

# **Support Goods Vehicle Incident Prevention – Diesel Spillages**

## **Business Case, Implementation Plan and Lessons Learnt Report**

**Highways England**



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## Quality information

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## Glossary of Terms

Term(s)	Definition
BCR	An acronym for 'Benefit Cost Ratio'.
CVIPT	An acronym for 'The Commercial Vehicle Incident Prevention Team'.
DfT	An acronym for 'Department for Transport'.
DVSA	An acronym for 'Driving and Vehicle Standards Agency'.
Fleet operator	An economic entity which operates a vehicle fleet.
FORS	An acronym for 'Fleet Operator Recognition Scheme'.
FTA	An acronym for 'Freight Transport Association'.
Fuel Safe	A diesel / oil spill dissolver liquid used to remove fuel spills and residues which can help prevent asphalt degradation and the necessity for resurfacing operations
Gross Vehicle Weight (GVW)	The maximum weight of a vehicle inclusive of the vehicle, load, fuel, driver and accessories.
Heavy Goods Vehicle (HGV)	Goods vehicles over 3.5 tonnes GVW.
Key Performance Indicators (KPIs)	A measurable value that demonstrates how effectively a company is achieving key business objectives.
KSI	An acronym for 'Killed or Seriously Injured'.
NPV	An acronym for 'Net Present Value'.
PVB	An acronym for 'Present Value of Benefits'.
PVC	An acronym for 'Present Value of Costs'.
RHA	An acronym for 'Road Haulage Association'.
SES	An acronym for the 'Safety, Engineering and Standards' team
Sphag Sorb	A peat based absorbent organic compound that is used to clean up oil, gas, diesel fuel, solvents, paints, glycol and organic chemical spills
Spill Dry	Absorbent granules used to clean up oil and diesel spills
SRN	An acronym for 'Strategic Road Network'.
TO	An acronym for 'Highways England Traffic Officer'.



# Executive Summary

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# Executive Summary

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AECOM and our project partners PA Consulting and Road Safety Support (RSS) were commissioned by Highways England (HE) to explore a number of options for reducing the frequency and severity of incidents involving Heavy Goods Vehicles (HGV) on the Strategic Road Network (SRN) which HE are responsible for. During the initial research investigation, a number of issues were discovered as follows:

- Diesel spills account for approximately 25% of all incident related congestion on the SRN<sup>[1]</sup>
- During 2013, 78% of fuel spillages on the SRN were diesel spills<sup>[2]</sup>
- 67% of vehicles involved in diesel related incidents are HGVs<sup>[3]</sup>
- In 2015, 4.8% of UK HGV traffic was estimated to be foreign registered<sup>[4]</sup>. One in three collisions (33.1%) involving foreign lorries are on the motorway. This is nearly eight times higher than the national average<sup>[5]</sup>
- Of the total 6,873 accidents recorded involving HGVs, 495 (7%) involved left-hand drive vehicles<sup>[6]</sup>
- According to command and control data there were 263 diesel spillage incidents in 2013 which rose to 357 in 2014<sup>[7]</sup> (one a day on average)
- Approximately 41% of incidents are estimated to be 2 hours or less, 14% of incidents are between two to five hours and 22% of incidents are greater than five hours<sup>[8]</sup> (please note there was no record of the other 23%)
- According to Atkins' business case report the cost of an incident lasting for 4 hours on a busy route is £541,440<sup>[9]</sup>
- The Incident Prevention Teams (IPT) presentation delivered by Highways England contained two case studies. The first detailed the overall cost passed onto the operator was £58,760 and the second detailed an overall cost of £69,908<sup>[10]</sup>
- Of the survey respondents consulted during the stakeholder phase of this project, 42% said they did not equip their vehicles with a spill kit<sup>[11]</sup>
- Diesel exposure for as little as 120 minutes has been shown to result in structural damage to road surfaces<sup>[12]</sup>

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<sup>[1]</sup> Atkins. 2013: Diesel Absorption Trial Phase 2. pp. 2

<sup>[2]</sup> FMG. 2013: Fuel Tanks in LGV's Presentation. Slide 7

<sup>[3]</sup> Highways England. 2015: Command and Control Centre Data

<sup>[4]</sup> DfT. 2015: Annual road traffic estimates. pp31

<sup>[5]</sup> <http://fleetworld.co.uk/motorway-accidents-involving-foreign-lorries-rise-14/>

<sup>[6]</sup> DfT. 2015: Reported Road Casualties Great Britain: 2014 Annual Report. pp279

<sup>[7]</sup> Highways England. 2015: Command and Control Centre Data

<sup>[8]</sup> FMG. 2013: Fuel Tanks in LGV's Presentation. Slide 8

<sup>[9]</sup> Atkins. 2015: Commercial Vehicle Incident Prevention Strategy Outline Business Case. pp. 25

<sup>[10]</sup> Highways England. 2015: IPT Presentation. Slide 2

<sup>[11]</sup> AECOM analysis 2016

<sup>[12]</sup> J C Bullas, J Doxford, & P Hupton. Star. 2014: A study of measurement methods for diesel sorbent performance, and the components of road user delay associated with diesel spills on the UK SRN. pp 3

- Many operators who have not been involved in a diesel spillage incident in the past are not fully aware of the cost/damage associated with diesel spills and as such may not be investing in diesel spillage protection
- The review of diesel spill clean-up procedures conducted by TRL mentions that there are a range of products used by different areas<sup>[13]</sup>
- The site visit to Perry Barr (Kier) in area 9 revealed that they were using two products namely; Fuel Safe and Sphag-Sorb
- Highways England reported that area 7 were using four different products including Spill Dry
- Area 10 and 13 were found to be using just one product which is Sphag-Sorb

Detailed within this report is the implementation plan and business case for the diesel spillage interventions. A number of key findings have been drawn from these pieces of work and a recommended option is proposed for Highways England to consider moving forward with.

An evaluation of the lessons learnt is also provided as is a priority list (by Benefit Cost Ratio (BCR)) for all of the interventions from each of the three workstreams (e.g. diesel spillages, tyre management and drivers' hours).

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<sup>[13]</sup> TRL. 2010: Review of Diesel Spillage Clean-up Procedures. pp 7

### Agreed interventions and timescale for implementation

Of the suggested interventions that were proposed within the Diesel Spillage initial intervention report, Highways England has decided to move forward with the following two recommendations:

Ref	Group	Proposed Approach	Timescale
DS1	<b>To be delivered by CVIPT</b>  <b>Develop diesel spillage guidance for operators and raise awareness of best practice procedure</b>	Create best practice diesel spillage prevention guide	Short (3 Months)
		Create diesel spillage costs document / case study and incentivise operators to invest in diesel spillage protection to reduce risk of Highways England charges (Green Claims etc.)	Short (3 Months)
		Raise awareness of best practice diesel spillage prevention guide and costs attached to incidents by distributing via Freight Transport Association (FTA), Fleet Operator Recognition Scheme (FORS), Road Haulage Association (RHA) and Trade Fairs etc.	Short (6 Months)
DS2	<b>To be delivered by SES</b>  <b>Identify the most effective product(s) for treating diesel spills through trialling and train traffic officers in their use</b>	Compile list of all treatment types being used in all traffic areas	Short (3 Months)
		Conduct testing to establish the best set of products for Traffic officers to carry in their vehicles	Short (3 Months)
		Pilot best product(s) (such as Fuel Safe) in other traffic areas and obtain feedback on performance	Short (3-6 Months)
		If trials successful, roll out product(s) nationally to all areas	Medium (1-2 Years)
		Encourage operators to carry spill kits (such as fuel safe) especially if they have been involved in a diesel spillage incident in the past	Medium (Ongoing with TO contact with driver/operators)

## Results from the Business Case

### *Sensitivity analysis*

Evaluation Results based on 2016 discounted rates	Option 1 Do Nothing	Option 2 DS1 Develop diesel spillage guidance / raise awareness of best practice procedure	Option 3 DS2 Identify most effective product(s) for treating diesel spills	Option 4 Combined approach
Value Benefits (PVB) - Safety benefits only	As is	£434,445	<b>£203,029</b>	£637,475
Value Cost (PVC)	As is	£83,839	<b>£83,833</b>	£167,672
Net Present Value (NPV)	As is	£350,606	<b>£119,196</b>	£469,802
Benefit Cost Ratio (BCR)	0	5.2	<b>2.4</b>	3.8
<b>Ranking</b>	<b>4</b>	<b>2</b>	<b>3</b>	<b>1</b>

### Recommended Option

The recommendation is Option 4, to deliver a best practice user guide to be distributed to selected drivers and operators including overseas users. In addition, the user guide can be distributed as part of a campaign at trade fairs and through trade bodies. Furthermore, to target a wider audience the use of a web hosting service would be essential.

This will be supported by a study to identify the best diesel spillage products that can be used by the HE teams on the ground. The products would also be recommended to drivers/operators who have been involved in a diesel spillage incident on the SRN and are known to HE.

The impact and potential benefits of Option 4 (combining Options 2 and 3) is believed to better achieve the desired strategic outcomes that both Commercial Vehicle Incident Prevention Team (CVIPT) and Safety, Engineering and Standards Team (SES) hope to achieve. Option 4 is the recommended option to take forward. It has been agreed with Highways England that although the combined approach has been chosen it will be delivered separately as follows:

- **DS1** will be delivered by the CVIP team - The cost to implement DS1 is **£83,839**.
- **DS2** will be delivered by the SES team as part of the Incident Timeline work due to be procured shortly. The cost to implement DS2 is **£83,833**.

The overall cost of implementing Option 4 (DS1 and DS2) will be **£167,672**.

### Priority List of Interventions

The following table presents all of the agreed interventions for each of the three workstreams (e.g. diesel spills, tyre management and drivers' hours) and puts these in order of priority by Benefit Cost Ratio (BCR) number.

Order of Priority	Ref	Intervention Name	BCR Number
1	DH2	Enhanced Police Enforcement Pilot	7.8
2	DH1	Best Practice Guides / Awareness Campaigns	5.3
3	DS1	Develop diesel spillage guidance for operators and raise awareness of best practice procedure	5.2
4	TM2	Continue roll-out of tyre checking facilities	5.0
5	DS2	Identify most effective product(s) for treating diesel spills through trialling and train traffic officers in their use	2.4
6	TM1	Debris management	1.4

# Introduction

# 01

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# 1. Introduction

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## Background

The Strategic Road Network (SRN) whilst only constituting 2.4% of England's road network, carries 67% of freight traffic and incidents on the SRN have a significant and disproportionate effect in terms of network disruption and severity of Personal Injury Collisions (PIC). Reducing the frequency and impact of commercial vehicle incidents is therefore vitally important in helping Highways England deliver a more free-flowing network to support economic growth and drive forward plans to deliver a safer road network.

The CVIP team identified through previous work, pilots and monitors Commercial Vehicle data, a number of interventions which were believed to have a significant and protracted impact on the SRN. These have been further developed by AECOM and presented to Highways England in the Initial Goods Vehicle Incident Prevention Intervention reports.

As part of the ongoing support AECOM has been asked to produce detailed and comprehensive business cases, implementation plans and a lessons learnt evaluation report. This can be used by Highways England to help lower the number of casualties, killed or seriously injured (KSI) on the SRN, as well as reduce disruption to the network by restoring it to normality at the earliest opportunity.

## Methodology

The approach used to undertake this piece of work comprised of three phases as follows:

**1. Phase 1 – Production of business case (the full business case is included in Section 5)**

AECOM has worked alongside PA Consulting to produce Business Cases for each of the three workstreams (Diesel spillages, tyre management, and drivers' hours).

Each Business Case has been based on the agreed proposals and recommendations following the initial intervention reports review meeting. They provide justification for the financial investment for each intervention, the objectives, benefits, risks, costs and value for money and provide a recommendation on the viability of each project at each Stage.

