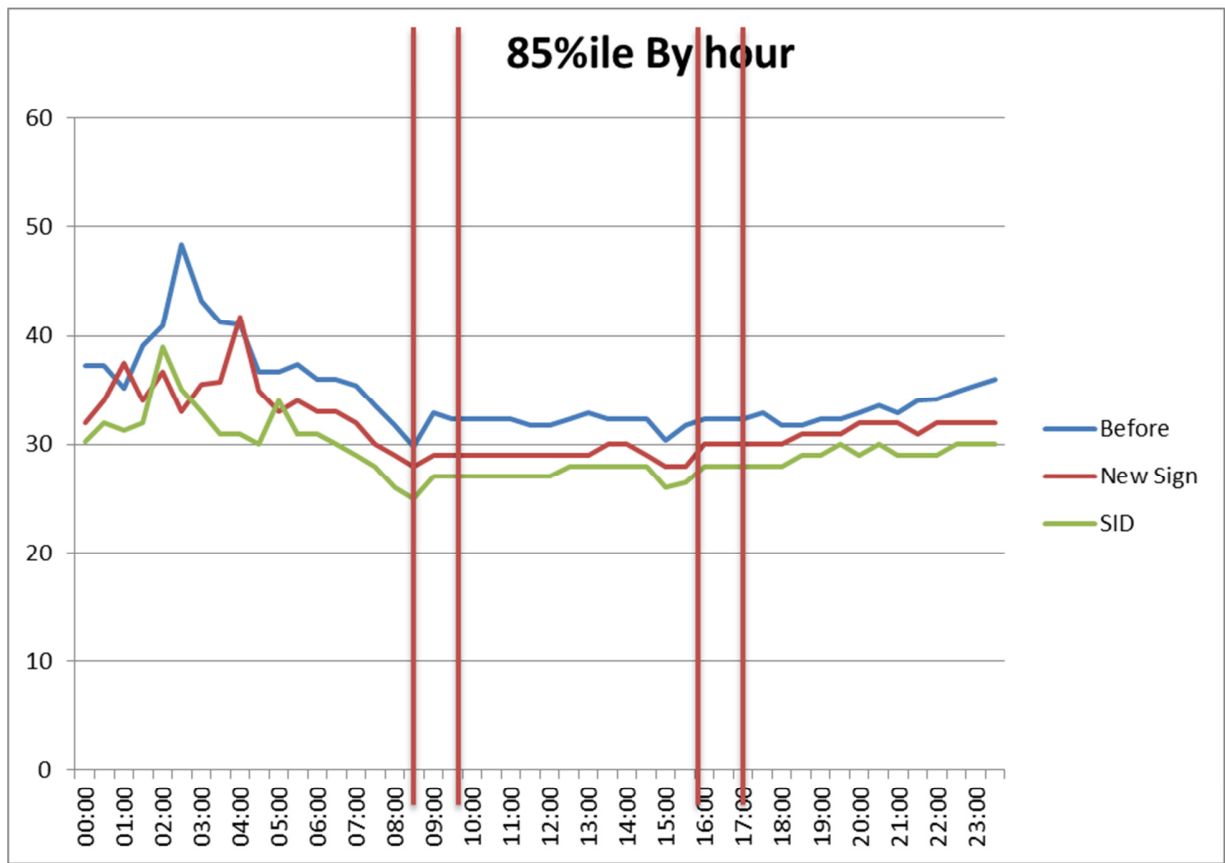
➤ Before the first SID installation baseline speed was 36.7mph, during the study speed dropped to an average low of 33.6mph



➤ Before the first SID installation 66.1% of traffic was in excess of 30mph, during SID placements this was below 50%.



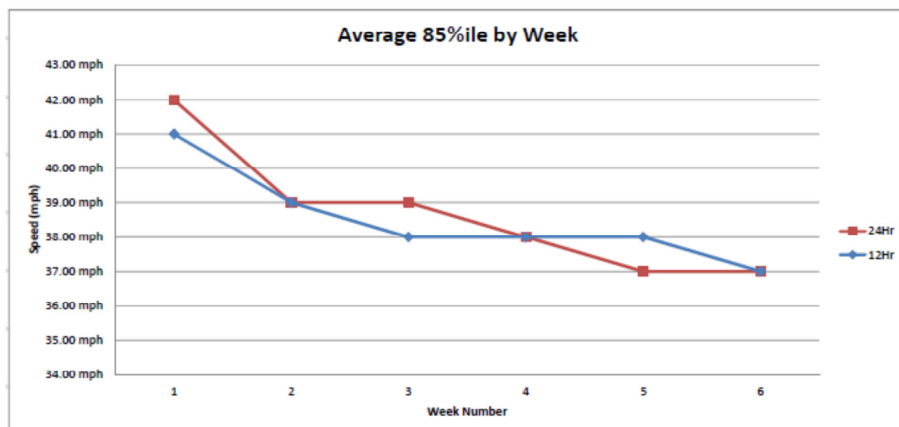
➤ Before the first SID installation 21.2% of traffic was in excess of 35mph, during the study this dropped below 10%



SID evaluation results - Leigh July 2015 – 20 July 2015 – 24 August 2015 (Rural location)

