SID options report

Options for SID replacement/repair

Background

Speed Indicator Device (SID) is a temporary vehicle activated sign which detects and displays real-time vehicle speeds.

Liss Parish Council own 3 Speed Indicator Devices (SIDs), which are used in conjunction with Liss Speedwatch, to warn people if they are exceeding the speed limit. They are placed at various locations around the village in a bid to reduce speeding and prevent road traffic accidents.

Liss Parish Council procured 2 new solar powered (battery back-up) devices in 2023 for sites endorsed by EHDC for new ground sockets and supporting posts for rotation of the devices around a number of key entry and exit points in and out of the village. A third SID was purchased from Westcotec in October 2024 which had the option for Bluetooth data collection enabling more detailed analysis by Speedwatch.

The two older devices were purchased from a company (Smart Group Manufacturing) which went out of business soon after the SIDs were obtained and have never been supported nor maintained. They are currently inoperable and have been sent away to a local engineer for diagnostic testing to see if it is feasible to repair them.

Options

Quotations have been sought both to repair and maintain the current devices, and to purchase a new SID(s) from Westcotec. Due to its size and maneuverability, a mini-SID model is thought to be preferable to the SID previously purchased from Westcotec as it is approximately half the size, weighs considerably less, and can be moved by one individual as opposed to two. A third option is to continue to operate the one working SID.

Option 1 – Quotation to repair and maintain current devices (see Annex 1 for further detail)

To develop and manufacture two replacement PCBs, procure updated radar boards, battery condition board, firmware and assembly:

First Unit £1,700

Second Unit after acceptance testing £900

Total to repair current SIDs - £2,600

This does not include any warrantee or ongoing maintenance.

Ongoing maintenance - £40 per hour for any repairs needed, e.g. due to water ingress.

In addition, battery may need replacing every couple of years.

Quotation 2 – Quotation to purchase 1 or 2 new 'mini' SIDs (see Annex 2 for further detail)

To purchase a mini SID(s) with the added options for solar power, data collection and additional batteries.

£2,980 per sign - includes spare battery, charger, weatherproof cover and bracket

This also includes a comprehensive 3 year warranty which covers everything except vandalism, impact damage theft and batteries (which have a 1 year manufacturer's warranty). Ongoing support provided by Westcotec is available at a charge and detailed in ***Annex 3.***

Additional extras

Solar power - £650 per sign

Data collection - £379 per sign

Spare battery - £84

Total to purchase 1 mini SID + 1 solar panel - £3,630

Total to purchase 2 SIDs +2 solar panels- £7,260

Factors to consider

- Liss Speedwatch (who were instrumental in campaigning for the SIDs and requested the ability to perform data analysis to target hotspot areas) has been struggling to recruit and retain volunteers. The group is now set to be disbanded.
- The local neighbourhood policing team report that speed enforcement checks have been carried out on Hill Brow Road and can be requested in other hotspot areas.
- SIDs should be moved from a site after 6 weeks (turned round after 3), meaning that they should be easy to maneuver. The caretakers who are responsible for moving the devices report that the current SIDs are not easily deployable and require 2 people to move.
- Only sites with permanent posts in situ are currently being used due to the difficulties the caretakers have in moving temporary posts to sites with ground sockets but no posts. Hampshire County Council would only allow new permanent posts in

exceptional circumstances (e.g. if one had been removed) to minimise sign clutter (especially in rural areas in Liss), hence the initial provision of temporary posts for each SID area.

- Hampshire County Council have produced guidance for the purchase, installation and use of temporary speed signs and state that the Council should ensure 'the device complies with the specification outlined by TOPAS' so that it meets the relevant UK regulations and standards. TOPAS is a voluntary scheme that provides specifications and a registration process for traffic management products, including temporary traffic signs. TOPAS registration assures that a product meets the necessary safety and performance specifications, providing a higher level of assurance than CE or UKCA marking alone. By requiring TOPAS registration, purchasers can have confidence that the temporary speed signs they hire or buy will operate as specified. Westcotec products are TOPAS registered.
- Funding – there is £14,480.43 in an EMR for Highways Improvements. Monies could alternatively come from general reserves, or from the £50,000 CIL monies which was originally allocated to the Newman Collard MUGA.