**2. Phase 2 – Implementation plan (the full implementation plan is included in Section 4)**

A series of implementation plans for the proposals which Highways England wish to take forward have been produced. These plans communicate changes and proposals to both internal and external stakeholders and facilitate the transfer of knowledge developed for Highways England.

**3. Phase 3 – Lessons learnt evaluation (the lessons learnt evaluation is included in Section 3)**

An evaluation of the work areas has been conducted to contribute to lessons learnt which enable benefits realisation for Highways England.

Three thin black lines intersect to form a large, abstract geometric shape that resembles a stylized 'K' or a series of overlapping planes. The lines are thin and black, set against a white background.

## Key Findings and Recommendations

# 02

## 2. Key Findings and Recommendations

A number of key findings and recommendations can be drawn from the diesel spillage business case and implementation plan.

Of the suggested interventions that were proposed within the Diesel Spillage initial intervention report, Highways England has decided to move forward with the following two recommendations:

### Agreed interventions and timescale for implementation

Ref	Group	Proposed Approach	Timescale
DS1	<b>Develop diesel spillage guidance for operators and raise awareness of best practice procedure</b>	Create best practice diesel spillage prevention guide	Short (3 Months)
		Create diesel spillage costs document / case study and incentivise operators to invest in diesel spillage protection to reduce risk of Highways England charges (Green Claims etc.)	Short (3 Months)
		Raise awareness of best practice diesel spillage prevention guide and costs attached to incidents by distributing via FTA, FORS, RHA, Trade Fairs etc.	Short (6 Months)
DS2	<b>Identify the most effective product(s) for treating diesel spills through trialling and train traffic officers in their use</b>	Compile list of all treatment types being used in all traffic areas	Short (3 Months)
		Conduct testing to establish the best set of products for Traffic officers to carry in their vehicles	Short (3 Months)
		Pilot best product(s) (such as Fuel Safe) in other traffic areas and obtain feedback on performance	Short (3-6 Months)
		If trials successful, roll out product(s) nationally to all areas	Medium (1-2 Years)
		Encourage operators to carry spill kits (such as fuel safe) especially if they have been involved in a diesel spillage incident in the past	Medium (Ongoing with TO contact with driver/operators)

*DS1 – Develop diesel spillage guidance for operators / raise awareness of best practice procedure***Issue**

Congestion on the SRN is a growing concern for Highways England and diesel spills account for approximately 25% of all incident related congestion on the SRN<sup>1</sup>. The number of diesel spillage incidents on the SRN is on the increase and according to command and control data there were 263 diesel spillage incidents in 2013 which rose to 357 in 2014<sup>2</sup> (one a day on average). The cost of cleaning up a diesel spillage can be very expensive and time consuming. Approximately 41% of incidents are estimated to be 2 hours or less, 14% of incidents are between two to five hours and 22% of incidents are greater than five hours<sup>3</sup> (there was no record of the other 23%). Diesel exposure for as little as 120 minutes has been shown to result in structural damage to road surfaces.

**Solution**

Highways England could tackle this issue by firstly creating a best practice spillage prevention guide for commercial vehicle operators which would include information on why spillages occur, simple steps that can be taken to prevent spillages, how to apply a spill kit and the procedure to follow in the event of a spillage.

Secondly, Highways England should support this guide by producing a diesel spillage costs document and incentivise operators to invest in diesel spillage protection to reduce risk of Highways England charges (Green Claims etc.). This would include a statement that Highways England may charge operators involved in diesel spillages that have chosen not to comply with the diesel spillage best practice guide.

Finally, Highways England could raise awareness of best practice diesel spillage prevention guide and costs attached to incidents by distributing via FTA, FORS, RHA, and at Trade Fairs.

*DS2 – Identify the most effective product(s) for treating diesel spills***Issue**

A variety of products for treating diesel spillages are being used in different regions across England. Stakeholder consultation conducted as part of this study revealed that Area 9 were using two products namely; Fuel Safe and Sphag-Sorb and Area 7 were using four different products including Spill Dry. There is very little (if any) technical information concerning the performance of these treatment products. Some Traffic Officers are required to work in more than one region. If each region uses different products then these Traffic Officers will need to be trained to use every product they encounter as a result this adds additional cost to the model.

In addition there need to be consistency in the approach to treating diesel spillages. For instance issues may be encountered where a Traffic Officer has arrived at an incident and applied Sphag Sorb in the first instance and then the area service provider turns up to administer Fuel Safe as these two products cannot be used in conjunction with one another.

A large number of fleet operators do not equip their vehicles with a spill kit meaning if they are involved in a spillage it will remain untreated until a response unit arrives at the scene. Of the survey respondents consulted during the stakeholder phase of this project, 42% said they did not equip their vehicles with a spill kit<sup>4</sup>, and of the 58% that said they did, only 16 of the 22 respondents stated they carried granules.

**Solution**

Highways England should consider conducting a comprehensive trial of the different products used to determine which product is most effective at treating diesel spills in one area initially.

In order to do this a list of available products should be assembled through consultation with each of the area service contract providers. The identified products should then be tested and graded

<sup>1</sup> Atkins. 2013: Diesel Absorption Trial Phase 2. pp. 2

<sup>2</sup> Highways England. 2015: Command and Control Centre Data

<sup>3</sup> FMG. 2013: Fuel Tanks in LGV's Presentation. Slide 8

<sup>4</sup> AECOM analysis 2016

according to how they perform against a number of key criteria. Finally Traffic Officers should be trained to use the most effective products and these should be rolled out across the network.

### Results from the Business Case

#### Sensitivity analysis

Evaluation Results based on 2016 discounted rates	Option 1 Do Nothing	Option 2 DS1 Develop diesel spillage guidance / raise awareness of best practice procedure	Option 3 DS2 Identify most effective product(s) for treating diesel spills	Option 4 Combined approach
Value Benefits (PVB) - Safety benefits only	As is	£434,445	£203,029	£637,475
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Benefit Cost Ratio (BCR)	0	5.2	2.4	3.8
<b>Ranking</b>	4	2	3	1

The costs and assumptions attached to DS1 and DS2 and provided in the tables below:

#### DS1 2017 Costs non-discounted

Ser	Activity	Yr3 (17/18)	Yr 4 (18/19)	Yr5 (19/20)	Total	Comments
(a)	(b)	(e)	(f)	(g)	(h)	(i)
	Resource RPI inflation rate		2.50%	2.50%		Ref:HE efficiency and inflation monitoring manual
<b>1</b>	<b>Best practice diesel spillage prevention guide</b>					
1.1	Printed production costs	£3,149	£3,228	£3,308	£9,685	Assumed cost based on web research for 5000 pamphlets for design and production. Rates inflated at RPI.
1.2	Printed distribution costs	£2,500	£2,563	£2,627	£7,689	Assumed cost based on web research for 5000 pamphlets for design and production. Rates inflated at RPI.
1.3	Translation costs	£700	£0	£0	£700	Translation into French, German, Spanish, Italian, Polish, Hungarian, Romanian (at £100 per translation)
1.4	Resources (incl T&S)	£25,000	£0	£0	£25,000	Assumed cost of external consultant to produce guide
<b>2</b>	<b>Diesel spillage costs case study document</b>					
2.1	Research costs	£20,000	£0	£0	£20,000	Assumes 1/4 of the R&D costs allocated to GV15 - Reduce Fuel Spills
2.2	Resources (incl T&S)	£10,000	£0	£0	£10,000	Assumed cost of external consultant to produce doc
<b>3</b>	<b>Raise awareness of best [practice guide by distribution via FTA, TOTS, RHA, Trade Fairs etc.</b>					
3.1	Printed distribution costs	£2,500	£2,563	£2,627	£7,689	Assumption based on approx. £50 per 1000 leaflets targeted delivery
3.2	Web production and hosting costs	£1,000	£1,025	£1,051	£3,076	Assumes internal costs using existing HE website
<b>Annual totals</b>		<b>£64,849</b>	<b>£9,378</b>	<b>£9,612</b>	<b>£83,839</b>	

DS2 2017 Costs non-discounted						
Ser	Activity	Yr3 (17/18)	Yr 4 (18/19)	Yr5 (19/20)	Total	Comments
(a)	(b)	(e)	(f)	(g)	(h)	(i)
1	<b>Compile list of all treatments types</b> <b>Pilot sets in other traffic areas</b> <b>Conduct testing to establish best product set</b>					
1.1	Research costs	£13,333	£0	£0	£13,333	Assumes 1/3 of the R&D costs allocated to GV115 - Reduce Fuel Spills
1.2	Pilot costs	£10,000	£0	£0	£10,000	Assumes pilot undertaken over 3 months in all areas
1.3	Resources (incl T&S)	£5,000	£0	£0	£5,000	Costs involved working with selected agencies, and industry partners
2	<b>Roll out costs</b>					
2.1	Purchase costs	£0	£0	£0	£0	Indicative costs are that the replacement product price will be the same as the current product with no extra increase in purchase or distribution, assumption is that TOs will run down existing stocks and replace with new.
2.2	Distribution costs	£0	£0	£0	£0	
2.3	Training costs	£53,500	£0	£0	£53,500	Covers half a day batch training of 850 traffic officers and covers costs of trainer and expenses. TO pay approx £22,637 per yr. Approx 40 officers can be trained per week per area, cost of trainer per week approx £500
3	<b>Incentivise operators to carry spill kits</b>					1 year – This could be achieved by sending them the best practice spillage / costs documents which highlight that they may be charged if they are involved in an incident in the future. Another method HE could employ would be to subsidise the cost of fuel safe. Given that the cost of the product is so small (£5 per litre) and the potential cost incurred by not administering quickly fuel safe is so high, this shouldn't be too much of a stumbling block (suggest 50% subsidy)
3.1	Advertising	£0	£1,000	£1,000	£2,000	Medium term objective
<b>Annual totals</b>		<b>£81,833</b>	<b>£1,000</b>	<b>£1,000</b>	<b>£83,833</b>	

The following benefits have been attached to DS1 and DS2:

## DS1 Benefits

Ser	Previous Atkins Reference	Tranche Reference	Division	In progress	Reference	Yr3 (17/18)	Yr 4 (18/19)	Yr5 (19/20)	Total	Comment
(a)	(b)	(c)	(d)	(e)	(f)	(h)	(i)	(j)	(k)	
<b>KSI Benefits</b>										
<b>Directly attributable KSI benefits</b>										
1	<b>Reduce Fuel Spills</b>									
1.1	RnD	3	CO	No	GVI15	£0	£0	£0	£0	
1.2	% benefits for this intervention =				20.0%	£0	£0	£0	£0	
<b>KSI benefits that could have % apportioned to this interven</b>										
2	<b>Road user knowledge and attitudes</b>									
2.1	Comms	4	CO	No	GVI12	£658,294	£0	£0		
2.2	% benefits for this intervention =				10.0%	£65,829.41	£0.00	£0.00	£65,829	
3	<b>Promote enhanced driver training for drivers of smaller goods vehicles</b>									
3.1	Comms	2	CO	No	GVI39	£658,294	£694,280	£732,951		
3.2	% benefits for this intervention =				10.0%	£65,829.41	£69,427.98	£73,295.12	£208,553	
4	<b>Goods Vehicle driver behaviours</b>									
4.1	Legislation	2	CO	No	GVI45	£93,052	£98,139	£103,605		
4.2	% benefits for this intervention =				10.0%	£9,305.21	£9,813.88	£10,360.51	£29,480	
5	% benefits allocated Total					£140,964	£79,242	£83,656	£303,862	
<b>Delay Benefits as vehicle hour saving</b>										
<b>Directly attributable delay benefits</b>										
6	<b>Reduce Fuel Spills</b>									
6.1	RnD	3	CO	No	GVI15	£145,022	£0	£0		
6.2	% benefits for this intervention =				20.0%	£29,004.33	£0.00	£0.00	£29,004	
<b>Delay benefits that could have % apportioned to this interv</b>										
7	<b>Road user knowledge and attitudes</b>									
7.1	Comms	4	CO	No	GVI12	£362,554	£0	£0		
7.2	% benefits for this intervention =				10.0%	£36,255.41	£0.00	£0.00	£36,255	
8	<b>Improve vehicle selection process</b>									
8.1	RnD	2	CO	No	GVI16	£58,064	£60,328	£0		
8.2	% benefits for this intervention =				10.0%	£5,806.43	£6,032.85	£0.00	£11,839	
9	<b>TOS Support to DVSA</b>									
9.1	Tech	2	CO	Yes	GVI24	£145,022	£150,677	£156,648		
9.2	% benefits for this intervention =				10.0%	£14,502.16	£15,067.66	£15,664.77	£45,235	
10	<b>Promote enhanced driver training for drivers of smaller goods vehicles</b>									
10.1	Comms	2	CO	No	GVI39	£0	£0	£0		
10.2	% benefits for this intervention =				10.0%	£0.00	£0.00	£0.00	£0	
11	<b>Goods Vehicle driver behaviours</b>									
11.1	Legislation	2	CO	No	GVI45	£0	£0	£0		
11.2	% benefits for this intervention =				10.0%	£0.00	£0.00	£0.00	£0	
12	% benefits allocated Total					£85,568	£21,101	£15,665	£122,334	
<b>Additional Benefits</b>										
13	<b>TOS Support to DVSA</b>									
13.1	Tech	2	CO	Yes	GVI24	£25,000	£25,000	£0		
13.1	% benefits for this intervention =				16.5%	£4,125.00	£4,125.00	£0.00	£8,250	
14	% benefits allocated Total					£4,125	£4,125	£0	£8,250	
<b>Total % Benefit allocated</b>						<b>£259,662</b>	<b>£104,467</b>	<b>£99,320</b>	<b>£434,445</b>	