SID EVALUATION SUMMARY

Totnell Road, Leigh



| Programme - 24Hr 85%ile | | | | |
|-------------------------|-----------------|--------|-----------|------------|
| WK No. | Week Commencing | SID? | 85%ile | Difference |
| 1 | 20 July 2015 | NO SID | 42.00 mph | |
| 2 | 27 July 2015 | SID | 39.00 mph | -3.00 mph |
| 3 | 03 August 2015 | SID | 39.00 mph | -3.00 mph |
| 4 | 10 August 2015 | SID | 38.00 mph | -4.00 mph |
| 5 | 17 August 2015 | SID | 37.00 mph | -5.00 mph |
| 6 | 24 August 2015 | SID | 37.00 mph | -5.00 mph |

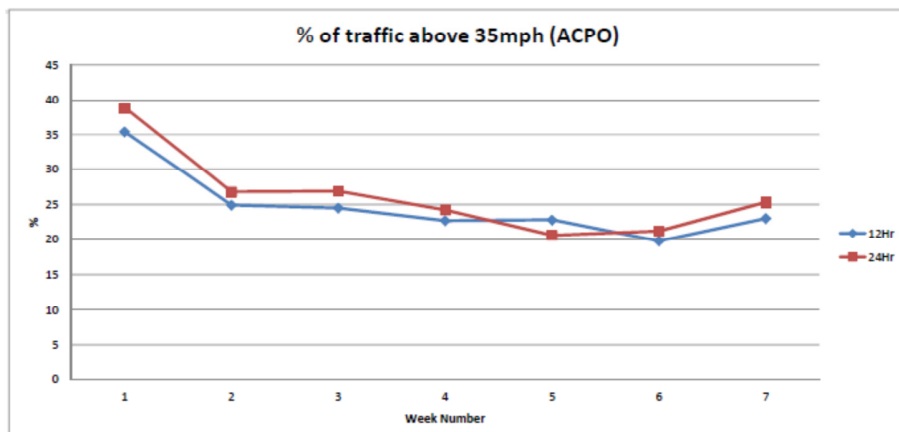
| Programme - 0700 - 1900 85%ile | | | | |
|--------------------------------|-----------------|--------|-----------|------------|
| WK No. | Week Commencing | SID? | 85%ile | Difference |
| 1 | 20 July 2015 | NO SID | 41.00 mph | |
| 2 | 27 July 2015 | SID | 39.00 mph | -2.00 mph |
| 3 | 03 August 2015 | SID | 38.00 mph | -3.00 mph |
| 4 | 10 August 2015 | SID | 38.00 mph | -3.00 mph |
| 5 | 17 August 2015 | SID | 38.00 mph | -3.00 mph |
| 6 | 24 August 2015 | SID | 37.00 mph | -4.00 mph |

NOTES

The 85%ile was 12mph in excess of speed limit before commencement of trial, this reduced to an excess of 7mph during the trial, a drop of 5mph (12%) during SID placements.

A 30mph Repeater Sign was installed on SID Post Tuesday 18th September, the effect of which saw an additional 1mph drop in 85%ile speeds.

Before the first SID installation 38.9%, 2635 vehicles were in excess of 35mph (ACPO), during the study this dropped to a low of 20.6%, 1922 Vehicles.



Discussion

Whilst previous surveys completed by Dorset County Council have shown the value and effectiveness of a short term deployment of SIDs, evidence suggests that once the SID is removed, traffic speeds soon return to pre-deployment levels. This evaluation set out to establish how often the SID unit should be deployed in order to achieve the greatest impact on traffic speeds.

It is clear that by deploying the SID unit on and off over long period maintains a steady reduction in vehicle speeds. The behavior of drivers exposed to this intervention was positively influenced; even during the weeks the SID unit was not deployed, possibly because drivers weren't sure when to expect the SID unit to return. What has not yet been established during this evaluation is whether a continued deployment with no break can maintain the same level of speed reduction. It is unclear whether the continued exposure of a SID is detrimental as drivers become over familiar with the device and the knowledge that it is not an enforcement tool. To address this issue the SID was deployed for 6 week continuous period on the 21 July 2014. Initial results indicated the effectiveness of the SID was not diminished by prolonged deployment. The SID was relocated to Littlemoor Road, Weymouth to continue evaluation at a site with higher 85th percentile speeds and to continue prolonged deployments.

Conclusion

The first stage of the evaluation concluded that the most effective way to deploy SIDs is for prolonged if not permanent periods. Long exposure to the SID at the first survey site, Preston Road, maintained below baseline 85th percentile speeds, even between deployments. Deployments at survey site 2, Littlemoor Road returned

similar results, although the exposure period was much longer. A further survey 100 m past the SID display point found vehicle speeds increased slightly, but still below baseline data. There is evidence to suggest SIDs are most effective when deployed for long periods at specific locations, rather than as a means to reduce traffic speeds over a long stretch of road. A further evaluation was undertaken outside a school in conjunction with a 20mph zone when lights flashing, school crossing patrol location. The speeds recorded prior to the 20mph zone and after installation only reduced speeds very slightly, however, when the SID was deployed in conjunction, the speeds dropped further.

What do we know so far:

SIDs work when deployed and to a lesser extent between deployments when a site is targeted continually. Short deployment periods are only effective for the deployment period after which speeds return to normal levels. SIDs are most effective at reducing speeds at specific points, as opposed to long stretches of road and should be deployed for long periods.

Recommendations

- **SID deployment periods should be for prolonged periods, either randomly or permanently.**
- **Priority should initially be given to sites with the highest 85th percentile speeds, or site specific locations where speed is an issue.**
- **Awareness raising publicity should focus on the positive effects of SIDs at a local level**

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