Annex 1

SIDSolar Unit re-work plan and quote

It is unknown by the author if the units purchased and now under assessment were specified by the council prior to delivery (ie bespoke) or if they came off the shelf (OTS). Certain decisions and architectural details seem inappropriate or at best unwise due to the target use case. For such units to be acceptable they must:

- Function reliably
- Be easy to install
- Require no maintenance apart from cleaning and checking at a reasonable interval.

Whereas Wifi and Bluetooth are available as technical solutions for configuration and setup, they pose logistical problems for current consumption which is critical for a solar powered unit especially for the UK.

The Speed indicators have twice as many LEDs compared to most if not all similar units on the market. This equates to elevated current draw every time a car goes past (whether or not being over the speed threshold set)

Below is therefore a summary of the proposed functionality for the replacement units which, if it is the council's wish, ideally should be signed off against the quote below.

Proposed Specification

Due to the re-work requirements for the SIDSolar units, both due to environmental damage, inadequate architectural considerations and poor quality of build, the below is intended as to show the proposed functionality and capability for such a rework.

Simplicity is a key characteristic, both in terms if usage and installation. Obviously, the unit must withstand UK weather and solar unpredictability and be able to function without intervention.

Details such as logging and data extraction need to be finalised.

Itemised Quotation (for discussion as required) Note, for one unit, overall cost will reduce for the second unit. I would suggest the council testing the first unit in the field before the second has any work done on it.

Item	To be replaced / added to	Reasoning	Est. Material Cost	
Metalwork	No	Although the pitch of the Solar panels is not ideal (it should be 20 degrees for UK winter, there are many other factors which are more serious. It is also heavyweight compared to other units on the market.	N/A	
Battery, BMS and PWM controller replacement.	No	This seems to work fine, and the OTS controller remains available	N/A	
Battery condition measurement board	Yes	A new PCB is required to enable continual measurement of the battery condition, charge and discharge current as well as the solar input level.	£200	
Controller board replacement	Yes	Due to the damage from not being protected, the PCB will need to be replaced	£860	
New Firmware	Yes	The replacement of the controller PCB necessitates new firmware but is an opportunity to improve performance by re-design	£500	
Power rail board	No	Power rail generation will be incorporated on the new controller PCB	N/A	
Radar Board	Yes	This is not replaceable due to the supplier not trading any more. A	£185.00	

		new radar will need to be sourced		
LDR board	No	Light level will be available via the battery condition board	N/A	
SlowDown message Driver board	No	This will be included in the replacement controller board	N/A	
Serial/parallel board	No	Additional hardware will be placed on the Units and Tens LED boards	N/A	
Tens Units LED boards	Yes	It is noted that there are more LEDs to show the speed than other products available. This could be discussed for the purpose of efficiency.		
Wifi / BT	No	Due to the current consumption and complexity, a different method to set up the parameters needed will be required. Buttons secured by keyswitch is one example	N/A	
Auto Restart	Yes	A circuit which kicks the controller to restart if the battery does run down in prolonged dark times is required – added to the controller board	N/A	

Quotation

To develop and manufacture two replacement PCBs, procure updated radar boards, battery condition board, firmware and assembly:

First Unit, 1700 GBP + VAT
Second Unit after acceptance testing, 900 GBP + VAT

This will also include all documentation.

I do hope this is acceptable. I have already worked on this quite a bit beyond the original report quotation so I am very keen to continue to completion if possible.