DS2 Benefits										
Ser	Previous Atkins Reference	Tranche Reference	Division	In progress	Reference	Yr3 (17/18)	Yr 4 (18/19)	Yr5 (19/20)	Total	Comment
(a)	(b)	(c)	(d)	(e)	(f)	(h)	(i)	(j)	(k)	
<b>KSI Benefits</b>										
<b>Directly attributable KSI benefits</b>										
1	<b>Reduce Fuel Spills</b>									
1.1	RnD	3	CO	No	GVI15	£0	£0	£0		
1.2	% benefits for this intervention =				80.0%	£0	£0	£0	£0	
5	<b>% benefits allocated Total</b>					£0	£0	£0	£0	
<b>Delay Benefits as vehicle hour saving</b>										
<b>Directly attributable delay benefits</b>										
6	<b>Reduce Fuel Spills</b>									
6.1	RnD	3	CO	No	GVI15	£145,022	£0	£0		
6.2	% benefits for this intervention =				80.0%	£116,017.30	£0	£0	£116,017	
<b>Delay benefits that could have % apportioned to this intervention</b>						£116,017	£0	£0	£116,017	
9	<b>TOS Support to DVSA</b>									
9.1	Tech	2	CO	Yes	GVI24	£145,022	£150,677	£156,648	£452,346	
9.2	% benefits for this intervention =				16.5%	£23,928.57	£24,861.64	£25,846.86	£74,637	
12	<b>% benefits allocated Total</b>					<b>£139,946</b>	<b>£24,862</b>	<b>£25,847</b>	<b>£190,654</b>	
<b>Additional Benefits</b>										
13	<b>TOS Support to DVSA</b>									
13.1	Tech	2	CO	Yes	GVI24	£25,000	£25,000	£25,000	£75,000	
13.1	% benefits for this intervention =				16.5%	£4,125	£4,125	£4,125	£12,375	
14	<b>% benefits allocated Total</b>					£4,125	£4,125	£4,125	£12,375	
<b>Total % Benefit allocated</b>						<b>£144,071</b>	<b>£28,987</b>	<b>£29,972</b>	<b>£203,029</b>	

## Recommended Option

The recommendation is Option 4, to deliver a best practice user guide to be distributed to selected drivers and operators, In addition, the user guide can be distributed as part of a campaign at trade fairs and through trade bodies. Furthermore, to target a wider audience the use of a web hosting service would be essential.

This will be supported by a study to identify the best diesel spillage products that can be used by the HE teams on the ground. The products would also be recommended to drivers/operators who have been involved in a diesel spillage incident on the SRN and are known to HE.

The impact and potential benefits of Option 4 (combining Options 2 and 3) is believed to better achieve the desired strategic outcomes that both CVIP and SES teams hope to achieve and therefore Option 4 is the recommended option to be taken forward. It has been agreed with Highways England that although the combined approach has been chosen this will be delivered separately as follows:

- **DS1** will be delivered by CVIP team - The cost to implement DS1 is **£83,839**.
- **DS2** will be delivered by the SES team as part of the Incident Timeline work due to be procured shortly. The cost to implement DS2 is **£83,833**.

The overall cost of implementing Option 4 (DS1 and DS2) will be **£167,672**.



## Lessons Learnt Evaluation

**03**

## 3. Lessons Learnt Evaluation

In this section, we have conducted an evaluation of lessons learnt during the course of the project. This includes issues, which we discovered during the project and how these can be addressed, providing value to Highways England.

### Section Content Summary

Area	Sub-area
Data	<ul style="list-style-type: none"> <li>• Management</li> <li>• Sharing</li> </ul>
Foreign Vehicles	<ul style="list-style-type: none"> <li>• Enforcement</li> <li>• Knowledge</li> <li>• Data</li> </ul>
Diesel Spillages	<ul style="list-style-type: none"> <li>• Diesel Spill kits (on-board)</li> <li>• Diesel Spill Treatment Products</li> <li>• Fuel Tank Capacity</li> <li>• Fuel Tank Protection</li> </ul>

### Lessons Learnt

#### Data

Highways England, Police and DVSA all have useful data relating to commercial vehicles however, it is not being managed and shared at present in order to provide the maximum benefits.

Internally, Highways England has a number of separate data sets that are all useful but could be better managed. Further to this, the Police have data for each force but consultation suggests that for commercial vehicles there is no central database.

Data is a very powerful tool for making informed decisions and supporting enforcement efforts. There are significant benefits to the better management of data internally and sharing between different agencies.

- Consider data gaps that can be addressed
- Develop a data sharing agreement with other relevant agencies

#### Foreign Vehicles

During the course of the project, we have learnt a number of things specifically relating to foreign operators and drivers.

Data suggests that compliance levels among foreign operators are lower than those of GB operators. As an example, DVSA found that 42% of foreign vehicle tachograph records would be subject to a fixed penalty compared to 28% for GB vehicles.

As well as poorer levels of compliance, there are issues with enforcing against foreign operators, as the Traffic Commissioners do not have jurisdiction over them. Foreign drivers are made to pay fixed penalties on the day of the offence whereas usually they would have 28 days to make the payment.

- Review existing data and improve quality of data collected
- Work with enforcement agencies to improve enforcement against foreign operators
- Educate foreign drivers on UK motorway usage

## Diesel Spillages

### *Diesel Spill Kits (on-board)*

Consultation has shown that around two thirds of all spill incidents involve goods vehicles however many operators do not equip their vehicles with diesel spill kits. As such, if they are involved in a spillage incident it will remain untreated until a response unit arrives.

There is potential to reduce the impact of incidents by reducing the time between the incident and start of active containment or treatment time. If more goods vehicles carried spill kits that could be applied by the driver, then there is potential to mitigate the impact by reducing the spread of the spillage, road repair requirements and contamination.

- Incentivise operators to carry spill kits
- Develop diesel spillage best practice guidance for operators including information on products and their application
- Publicise the costs, charges and impact of diesel spillage incidents

### *Diesel Spill Treatment Products*

A range of products are used by Highways England. There is inconsistency across different traffic areas and in some, multiple products are used. (In Area 7 for example, four different products are currently used.)

There is potential to maximise the benefits of such treatments by identifying the most effective product and using it nationally. Capital savings could be made by 'bulk buying' one product and a reduction of training costs for multiple products.

- Product testing/comparison
- National utilisation

### *Fuel Tank Capacity*

Research has shown that there are no maximum dimensions for diesel tanks. Some foreign vehicles entering the UK have 'double tanks' which can carry double the amount of fuel carried on standard GB goods vehicles.

There is potential to limit the impact of spillages by limiting the amount of diesel, which can be carried by vehicles or limiting the maximum capacity of fuel tanks.

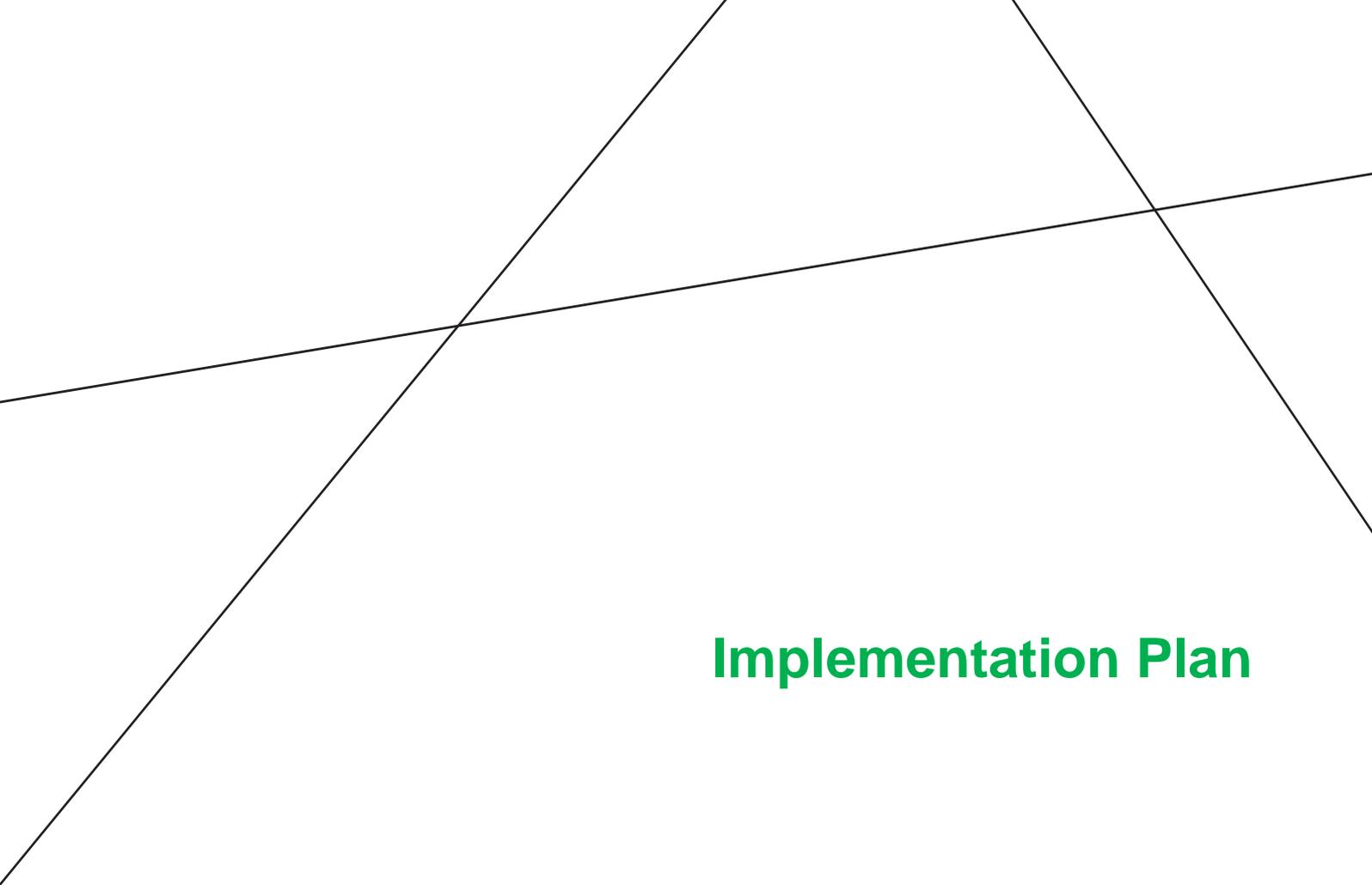
- Investigate the best course of action
- Lobby for amendments to Construction & Use Regulations

### *Fuel Tank Protection*

Research has shown that fuel tanks are significantly less protected from external impact on articulated goods vehicles when compared to the rigid type, where side rails usually protect the tanks. On articulated goods vehicles the tanks are often flush with the outermost edges of the tractor unit.

There is potential to reduce the impact of spillages by increasing fuel tank protection. This might be achieved through increasing the specification of 'double skinned' and self-sealing tanks on tractor units.

- Promote the specification of 'safer' tanks
- Lobby for amendments to Construction & Use Regulations



## Implementation Plan

04

## 4. Implementation Plan

### Diesel Spillage Interventions Implementation Plan

This section outlines two interventions with reference to how the number of diesel spillage related issues on the SRN can be reduced. Each intervention comprises of a number of sub-tasks and each of the sub-tasks has been allocated timescales for implementation.

The recommended interventions have been collated into the following groups:

- Diesel spillage guidance / best practice
- Pilot

**Table 2** presents two interventions that Highways England might consider moving forward with:

Ref	Group	Proposed Approach	Timescale
DS1	To be delivered by CVIP Team  Develop diesel spillage guidance for operators and raise awareness of best practice procedure	Create best practice diesel spillage prevention guide	Short (3 Months)
		Create diesel spillage costs document / case study and incentivise operators to invest in diesel spillage protection to reduce risk of Highways England charges (Green Claims etc.)	Short (3 Months)
		Raise awareness of best practice diesel spillage prevention guide and costs attached to incidents by distributing via FTA, FORS, RHA, Trade Fairs etc.	Short (6 Months)
DS2	To be delivered by SES team  Identify the most effective product(s) for treating diesel spills through trialling and train traffic officers in their use	Compile list of all treatment types being used in all traffic areas	Short (3 Months)
		Conduct testing to establish the best set of products for Traffic Officers to carry in their vehicles	Short (3 Months)
		Pilot best product(s) (such as Fuel Safe) in other traffic areas and obtain feedback on performance	Short (3-6 Months)
		If trials successful, roll out product(s) nationally to all areas	Medium (1-2 Years)
		Encourage operators to carry spill kits (such as fuel safe) especially if they have been involved in a diesel spillage incident in the past	Medium (Ongoing with TO contact with driver/operators)

**Table 2: Potential diesel spillage interventions**

Detailed write-ups of what the interventions involve, what has led to their creation and how they can be implemented are provided below:

This is recommended to be taken forward by the CVIP team.

## **DS1 - Develop diesel spillage guidance for HGV operators and raise awareness of best practice procedure**

### *Issue*

- Congestion on the SRN is a growing concern for Highways England and diesel spillages are a major contributory factor to this issue
- The number of diesel spillage incidents on the SRN is on the increase
- The cost of cleaning up a diesel spillage can be very expensive and time consuming
- Many operators who have not been involved in a diesel spillage incident in the past are not fully aware of the cost/damage associated with diesel spills and as such may not be investing in diesel spillage protection
- Diesel spillages can result in significant delays to the Road User and a significant cost to repair the carriageway

### *Evidence*

- Diesel spills account for approximately 25% of all incident related congestion on the SRN<sup>5</sup>
- During 2013, 78% of fuel spillages on the SRN were diesel spills<sup>6</sup>
- 67% of vehicles involved in diesel related incidents are HGVs<sup>7</sup>
- According to command and control data there were 263 diesel spillage incidents in 2013 which rose to 357 in 2014<sup>8</sup> (one a day on average)
- Approximately 41% of incidents are estimated to be 2 hours or less, 14% of incidents are between two to five hours and 22% of incidents are greater than five hours<sup>9</sup> (please note there was no record of the other 23%)
- According to Atkins' business case report the cost of an incident lasting for 4 hours on a busy route is £541,440<sup>10</sup>
- The Incident Prevention Teams (IPT) presentation delivered by Highways England contained two case studies. The first detailed the overall cost passed onto the operator was £58,760 and the second detailed an overall cost of £69,908<sup>11</sup>
- Diesel exposure for as little as 120 minutes has been shown to result in structural damage to road surfaces<sup>12</sup>

### Staged approach to delivering this intervention

**a)** Create best practice diesel spillage prevention guide for commercial vehicle operators which should include:

- The reason why drips, leaks and spillages should be prevented and controlled
- Simple steps that can be taken to prevent drips, leaks and spillages such as:
  - Do not overfill fuel tanks when refuelling
  - Ensure that fuel tank caps are secured before starting your daily shift and after refuelling. If it can't be secured don't use it – report it
  - Use funnels, pumps and drip trays (as appropriate) when refuelling
  - Do not wedge open fuel nozzles when re-fuelling
  - Do not refuel near unprotected drains or controlled waters

<sup>5</sup> Atkins. 2013: Diesel Absorption Trial Phase 2. pp. 2

<sup>6</sup> FMG. 2013: Fuel Tanks in LGV's Presentation. Slide 7

<sup>7</sup> Highways England. 2015: Command and Control Centre Data

<sup>8</sup> Highways England. 2015: Command and Control Centre Data

<sup>9</sup> FMG. 2013: Fuel Tanks in LGV's Presentation. Slide 8

<sup>10</sup> Atkins. 2015: Commercial Vehicle Incident Prevention Strategy Outline Business Case. pp. 25

<sup>11</sup> Highways England. 2015: IPT Presentation. Slide 2

<sup>12</sup> J C Bullas, J Doxford, & P Hupton. Star. 2014: A study of measurement methods for diesel sorbent performance, and the components of road user delay associated with diesel spills on the UK SRN. pp 3

- Plan for drips, leaks and spills – have suitable spill kits immediately available for use. Carry spill kits in vehicles
  - Ensure the spill kit is stored where it can be seen, easily reached and look after them
  - Check the fuel cap is in place and fastened properly
  - There are no signs of leaking or seepage from the filler neck
  - The fuel tank seal is intact and there is no sign of fuel on the tank and on the ground
  - The tank has not been breached as part of the daily walkaround check
  - Application of the spill kit (if one is carried)
  - The procedure to follow in the event of a spillage
  - Information on diesel spillage protection devices such as locking caps, mushroom one-way breather valves, lateral straps on the fuel tank to stop it sliding backwards / forwards, guard rails
  - Information on self-healing / reinforced tanks
- b)** Create diesel spillage costs document / case study and incentivise operators to invest in diesel spillage protection to reduce risk of Highways England charges (Green Claims etc.). This should include:
- Costings of diesel spillage incidents (Use cost of vehicle breakdown information contained in Atkins report<sup>13</sup> and create guidance document for operators)
  - A statement that Highways England may charge operators involved in diesel spillages that have chosen not to comply with the diesel spillage best practice guide
  - A case study that will provide an example of when an operator was involved in a diesel spillage incident and was charged for the clean-up
- c)** Raise awareness of best practice diesel spillage prevention guide and costs attached to incidents by distributing via FTA, FORS, RHA, Trade Fairs etc. The awareness campaign should include:
- A communications strategy and list of objectives
  - A tactical communications plan

Launching a public awareness campaign will provide lorry drivers and operators with the information and things to look out for to prevent fuel leakages as well as highlight the dangers diesel spills pose to other road users particularly motorcyclists. Through the campaign additional measures are to be encouraged for operators to take up such as extra fuel protection through the use of anti-leakage devices. The essence of the campaign will be to emphasise the impact of a diesel spillage incident and the financial impact to the operator if they are involved in such an incident. In order to raise awareness that offers a strong incentive for drivers to detect and report any fuel leakages, a key message in the campaign will be to highlight the dangers and the cost to the operator of poor practice.

The campaign can be included in features in industry magazines such as *Road Haulage Association (Roadway Magazine)*, *Freight Transport Association (Freight and Logistics Magazine)*, *CILT Focus*, *Highways Magazine*, *Truck and Driver*, *Transport News*, *Motor transport*, *Logistics Manager*, and *Commercial Motor* for example. These publications will be backed up by coverage of leaflets and billboard signs in truck stops, motorway service areas and HGV fuel stations across the UK coupled with discussion on twitter.

In addition Highways England can work with 'The Institute of Highway Engineers Motorcycling Guidelines' to introduce anti-diesel spill stickers across the industry, these stickers will be designed to be placed next to the fuel cap of commercial vehicles to raise awareness of overfilling tanks. For a successful campaign, it should be run in partnership with the industry and each diesel spillage

<sup>13</sup> Atkins. 2015: Commercial Vehicle Incident Prevention Strategy Outline Business Case. pp. 25

topic for the campaign should be in association with a valued industry partner. For example a National Challenge Group consisting of the police, DVSA, HE traffic officers and trade associations such as RHA, FTA, Brake and FORS, can assist in promoting the campaign and solve any issues raised relating to diesel spills.

This awareness campaign will be similar to that detailed in the Tyre Management interventions.

### Points to note

All guidance should be produced in consultation with relevant stakeholders including vehicle manufacturers, DVSA, Police, Traffic Commissioners, contract service providers, fleet operators fuel clean-up material suppliers and Traffic Officers.

All guidance should be translated into multiple languages.

There are various pieces of existing material which should be used to develop the contents of the guidance. There is no point in creating new material if some already exists

Awareness of this guidance should be raised via FTA, RHA, FORS, Trade Fairs (e.g. commercial vehicle show) etc.

Once developed and awareness has been raised the procedure(s) should be enforced on the entire network and operators who have chosen not to follow best practice should be charged if they are involved in incidents.

## DS2 - Identify the most effective product(s) for treating diesel spills by trialling products and training traffic officers in their use

It is recommended that this is implemented by the SES team.

### Issue

- A variety of products for treating diesel spillages are being used in different regions across England
- There is very little (if any) technical information concerning the performance of these treatment products
- Common knowledge of products being used is not shared amongst parties involved in maintaining and managing the strategic road network
- There is a need to identify all the different products being used in different regions and a record of these products needs to be developed for future reference
- Some Traffic Officers are required to work in more than one region. If each region uses different products then these Traffic Officers will need to be trained to use every product they encounter. This adds additional cost to the model
- A large number of fleet operators do not equip their vehicles with a spill kit meaning if they are involved in a spillage it will remain untreated until a response unit arrives at the scene
- If different products are being used by operators as well as traffic officers, it becomes difficult to treat the road surfaces therefore there is a need for one universal product

### Evidence

- The review of diesel spill clean-up procedures conducted by TRL mentions that there are a range of products used by different areas<sup>14</sup>
- The site visit to Perry Barr (Kier) in area 9 revealed that they were using two products namely; Fuel Safe and Sphag-Sorb

<sup>14</sup> TRL. 2010: Review of Diesel Spillage Clean-up Procedures. pp 7

- Highways England reported that area 7 were using four different products including Spill Dry
- Area 10 and 13 were found to be using just one product which is Sphag-Sorb
- A Traffic Officer earns an average salary of £22,637 per year<sup>15</sup>
- Of the survey respondents consulted during the stakeholder phase of this project, 42% said they did not equip their vehicles with a spill kit<sup>16</sup>

#### *Potential solution*

Highways England should consider conducting a comprehensive trial of the different products used to determine which product is most effective at treating diesel spills.

In order to do this a list of available products should be assembled through consultation with each of the area service contract providers. The identified products should then be tested and graded according to how they perform against a number of key criteria. Finally Traffic Officers should be trained to use the most effective products and these should be rolled out across the network.

If the Incident Prevention Team chooses not to progress this intervention further. It is proposed that the recommendation should be put forward to the SES team to consider the intervention as part of the incident timeline work.