Annex 2

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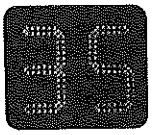
PORTABLE SPEED INDICATOR MINI SID

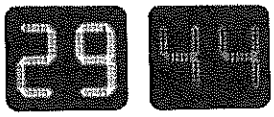
To Supply only:

- **Portable Mini Speed Indicator Device (miniSID), battery powered complete with spare Lead Acid battery, 'intelligent' charger, sign weatherproof cover and bracket set for a cost of £2,980.00 each excluding VAT.**



Weight: 7.5kg
Weight with battery: 11kg

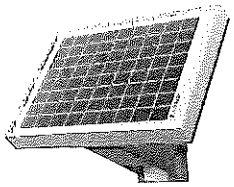
- ***Optional dual colour speed display for the above sign for an additional cost of £395.00 per sign excluding VAT (bigger case and bracket on the back of unit to accommodate a larger battery due to power consumption).***



OPTIONAL PORTABLE SOLAR POWER SYSTEM:

If you require your sign to be Solar Powered (portable) please add the below cost per sign.

- ***10W Portable Solar Panel with bracket set for a cost of £650.00 per sign excluding VAT.***



Solar Panel Dimensions:
H 355mm x W255 x D34mm
Solar Panel Weight: 3.3kg

OPTIONAL DATA COLLECTION:

- ***Westconnect Remote Data Collection with full access to cloud and hosting with 2-year contract (available on single colour display SIDs only) for a cost of £1,479.00 per sign excluding VAT.***

OR

- ***Data Collection (Download via Bluetooth to your existing Android Device, running on 7.0 or newer version. App download required from Google Play Store) for a cost of £379.00 per sign excluding VAT.***

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OPTIONAL EXTRA:

- ***Additional bracket sets for a cost of £52.00 per set excluding VAT.***
- ***Combination Padlocks (pack of 2) for a cost of £21.00 per pack excluding VAT.***
- ***Additional Lead Acid Battery 12v – 35Ah for a cost of £84.00 each excluding VAT.***

- **All of our portable signs come complete with our comprehensive THREE-YEAR WARRANTY which covers everything except vandalism, impact damage, theft and batteries*.**
  *** Batteries include manufacturer's ONE-year warranty**

IMPORTANT INFORMATION REGARDING PORTABLE SOLAR SYSTEM
We suggest four weeks in one location before changing batteries and moving the device. Even if the unit is still operational, swap the battery to ensure a regular charging cycle for both.

At present, we could deliver the above products within approximately 6 - 8 weeks from receipt of the written Official Purchase Order.

Please do not hesitate to contact me if you require any further information and I will be happy to help.

Best Regards,
Joanna Pilarska
Account Managr, Sales

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Annex 3

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Recommended Maintenance Schedule
Portable Signs

We recommend that once the warranty of your sign has expired after 3 years, the sign(s) is couriered back to Westcotec HQ for a doppler radar check and coin cell battery replacement to ensure correct operation.

If this schedule is not met, we are unable to ensure the full operation and dependability of both the doppler radar and the data collection option if enabled, as the data can become corrupt if the coin cell battery is not replaced.

Maintenance schedule for portable signs – At the beginning of year 4

KEEP the delivery box

Collection included using our courier.

Assessment of sign and internal doppler radar check, including sign clean and bench testing.

Coin cell replacement for data date and time storage.

Delivery back to customer using our courier.

£110 plus £27.50 courier each way. **£165.00 +VAT total.**

Prior to the year 7 maintenance, we recommend that the battery voltage is tested after a full charge to determine whether replacement batteries will be required. Signs purchased from July 2020 have voltmeters installed as standard.

Maintenance schedule for portable signs – At the beginning of year 7

Collection included using our courier.

Assessment of sign and internal doppler radar check, including sign clean and bench testing.

Coin cell replacement for data date and time storage.

Delivery back to customer using our courier.

£130 plus £27.50 courier each way. **£185.00 +VAT total.**

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