#### Staged approach to delivering intervention

- a) Compile a list of available products and determine how much they cost by consulting with all of the area service contract providers
- b) Conduct a test of the products to determine the most effective product and grade the products effectiveness by considering the following:
  - Do the new products absorb diesel as claimed?
  - If so, at what rate can they absorb and is it fast enough to counter the breakdown of the pavement structure/strength and maintain its safe skidding resistance for traffic at normal speeds? Can speeds be reduced and be safely maintained and for how long after the spillage?
  - If it does not prevent total breakdown, can the product delay deterioration, possibly into off-peak hours?
  - Does the direct application of these products on the surface actually create a skidding problem itself?
  - What quantities are involved per metre squared for the products to be effective?
  - What is the resultant capital cost?
  - What are the delay savings from using the products and negating the need for pavement renewals/driver delay?
  - Can they be applied simply by Traffic Officers/MAC staff?
  - Is training, health and safety an issue and if so what are the implications/cost?
  - Subject to satisfactory performance, how much product is likely to be needed typically and can it fit into an already weight constrained Traffic Officers vehicle?
  - Are the products detrimental to the pavement for other reasons in accordance with HA standards on pavement engineering?
  - Are the products environmentally friendly as claimed, including its disposal? Are they Environmental Agency approved?
- c) Pilot the best product(s) in other traffic areas and obtain feedback on performance and:
  - Determine cost of training / trainer by consulting with Kier (Area 9) for instance
  - Determine cost of traffic officer to attend course based on an average salary of £22,637 per year<sup>17</sup>
  - Train traffic officers to use product (if not already done so) using the same model as applied by Kier in area 9

<sup>15</sup> <https://myjobsearch.com/careers/highways-officer.html>

<sup>16</sup> AECOM analysis 2016

<sup>17</sup> <https://myjobsearch.com/careers/highways-officer.html>

- d) Roll out the most effective product(s) across the entire network
- e) Incentivise operators to carry spill kits (such as fuel safe) especially if they have been involved in a diesel spillage incident in the past. This could be achieved by:
  - Obtaining results from diesel spillage trials and determine the most effective product(s)
  - Compiling list of operators involved in a spillage incident in the last five years by consulting HE data
  - Incentivising these identified operators to carry spill kits by sending them the best practice spillage guide / costs document
  - Considering subsidising the cost of HE's preferred spillage treatment to increase uptake
  - Consulting with industry and determine if the number of operators carrying spill kits has increased

Following trials to determine the most effective diesel spillage product(s), Highways England might look at incentivising operators that have been involved in a diesel spillage in the last five years to carry the preferred Highways England product for treating spills. If drivers have a spill kit on board their vehicle and are trained on how to use the kit, they would be able to treat the surface themselves and help reduce the impact of the spillage rather than let the surface worsen.

Another possible measure that Highways England might consider adopting is to subsidise the cost of the spillage treatment product for operators and publicise the fact that they are doing so. If this is done in conjunction with the best practice diesel spillage prevention guide, this may encourage greater operator uptake for those that have not been involved in a spillage incident.



## **Business Case**

# **05**

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## 5. Diesel Spillages Business Case

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### Highways England Business Case

### Funding for diesel spillage interventions

## Document control

**Document information**

<b>Document title</b>	Funding for diesel spillage interventions
<b>Author</b>	PA Consulting
<b>Owner</b>	John Walford
<b>Distribution</b>	AECOM
<b>Document status</b>	Final

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Version	Date	Description	Author
1	27/02/17	1 <sup>st</sup> Draft	PA Consulting
2	03/04/17	Final	PA Consulting

**Reviewer list (consultation/concurrence)**

Name	Yes	No	N/A	Role
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	TAME/TASM (will be Chief Analyst unit)
	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Health and safety team
	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Technical specialists - equality/environment impact assessments
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Commercial Manager
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Procurement Business Partner
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Finance Business Partner
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Tax Manager
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	General Counsel
	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Customer Operations
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Human Resources
	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Estates
	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Information Communications Technology
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Programme/Portfolio Office

**Document sign-off**

Name	Signature	Title	Date of issue	Version
TBC	TBC	Project Manager	TBC	TBC
TBC	TBC	Senior Responsible Owner	TBC	TBC

**References:**

- A. Highways England Outline Business Case for the Commercial Vehicle Incident Prevention Programme.

## 1. Executive Summary

### 1.1 Introduction

This Business Case is derived from the strategic objectives outlined in Reference A. It seeks approval for the CVIP team to invest **£83,839** to undertake the following activity:

- Develop diesel spillage guidance for operators and raise awareness of best practice procedure. To include the creation of a diesel spillage costs document / case study and incentivise operators to invest in diesel spillage protection to reduce risk of Highways England charges (Green Claims etc.). The objective is to raise awareness of best practice diesel spillage prevention guide and costs attached to incidents by distributing via FTA, FORS, RHA, Trade Fairs etc.

It also seeks approval for the SES team to spend **£83,833** on the following trial:

- Identify the most effective product(s) for treating diesel spills through trialling and testing to establish the best set of products for Traffic officers to carry in their vehicle. If the trials are successful, roll out product(s) nationally to all areas and train traffic officers in their use, and using best practice guides and interaction with drivers/operators, encourage operators to carry spill kits (such as fuel safe) especially if they have been involved in a diesel spillage incident in the past

### 1.2 Strategic Case

#### 1.2.1 Strategic context

The strategic drivers for this business case have been developed from the Highways England Outline Business Case<sup>18</sup> for the Commercial Vehicles Programme. The overarching aim of the CVIP team to support the HE strategy is to '*Maintain incident management capability whilst developing and delivering a targeted, intelligence led commercial vehicle incident prevention programme*'.

Additionally it is important for SES to trial and recommend products and ways of working that minimise the damage caused by incidents.

#### 1.2.2 The case for change

The SRN whilst only constituting 2.4% of England's road network, carries 67% of its freight traffic and incidents on the SRN have a significant and disproportionate effect in terms of network disruption and severity of Personal Injury Collisions (PIC). Reducing the frequency and impact of commercial vehicle incidents is therefore vitally important in helping Highways England deliver a more free-flowing network to support economic growth and drive forward plans to deliver a safer road network.

#### 1.3.1 OBC options

The OBC outlined a set of 27 interventions that had been analysed and refined into three delivery streams – safer people, safer roads and communication enablers that would support the CVIP team strategy. Within these three work streams were recommendations for a number of interventions activities.

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<sup>18</sup> Reference OBC

### 1.3.2 The refinement of the options

The OBC was written with the intention of delivering 27 interventions as part of a delivery plan. However, within these 27 interventions there are a number of proposals that are either subject of stakeholder influence and/or case study activity that sit as project work, or stakeholder engagement that require analysis. These activities therefore lacked the clarity and detail required to be translated into a deliverable business case that focuses on a particular intervention from which clear deliverables can be determined.

The interventions have, as a result, been investigated further in order to identify outputs that can be delivered in the short/medium/long terms and these will be taken forward by the CVIP and SES team proposals in three focus areas:

- Driver's hours interventions
- Diesel spillage interventions
- Tyre management interventions

In this business case the focus is on diesel spillage interventions for which the options for delivery are as follows:

- **Option 1 - Do nothing.** This option changes nothing in terms of planned interventions to reduce and manage diesel spillages beyond that which is already undertaken. Whilst there is therefore no increased cost, there are also no benefits that can be derived from this option.
- **Option 2 – DS1 Develop diesel spillage guidance for operators and raise awareness of best practice procedure.** This option focuses on producing guides and information for drivers/operators to inform them of the need for effective vehicle checks, maintenance and actions to reduce the risk of diesel spillages occurring. This will focus on drivers and operators from both UK and overseas through publication of a best practice guidance, translated into seven key overseas languages. This will be supported by a study to provide data on diesel spillages, their prevention and the costs incurred in cleaning up. It will also highlight the potential for drivers/operators to have charges levied against them as a means of incentivising them to take positive action.
- **Option 3 – DS2 Identify the most effective product(s) for treating diesel spills through trialling and train traffic officers in their use.** This option looks to undertake work to test a number of potential products for dealing with diesel spillages with a view to identifying a single one for use across the SRN. It will also include a training programme to ensure all TOs know how best to use the product that will be used as the choice product in the future. Through the use of the information gained, best practice guide in DS1 and interaction with drivers/operators it is then planned to incentive drivers operators to carry and use spill kit to reduce the risk of potential claims against operators who incur spillages due to bad practice.
- **Option 4 – Best practice information campaign, use of preferred product for diesel spillage and improved training/education.** To undertake both activities outlined in Options 2 and 3 as a comprehensive approach to informing and incentivising operators to carry out effective diesel spillage prevention and management and to identify and train TOs in the use of a selected best product Highways England.

### 1.3.3 Key Findings

	Net Present Cost (Value) (£)
<b>Option 1 – Do Nothing</b>	As is
Non capital costs	As is
Risk retained	As is
Total Costs	As is
Less Non-cash releasing benefits	As is
<b>Total</b>	As is
	Net Present Cost (Value) (£)
<b>Option 2 – DS1 Develop diesel spillage guidance for operators and raise awareness of best practice procedure</b>	
Non capital costs	£75,074
Risk retained	
Total Costs	£75,074
Less Non-cash releasing benefits	£434,445
<b>Total</b>	£359,371
	Net Present Cost (Value) (£)
<b>Option 3 – DS2 Identify the most effective product(s) for treating diesel spills through trialling and train traffic officers in their use</b>	
Non capital costs	£83,833
Risk retained	
Total Costs	£83,833
Less Non-cash releasing benefits	£203,029
<b>Total</b>	£119,196
	Net Present Cost (Value) (£)
<b>Option 4 – Combined approach</b>	
Non capital costs	£158,908
Risk retained	
Total Costs	£158,908
Less Non-cash releasing benefits	£637,475
<b>Total</b>	£478,567

### 1.3.4 Sensitivity Analysis

<b>Evaluation Results - based on 2010 discounted rates</b>	<b>Option 1 – Do Nothing</b>	<b>Option 2 – DS1 Develop diesel spillage guidance for operators and raise awareness of best practice procedure</b>	<b>Option 3 – DS2 Identify the most effective product(s) for treating diesel spills through trialling and train traffic officers in their use</b>	<b>Option 4 – Combined approach</b>
Value Benefits (PVB) - Safety benefits only	As is	£434,445	£203,029	£637,475
Value Cost (PVC)	As is	£83,839	£83,833	£167,672
Net Present Value (NPV)	As is	£350,606	£119,196	£469,802
<b>Benefit Cost Ratio (BCR)</b>	0	5.2	2.4	3.8
<b>Ranking</b>	4	2	3	1

### 1.3.5 Preferred Option

Overall, while Option 2 represents the best Value for Money (VfM) in term of pure cost as a single intervention, the additional impact and potential benefits of Option 4 (combining Options 2 and 3) is believed to better achieve the desired strategic outcomes that the CVIP and SES team hopes to achieve.

**Option 4 (ranked 2) is therefore the recommended option to be taken forward.**

## 1.4 Commercial Case

1.4.1 The following goods and services are proposed to be contracted:

(2016 undiscounted price total with OB)	Costs (estimated)(PV)
Printed production distribution costs	£9,685
Printed distribution costs	£15,378
Printed material translation <sup>19</sup>	£700
Web Hosting	£3,076
Research costs to identify preferred product	£20,000

### 1.4.2 Agreed risk allocation and charging mechanism

The agreed risk assessment will require value attribution by the SES team and any areas where risks involve commercial contract or engagement will require Highways England Commercial sign off.

### 1.4.3 Key contractual arrangements

Options 3 will require a contract for the purchase and distribution or local purchase of the chosen product for Highways England teams nationwide. The charging mechanism will be in accordance with Highways England Commercial directives.

### 1.4.4 Agreed implementation timescales

The timescale for the options is as follows:

Option	Agreed timescale	Comment
Option 2 – DS1 Develop diesel spillage guidance for operators and raise awareness of best practice procedure	6 – 9 months	
Option 3 – DS2 Identify the most effective product(s) for treating diesel spills through trialling and train traffic officers in their use	2 years	Including roll out
Option 4 – Combined approach	2 years	Including roll out

### Accountancy treatment

The agreed accountancy treatment will be in line with the agreed Highways England Financial and TAME directives.

<sup>19</sup> Translation of material into key overseas driver operator languages – French, German, Spanish, Italian, Polish, Romanian, Hungarian.

## 1.5 Financial Case

### 1.5.1 Financial expenditure

The financial implications of the preferred product for dealing with diesel spillages will require agreement and approval for final budgetary spending figures that are currently only proposed in this business case. This is because these figures cannot be finalised until such agreements are in place.

The agreed funding can still only be the model for potential expansion as the associated costs in this case will require further Service Level Agreement (SLA) and agreements with the selected forces.

### 1.5.2 Financial expenditure

	Yr3 (17/18)	Yr4 (18/19)	Yr5 (19/20)	Total
<b>Preferred choice:</b>				
Cost (DS1/2)	£146,682	£10,378	£10,612	£167,672
Benefit (DS1/2)	£374,728	£133,454	£129,292	£637,475
<b>Total value</b>	<b>£228,046</b>	<b>£123,076</b>	<b>£118,680</b>	<b>£469,802</b>

### 1.5.3 Overall affordability and balance sheet treatment

This proposal is for formal agreement for a support contract or enabling purchase contract with either a single selected supplier or through a network. Costs agreed will be managed in accordance with the financial direction of the Highways England SES Financial manager and the SES team.

## 1.6 Management Case

### 1.6.1 Project management arrangements

This project will be managed by the ICT and SES project teams in conjunction with CVIP team. Overarching programme management will be conducted by SES PMO through the Programme Manager to the SRO. The Governance arrangements are laid out in Figure 2-1 of the OBC at Ref A.

### 1.6.2 Benefits and risk management

Benefits management process will be in accordance with existing Highways England Benefits Management directives.

#### Risk management

Risks have been identified and recorded in the SES risk registers. Risk ownership and delegation has been agreed with Highways England Commercial and escalation processes are managed in accordance with the Highways England Risk Management directives.

### 1.6.3 Post project evaluation arrangements

SES will conduct post project evaluation in accordance with the Highways England Programme Management directive<sup>20</sup>.

## 1.7 Recommendation

The recommendation is Option 4, to deliver a best practice user guide to be distributed to selected drivers and operators. In addition, the user guide can be distributed as part of a campaign at trade

<sup>20</sup> The project control framework handbook v2 April 2013.pdf

fairs and through trade bodies. Furthermore, to target a wider audience the use of a web hosting service would be essential.

This will be supported by a study to identify the best diesel spillage products that can then be used by the Highways England teams on the ground. The products would also be recommended to drivers/operators who have been involved in a diesel spillage incident on the SRN and are known to HE.

The impact and potential benefits of Option 4 (combining Options 2 and 3) is believed to better achieve the desired strategic outcomes that both CVIP and SES team hopes to achieve and therefore Option 4 is the recommended option to be taken forward. It has been agreed with Highways England that although the combined approach has been chosen this will be delivered separately as follows:

- **DS1** will be delivered by the CVIP team
- **DS2** will be delivered by the SES team as part of the Incident Timeline work due to be procured shortly

**Signed:**

**Date:**

**Senior Responsible Officer**

**CVIPT**

## 2. The Strategic Case

### 2.1 Introduction

This Full Business Case is for the provision of funding and support to deliver interventions aimed at improving awareness of the need for checking, identification and management of vehicles to prevent diesel spillages and for the actions to take place when and where they occur. It is supported by work to identify the best potential diesel spillage product to be used by Highways England patrols and for training in their use. Finally the combination of the two will be used as incentivisation for driver/operators to better manage and deal with diesel spillages and to make them aware of the potential charges that can be occurred if Highways England intervention is required.

#### Structure and content of the document

The FBC has been prepared using the standards laid out in the Green Book guidance on delivering Public Sector Business Cases using the five case model.

#### Part A: The strategic context

### 2.2 Organisational overview

The SRN whilst only constituting 2.4% of England's road network, carries 67% of its freight traffic and incidents on the SRN have a significant and disproportionate effect in terms of network disruption and severity of Personal Injury Collisions (PIC). Reducing the frequency and impact of commercial vehicle incidents is therefore vitally important in helping Highways England deliver a more free-flowing network to support economic growth and drive forward plans to deliver a safer road network.

The strategic drivers for this business case have been developed from the Highways England Outline Business Case for the Commercial Vehicles Programme. The overarching aim of the CVIP team to support Highways England's strategy<sup>21</sup> is to 'Maintain incident management capability whilst developing and delivering a targeted, intelligence led commercial vehicle incident prevention programme'.

The following objectives have therefore been developed:

- Contribute to the ongoing reduction in killed or serious injury incidents on the strategic road network to assist Highways England in reducing the severity and number of commercial vehicle incidents by 20%.
- Reduce the economic impact of commercial vehicle related incidents
- Contribute to the longer term vision of a network with zero unplanned disruption
- Provide a reliable network which supports business and commerce
- Foster multi-agency relationships to promote a coordinated response
- Prudent use of funding to enable Highways England to act as an agent for change.

The Highways England 5 Year Health and Safety Plan (2015) requires the SES team to deliver a Commercial Vehicle Incident Prevention Programme in recognition of the impact that this class of vehicle has when involved in a collision, and reduce the severity and number of commercial vehicle incidents by 20%.

### 2.3 Other organisational strategies

The Department for Transport (DfT) Performance Specification sets out a number of key performance indicators (KPIs) on which the Government and Strategic Roads Network Monitor will monitor Highways England<sup>22</sup>. These areas are also considered in the Roads Investment Strategy (RIS) which outlines the DfT's long term proposals for the SRN.

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<sup>21</sup> OBC Section 2, Table 2-2 CVIPT alignment with Highways England strategic objectives.

<sup>22</sup> See Section 2, Table 2-2 CVIPT alignment with Roads Investment Strategy.

## Part B: The case for change

### 2.4 Investment objectives.

The objectives of this initiative are focused on two areas namely short and medium term initiatives to deliver benefits:

#### 2.4.1 Objective 1 - DS1 Develop diesel spillage guidance for operators and raise awareness of best practice procedure.

Congestion on the SRN is a growing concern for Highways England and diesel spillages are a major contributory factor to this issue. The cost of cleaning up a diesel spillage can be very expensive and time consuming and many operators are not fully aware of the cost/damage associated with diesel spills and as such may not be investing in diesel spillage protection.

The aim is therefore to create a best practice diesel spillage prevention guide / cost document and raise awareness of these guides.

Ser	Intervention	Timeframe
<b>DS1 Develop diesel spillage guidance for operators and raise awareness of best practice procedure</b>		
1.	Create best practice diesel spillage prevention guide	3 months
2.	Create diesel spillage costs document / case study and incentivise operators to invest in diesel spillage protection to reduce risk of Highways England charges (Green Claims etc.)	3 months
3.	Raise awareness of best practice diesel spillage prevention guide and costs attached to incidents by distributing via FTA, FORS, RHA, Trade Fairs etc.	This will involve prep, briefings and media – 6 months.

#### 2.4.2 Objective 2 – DS2 Identify the most effective product(s) for treating diesel spills through trialling and train traffic officers in their use.

A variety of products for treating diesel spillages are being used in different regions across England and a record of these products needs to be developed for future reference. Additionally there is very little (if any) technical information concerning the performance of these treatment products.

A study is therefore required to identify all the different products being used in different regions, then assess and evaluate the performance of the different products in use to better understand their capabilities.

Some Traffic Officers are required to work in more than one region. If each region uses different products then these Traffic Officers will need to be trained to use every product they encounter.

Common knowledge of products being used is not shared amongst parties involved in maintaining and managing the strategic road network and there is a need to standardise the products being used across all regions but also to ensure Traffic Officers are trained in the use of the range of selected products used by Highways England.

Ser	Intervention	Timeframe
<b>DS2 Identify the most effective product(s) for treating diesel spills through trialling and train traffic officers in their use.</b>		
1.	Compile list of all treatment types being used in all traffic areas	3 months
2.	Conduct testing to establish the best set of products for Traffic officers to carry in their vehicles	3 months
3.	Pilot best product(s) (such as Fuel Safe) in other traffic areas and obtain feedback on performance	3-6 months
4.	If trials successful, roll out product(s) nationally to all areas	1 - 2 years
5.	Encourage operators to carry spill kits (such as fuel safe) especially if they have been involved in a diesel spillage incident in the past	Ongoing with TO contact with driver/operators

## 2.5 Spending (investment) objectives

The objectives of this initiative are focused on two areas of activity:

- 1 Conduct a study to identify the best diesel spillage treatment product
- 2 Trial selected products on areas of the SRN to evaluate their use. On conclusion of this trial the arrangement will then be made to look to roll this product out across the SRN for use by Traffic Officers accompanied by a training period to familiarise the operators with the product.

## 2.6 Business Needs

The OBC identified a number of interventions focusing on delivering safer roads and safer drivers. These have been further refined and analysed. As a result a number of issues relating to diesel spillage incidents and management were identified and proposals for addressing these put forward for delivery as a Business Case. These can be summarised into two key areas:

- Reducing the amount of incidents of low level spillage and immediate spillage action that can be taken by drivers/ operators to reduce the impact of delays where they occur and slow the traffic flow, impacting on wider business/industry costs due to delays. Also by reducing the need for Traffic Officers to become involved with spillages that cost Highways England and potentially work towards a situation where costs are recovered by Highways England from driver/operators
- Identifying a diesel spillage product that is the most effective at dealing with the range and size of spillages and then issuing this to all Highways England Traffic Officers, including training in the use of that product. The potential benefits are the reduced purchase costs through use of central contracting and a standardisation and potential reduction in training and handling errors where all Traffic Officers are trained and adhere to standard for dealing with spillages.

## 2.7 Main benefits.

### 2.7.1 Strategic Benefits.

The initiatives outlined in the objectives to this case are intended to support the strategic benefits outlined in the CVIP team programme at reference A:

*“to deliver a clear and measurable impact against performance indicators in the Highways England Business Plan – most notably in delivering a target saving of 33 KSI casualties by 2020/2021.*

### 2.7.2 Benefits by key stakeholder group.

**Highways England.** This information and enforcement intervention will deliver CVIP team benefits that also contribute to Highways England's overall target of a 20% reduction in commercial vehicle related KSI casualties by 2020 compared to a 2005-2009 baseline."

**Department for Transport.** Achieving a reduction in KSI and/or delays will also support the DfT's Road Investment Strategy.

### 2.7.3 Key risks

The key risks are outlined in Section 6.9 of (Reference OBC) and remain extant for this Business Case. A more detailed list of the risks for this pilot study is at Annex A.

Intervention Serial	Risk	Impact	Probability	Costs
DS1-1	Testing of products - Lack of statistically robust data or evidence of effectiveness	Variance of products in different areas Lack of buy in from traffic officers Loss of economy of scale through bulk buy of single product	High	How many Traffic Officers are deployed at any one time £25 fuel safe (5 ltr) £25 Sphagsorb (5 bags) Bunding
DS1-2	Roll out nationally- - Traffic Officers are not familiar with chosen products	Training costs for upskilling across SRN	High	See Excel table
DS1-3	Training is not conducted in a timescale that matches change of product	Traffic Officers issued with product they are not familiar with and thus slower to use at incident	High	Delay cost to traffic flow
DS1-4	A contract for supply cannot be made in a satisfactory timeframe	Traffic Officers continue to use diverse materials and area contracts require running on/extension	High	Higher costs due to continuing to utilise varied products
DS1-5	Centralised funding and distribution cannot be agreed with areas	Continue with area based purchase of products as currently undertaken	High	Loss of economy of scale of central procurement
DS2-1	Operators unwilling to carry spill kit due to cost or capacity issues in vehicles	Continue with current DS spillage rates and clean-up costs. Higher cost to Highways England	High	Delay cost. Increased product cost to Highways England (higher usage) Environmental costs (delays)

#### 2.7.4 Constraints

The key constraints are outlined in Section 2.3.7 of the OBC, of note the key constraints are:

- Delivery of the programme will consume a significant proportion of the SES / CVIP Teams' available resource limiting capability to deliver other tasks or identify other incident prevention needs.
- The CVIP Programme is constrained by a reliance on alignment with work-streams of other Highways England departments.

### 2.7.5 Dependencies

The key external dependencies for this Business case are as follows:

- Identification of research partner for DS product spillage testing and trial
- Endorsement and agreement of the selected product across all Highways England regions

## 3. Economic Case

### 3.1 Introduction

In accordance with the Capital Investment manual and requirements of HM Treasury's Green Book (A Guide to Investment Appraisal in the Public Sector), this section of the FBC documents the process and evidence to demonstrate that this is the most economic option in terms of Highways England CVIP teams business needs and in realising VfM.

### 3.2 Critical Success Factors.

Critical success factors for this pilot scheme will include:

- A robust and simple monitoring process to inform key stakeholders.
- An effective and simple reporting process that delivers key success data on the pilot study to inform planning for potential expansion of the intervention. This will particularly focus on the benefits to Highways England road users and industry bodies involved.

### 3.3 Delivery Options

**3.3.1 Option 1 - Do nothing.** Provide no additional funding to combat the number of commercial vehicle incidents relating to diesel spillage reduction and incident interventions on the Highways England network. This is therefore likely to result in little or no change to the impact commercial vehicles have on the network and the existing threat to the Highways England safety target remains.

This option changes nothing in terms of planned interventions to manage spillages beyond that which is already undertaken. Whilst there is no increased cost, there are also no benefits that can therefore be derived from this option.

**3.3.2 Option 2 – DS1 Develop diesel spillage guidance for operators and raise awareness of best practice procedure.** This option focuses on producing guides and information for drivers/operators to inform them of the impact of correct vehicle checking and identification of actual or potential spillages before they begin journeys and of how to deal with incidents when they occur on the road. It will target both UK and overseas driver/operators with the aim of increasing awareness, the actions to take and the potential cost in terms of incident clear up costs that they may be charged by Highways England should an incident for which they are responsible occurs.

Option Costs over period of implementation	Potential Benefits value over that period	Benefit Ratio
<b>£83,839</b>	<b>£434,445</b>	<b>5.2</b>

**3.3.3 Option 3 – DS2 Identify the most effective product(s) for treating diesel spills through trialling and train traffic officers in their use.** This option looks to undertake work to test a number of potential products for dealing with diesel spillages with a view to identifying a single one for use across the SRN. It will also include a training programme to ensure all Traffic Officers know how best to use the product that will be used as the product of choice in the future. Through the use of the information gained, best practice guide in DS1 and interaction with drivers/operators it is then planned to incentivise drivers operators to carry and use spill kit to reduce the risk of potential claims against operators who incur spillages due to bad practice.

Option Costs over period of implementation	Potential Benefits value over that period	Benefit Ratio
<b>£83,833</b>	<b>£203,029</b>	<b>2.4</b>

**3.3.4 Option 4 – Best practice information campaign, use of preferred product for diesel spillage and improved training/education.** To undertake both activities outlined in Options 2 and 3 as a comprehensive approach to informing and incentivising operators to carry out effective diesel spillage prevention and management and to identify and train Traffic Officers in the use of a selected best product(s) for the SRN.

Option Costs over period of implementation	Potential Benefits value over that period	Benefit Ratio
<b>£167,672</b>	<b>£637,475</b>	<b>3.8</b>

## 2.4 Summary of economic appraisals of costs and benefits, with cost benefit analysis.

The breakdown of costs is at Annex B. The annual costs are summarised below:

Period	DS1 Develop diesel spillage guidance for operators and raise awareness of best practice procedure.	DS2 Identify the most effective product(s) for treating diesel spills through trialling and train traffic officers in their use.	Savings / benefits	Total cost
Yr3 (17/18)	£64,849	£81,833	£228,046	£146,682
Yr4 (18/19)	£9,378	£1,000	£123,076	£10,378
Yr5 (19/20)	£9,612	£1,000	£118,680	£10,612
<b>Total</b>	<b>£83,839</b>	<b>£83,833</b>	<b>£469,802</b>	<b>£167,672</b>

## 3.5 Optimism bias adjustment

All costs have applied optimism bias of 44% that is for a Pilot Scheme as a Stage 1 project<sup>23</sup>. This data will be refined as data is analysed during the scheme.

<sup>23</sup> Source: DfT TAG Unit A1.2 Section 3.5.7 and Table 8. November 2014

### 3.6 Risk assessment

The Risk register is at Annex A. The key economic risks identified are as follows:

Intervention Serial	Risk	Impact	Probability	Costs
DS1-4	A contract for supply cannot be made in a satisfactory timeframe	Continue with area based purchase of products as currently undertaken	High	Higher costs due to continuing to utilise varied products
DS1-5	Centralised funding and distribution cannot be agreed with areas	Continue with area based purchase of products as currently undertaken	High	Loss of economy of scale of central procurement

### 3.7 Sensitivity analysis

Evaluation Results - based on 2010 discounted rates	Option 1 – Do Nothing	Option 2 - DS1	Option 3 - DS2	Option 4 - Combined DS1/2
Value Benefits (PVB) - Safety benefits only	As is	£434,445	£203,029	£637,475
Value Cost (PVC)	As is	£83,839	£83,833	£167,672
Net Present Value (NPV)	As is	£350,606	£119,196	£469,802
Benefit Cost Ratio (BCR)	0	5.2	2.4	3.8

All figures rounded to the nearest £1,000

### 3.8 Preferred Option

The recommendation is Option 4, to deliver a best practice user guide to be distributed to selected drivers and operators. The products would also be recommended to drivers/operators who have been involved in a diesel spillage incident on the SRN and are known to Highways England..

This will be supported by a study to identify the best diesel spillage products that can then be used by the Highways England teams on the ground, but also recommended to driver/operators for use by those individuals and operators, particularly if they have had a spillage situation in the past and are known to the Highways England. The impact and potential benefits of Option 4 (combining Options 2 and 3) is believed to better achieve the desired strategic outcomes that CVIP team hopes to achieve and therefore Option4 is the recommended option to be taken forward.

## **4. Commercial Case**

### **4.1 Procurement strategy.**

- To deliver the DS1 and DS2 interventions there will be a requirement to agree MOUs and Service Level agreements with participating Highways England regions, agencies and industry partners. This will need to be outlined/discussed to agree time, engagement level, commitment, governance and reporting.
- Procurement of new/extra equipment through non-framework competitive tenders will require the setting of specifications and costs estimated.

### **4.2 Service requirements**

Inter departmental communication and information passage arrangement will need to be agreed between participating forces and the SES team.

### **4.3 Charging mechanism.**

Inter departmental charging and accruals/costs methodology and system needs to be developed and agreed with Highways England regions.

### **4.4 Risk transfer.**

The key Commercial risks are at Annex A, highlighting the ownership and transfer of key risks for this study:

### **4.5 Key contractual arrangements (including contract length).**

Existing contractual arrangements will continue to apply.

### **4.6 Personnel implications ('TUPE').**

Nil

### **4.7 Accountancy treatment.**

HE Finance and TAME accountancy processes apply.

## **5. Financial Case**

### **5.1 Public capital and revenue requirements**

In accordance with HE Financial direction.

### **5.2 Overall funding and affordability**

5.2.1 The cost/benefit analysis is at the table at ref Annex B

## **6. Management Case**

### **6.1 Programme and project management methodology and structure.**

This product trial will be managed and monitored in accordance with the agreed SES governance and approval processes described at Para 6.3 of Ref A. This will include project, risks, stakeholder and benefit management strategy and plans.

### **6.2 Programme and project management plans.**

#### **6.2.1 Engage.**

- Gain buy-in from agencies and industry partners.
- Agree cross agency and industry relationships, forum and data sharing protocols.
- Develop and manage a stakeholder management strategy and plan.

### **6.2.2 Develop plan in conjunction with selected partners/agencies**

- Agree target audience and delivery means for best guide publications
- Agree trial/pilot regions and products to be used
- Agree targets / KPIs

### **6.2.3 Monitoring and control.**

A joint working group and reporting process will need to be established to monitor and report on performance of the pilot scheme to both CVIP team /Highways England and agencies/industry partners. This will look at the implementation phase, study phase and post study evaluation.

### **6.2.4. Review and identification of learning from experience.**

A key requirement will be the review, reporting and identification of lessons identified for the interventions in this plan, especially where initiatives are to be developed further.

This will require engagement from the key stakeholders as well as a plan for dissemination of the findings.

**Annex A****Diesel Spillage Intervention Risks**

Interven. Serial	Risk	Owner	Impact	Probability	Factor (Time, Cost, Quality)			Mitigation	Response	Comment	
					10%	50%	90%				
DS1-1	Testing of products - Lack of statistically robust data or evidence of effectiveness	SES team	Variance of products in different areas Lack of buy in from traffic officers Loss of economy of scale through bulk buy of single product	High				How many TO are deployed at any one time £25 fuel safe (5 ltr) £25 Sphagsorb (5 bags) Bunding	Decision to be taken by Highways England to adopt a single product, based on cost, ease of use and preference of TO's	Accept	
DS1-2	Roll out nationally- - TO's are not familiar with chosen products	Highways England	Training costs for upskilling across SRN	High				See cost benefit table	Once trial is complete mandate product to be used	Accept	From original cost analysis document
DS1-3	Training is not conducted in a timescale that matches change of product	Highways England	TO's issued with product they are not familiar with and thus slower to use at incident	High				Delay cost to traffic flow	Training to be completed before product roll out	Accept	

Interven. Serial	Risk	Owner	Impact	Probability	Factor (Time, Cost, Quality)				Mitigation	Response	Comment
DS1-4	A contract for supply cannot be made in a satisfactory timeframe	Highways England Commercial	Traffic Officers continue to use diverse materials and area contracts require running on/extension	High				Higher costs due to continuing to utilise varied products	Commercial to engage and identify suitable supply and distribution provider as soon as preferred product is identified		Need to identify current product costs, and likely savings if move to single centrally procured product. Can be centrally bought and distributed or centrally procured through network. Needs Highways England / Commercial to investigate
DS1-5	Centralised funding and distribution cannot be agreed with areas	Highways England Finance	Continue with area based purchase of products as currently undertaken	High				Loss of economy of scale of central procurement	Identify product, change budget authorisation and engage Commercial	Accept	
DS2-1	Operators unwilling to carry spill kit due to cost or capacity issues in vehicles	Highways England	Continue with current DS spillage rates and clean-up costs. Higher cost to HE	High				Delay cost. Increased product cost to Highways England (higher usage) Environmental costs (delays)	use forum and lobbying to change operator behaviours and potential legislation	Accept	This is a candidate for a regulatory change followed by enforcement. Issue will be managing overseas operators and interface with EU legislation

## Annex B

## Intervention costs/benefits

## DS1-2 Costs and Benefit Summary

DS 1-2 costs taking into account wider range of required activities

Ser	Activity	Yr3 (17/18)	Yr4 (18/19)	Yr5 (19/20)	Total	Comment
(a)	(b)	(e)	(f)	(g)	(h)	
1	DS1	£64,849	£9,378	£9,612	£83,839	
2	DS2	£81,833	£1,000	£1,000	£83,833	
3	<b>Total</b>	<b>£146,682</b>	<b>£10,378</b>	<b>£10,612</b>	<b>£167,672</b>	

Benefits to cost ratio for HE costs only

Ser	Activity	Yr3 (17/18)	Yr 4 (18/19)	Yr5 (19/20)	Total period
(a)	(b)	(e)	(f)	(g)	(h)
1	DS1	3.56	11.14	10.33	5.2
2	DS2	1.76	28.99	29.97	2.4
3	Combined DS1/2	1.55	11.86	11.18	3.8

Ser	Evaluation Results	Option 1 – Do Nothing	Option 2 - DS1	Option 3 - DS2	Option 4 - Combined
1	Value Benefits (PVB) - Safety benefits only	As is	£434,445	£203,029	£637,475
2	Value Cost (PVC)	As is	£83,839	£83,833	£167,672
3	Net Present Value (NPV)	As is	£350,606	£119,196	£469,802
4	Benefit Cost Ratio (BCR)	0	5.2	2.4	3.8
5	Ranking	4	2	3	1

Benefits

Ser	Yr3 (17/18)	Yr 4 (18/19)	Yr5 (19/20)	Total	Comment
(a)	(i)	(j)	(k)	(m)	
<b>KSI Benefits</b>					
DS1	£140,964	£79,242	£83,656	£303,862	
DS2	£0	£0	£0	£0	
<b>Delay Benefits</b>					
DS1	£85,568	£21,101	£15,665	£122,334	
DS2	£139,946	£24,862	£25,847	£190,654	
<b>Additional Benefits</b>					
DS1	£4,125	£4,125	£0	£8,250	
DS2	£4,125	£4,125	£4,125	£12,375	
Total DS1 Benefits	£230,657	£104,467	£99,320	£434,445	
Total DS2 Benefits	£144,071	£28,987	£29,972	£203,029	
<b>Total</b>	<b>£374,728</b>	<b>£133,454</b>	<b>£129,292</b>	<b>£637,475</b>	
Total DS Costs	£146,682	£10,378	£10,612	£167,672	
Total DS Benefits	£374,728	£133,454	£129,292	£637,475	
<b>Total</b>	<b>£228,046</b>	<b>£123,076</b>	<b>£118,680</b>	<b>£469,802</b>	

## DS1-2 Costs

## DS1 2017 Costs non-discounted

Ser	Activity	Yr3 (17/18)	Yr 4 (18/19)	Yr5 (19/20)	Total	Comments
(a)	(b)	(e)	(f)	(g)	(h)	(i)
	Resource RPI inflation rate		2.50%	2.50%		Ref:HE efficiency and inflation monitoring manual
<b>1</b>	<b>Best practice diesel spillage prevention guide</b>					
1.1	Printed production costs	£3,149	£3,228	£3,308	£9,685	Assumed cost based on web research for 5000 pamphlets for design and production. Rates inflated at RPI.
1.2	Printed distribution costs	£2,500	£2,563	£2,627	£7,689	Assumed cost based on web research for 5000 pamphlets for design and production. Rates inflated at RPI.
1.3	Translation costs	£700	£0	£0	£700	Translation into French, German, Spanish, Italian, Polish, Hungarian, Romanian (at £100 per translation)
1.4	Resources (incl T&S)	£25,000	£0	£0	£25,000	Assumed cost of external consultant to produce guide
<b>2</b>	<b>Diesel spillage costs case study document</b>					
2.1	Research costs	£20,000	£0	£0	£20,000	Assumes 1/4 of the R&D costs allocated to GV115 - Reduce Fuel Spills
2.2	Resources (incl T&S)	£10,000	£0	£0	£10,000	Assumed cost of external consultant to produce doc
<b>3</b>	<b>Raise awareness of best [practice guide by distribution via FTA, TOTS, RHA, Trade Fairs etc.</b>					
3.1	Printed distribution costs	£2,500	£2,563	£2,627	£7,689	Assumption based on approx. £50 per 1000 leaflets targeted delivery
3.2	Web production and hosting costs	£1,000	£1,025	£1,051	£3,076	Assumes internal costs using existing HE website
<b>Annual totals</b>		<b>£64,849</b>	<b>£9,378</b>	<b>£9,612</b>	<b>£83,839</b>	

## DS2 2017 Costs non-discounted

Ser	Activity	Yr3 (17/18)	Yr 4 (18/19)	Yr5 (19/20)	Total	Comments
(a)	(b)	(e)	(f)	(g)	(h)	(i)
<b>1</b>	<b>Compile list of all treatments types</b>					
1.1	Research costs	£13,333	£0	£0	£13,333	Assumes 1/3 of the R&D costs allocated to GV115 - Reduce Fuel Spills
1.2	Pilot costs	£10,000	£0	£0	£10,000	Assumes pilot undertaken over 3 months in all areas
1.3	Resources (incl T&S)	£5,000	£0	£0	£5,000	Costs involved working with selected agencies, and industry partners
<b>2</b>	<b>Roll out costs</b>					
2.1	Purchase costs	£0	£0	£0	£0	Indicative costs are that the replacement product price will be the same as the current product with no extra
2.2	Distribution costs	£0	£0	£0	£0	
2.3	Training costs	£53,500	£0	£0	£53,500	Covers half a day batch training of 850 traffic officers and covers costs of trainer and expenses. TO pay approx £22,637 per yr. Approx 40 officers can be trained per week per area, cost of trainer per week approx £500
<b>3</b>	<b>Incentivise operators to carry spill kits</b>					1 year – This could be achieved by sending them the best practice spillage / costs documents which highlight that they may be charged if they are involved in an incident in the future. Another method HE could employ would be to subsidise the cost of fuel safe. Given that the cost of the product is so small (£5 per litre) and the potential cost incurred by not administering quickly fuel safe is so high, this shouldn't be too much of a stumbling block (suggest 50% subsidy)
3.1	Advertising	£0	£1,000	£1,000	£2,000	Medium term objective
<b>Annual totals</b>		<b>£81,833</b>	<b>£1,000</b>	<b>£1,000</b>	<b>£83,833</b>	

## DS1 Benefits

DS1 Benefits										
Ser	Previous Atkins Reference	Tranche Reference	Division	In progress	Reference	Yr3 (17/18)	Yr 4 (18/19)	Yr5 (19/20)	Total	Comment
(a)	(b)	(c)	(d)	(e)	(f)	(h)	(i)	(j)	(k)	
<b>KSI Benefits</b>										
<b>Directly attributable KSI benefits</b>										
1	<b>Reduce Fuel Spills</b>									
1.1	RnD	3	CO	No	GVI15	£0	£0	£0	£0	
1.2	% benefits for this intervention =					20.0%	£0	£0	£0	£0
<b>KSI benefits that could have % apportioned to this interven</b>										
2	<b>Road user knowledge and attitudes</b>									
2.1	Comms	4	CO	No	GVI12	£658,294	£0	£0		
2.2	% benefits for this intervention =					10.0%	£65,829.41	£0.00	£0.00	£65,829
3	<b>Promote enhanced driver training for drivers of smaller goods vehicles</b>									
3.1	Comms	2	CO	No	GVI39	£658,294	£694,280	£732,951		
3.2	% benefits for this intervention =					10.0%	£65,829.41	£69,427.98	£73,295.12	£208,553
4	<b>Goods Vehicle driver behaviours</b>									
4.1	Legislation	2	CO	No	GVI45	£93,052	£98,139	£103,605		
4.2	% benefits for this intervention =					10.0%	£9,305.21	£9,813.88	£10,360.51	£29,480
5	% benefits allocated Total						£140,964	£79,242	£83,656	£303,862
<b>Delay Benefits as vehicle hour saving</b>										
<b>Directly attributable delay benefits</b>										
6	<b>Reduce Fuel Spills</b>									
6.1	RnD	3	CO	No	GVI15	£145,022	£0	£0		
6.2	% benefits for this intervention =					20.0%	£29,004.33	£0.00	£0.00	£29,004
<b>Delay benefits that could have % apportioned to this interv</b>										
7	<b>Road user knowledge and attitudes</b>									
7.1	Comms	4	CO	No	GVI12	£362,554	£0	£0		
7.2	% benefits for this intervention =					10.0%	£36,255.41	£0.00	£0.00	£36,255
8	<b>Improve vehicle selection process</b>									
8.1	RnD	2	CO	No	GVI16	£58,064	£60,328	£0		
8.2	% benefits for this intervention =					10.0%	£5,806.43	£6,032.85	£0.00	£11,839
9	<b>TOS Support to DVSA</b>									
9.1	Tech	2	CO	Yes	GVI24	£145,022	£150,677	£156,648		
9.2	% benefits for this intervention =					10.0%	£14,502.16	£15,067.66	£15,664.77	£45,235
10	<b>Promote enhanced driver training for drivers of smaller goods vehicles</b>									
10.1	Comms	2	CO	No	GVI39	£0	£0	£0		
10.2	% benefits for this intervention =					10.0%	£0.00	£0.00	£0.00	£0
11	<b>Goods Vehicle driver behaviours</b>									
11.1	Legislation	2	CO	No	GVI45	£0	£0	£0		
11.2	% benefits for this intervention =					10.0%	£0.00	£0.00	£0.00	£0
12	% benefits allocated Total						£85,568	£21,101	£15,665	£122,334
<b>Additional Benefits</b>										
13	<b>TOS Support to DVSA</b>									
13.1	Tech	2	CO	Yes	GVI24	£25,000	£25,000	£0		
13.1	% benefits for this intervention =					16.5%	£4,125.00	£4,125.00	£0.00	£8,250
14	% benefits allocated Total						£4,125	£4,125	£0	£8,250
<b>Total % Benefit allocated</b>						<b>£259,662</b>	<b>£104,467</b>	<b>£99,320</b>	<b>£434,445</b>	

## DS2 Benefits

DS2 Benefits										
Ser	Previous Atkins Reference	Tranche Reference	Division	In progress	Reference	Yr3 (17/18)	Yr 4 (18/19)	Yr5 (19/20)	Total	Comment
(a)	(b)	(c)	(d)	(e)	(f)	(h)	(i)	(j)	(k)	
<b>KSI Benefits</b>										
<b>Directly attributable KSI benefits</b>										
1	<b>Reduce Fuel Spills</b>									
1.1	RnD	3	CO	No	GVI15	£0	£0	£0		
1.2	% benefits for this intervention =				80.0%	£0	£0	£0	£0	
	<b>% benefits allocated Total</b>					<b>£0</b>	<b>£0</b>	<b>£0</b>	<b>£0</b>	
<b>Delay Benefits as vehicle hour saving</b>										
<b>Directly attributable delay benefits</b>										
2	<b>Reduce Fuel Spills</b>									
2.1	RnD	3	CO	No	GVI15	£145,022	£0	£0		
2.2	% benefits for this intervention =				80.0%	£116,017.30	£0	£0	£116,017	
	<b>Delay benefits that could have % apportioned to this interventi</b>					<b>£116,017</b>	<b>£0</b>	<b>£0</b>	<b>£116,017</b>	
3	<b>TOS Support to DVSA</b>									
3.1	Tech	2	CO	Yes	GVI24	£145,022	£150,677	£156,648	£452,346	
3.2	% benefits for this intervention =				16.5%	£23,928.57	£24,861.64	£25,846.86	£74,637	
	<b>% benefits allocated Total</b>					<b>£139,946</b>	<b>£24,862</b>	<b>£25,847</b>	<b>£190,654</b>	
<b>Additional Benefits</b>										
4	<b>TOS Support to DVSA</b>									
4.1	Tech	2	CO	Yes	GVI24	£25,000	£25,000	£25,000	£75,000	
4.2	% benefits for this intervention =				16.5%	£4,125	£4,125	£4,125	£12,375	
	<b>% benefits allocated Total</b>					<b>£4,125</b>	<b>£4,125</b>	<b>£4,125</b>	<b>£12,375</b>	
	<b>Total % Benefit allocated</b>					<b>£144,071</b>	<b>£28,987</b>	<b>£29,972</b>	<b>£203,029</b>	

## **About AECOM**

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