

# A1 in Northumberland: Morpeth to Ellingham

**Scheme Number: TR010059** 

**Appendix 2.1 Lighting Assessment** 

AFPF Regulation Rule 8(1)(b)

Planning Act 2008

Infrastructure Planning (Prescribed Forms and Procedure)

Regulations 2009



# Infrastructure Planning

Planning Act 2008

# The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009

# The A1 in Northumberland: Morpeth to Ellingham

Development Consent Order 20[xx]

# **Appendix 2.1 Lighting Assessment**

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# A1 Morpeth to Felton

# **TA49 LIGHTING ASSESSMENT**





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# **EXECUTIVE SUMMARY**

WSP have been commissioned by Highways England to undertake PCF Stage 2 (Option Selection) for the A1 Morpeth to Felton.

This report focuses on the road lighting element of the scheme and whether there is economic justification for road lighting in accordance with Design Manual for Roads and Bridges (DMRB) TA49/07 'Appraisal of new and replacement lighting on the strategic motorway and all-purpose trunk road network'.

The A1 Morpeth to Felton duelling upgrade involves widening the existing A1 but with a significant deviation from the existing A1 in the 'middle' of this section. There will be a new A1 between Priests Bridge and Burgham Park, to the west of the current A1 and of Tindale Hill and Causey Park Bridge. There will be three new junctions: at Highlaws; at Fenrother; and at Westmoor. Access to the A1 will be via the new junctions only and we will need to close most of the current local accesses onto the A1. There will be sections provided to the new junctions as part of the scheme.

When considering the implementation of road lighting through the TA49 appraisal process it has been demonstrated, through calculation, that lighting is not economically justified. This is mainly due to the number of PIC savings being determined as low should road lighting be proposed. All sections (A to D) and the scheme as a whole have resulted in BCR's of less than 1.0 being calculated. This confirms that the cost of providing a lighting scheme far outweighs any costs saved made through PIC savings.

It is possible that OPEX savings could be considered such as controlled dimming through MoRLiCS compatible CMS systems or a reduction of the lighting extents. However from an economically quantifiable view point it is unlikely that any sections within the scheme would produce a BCR that exceeds 1.0 in order to justify a new lighting scheme if reduced OPEX costs were applied.

The non-quantifiable assessment process considered has concluded that there is a level of non-quantifiable justification for the introduction of new lighting. It is considered that journey ambience alone cannot be considered for justification as this could be considered to be a direct link to the 10% accident savings lighting provides within the quantifiable element of the SAR process. It is possible however that lighting may help where there is no hard shoulder to identify broken down vehicles during the hours of darkness.

The RSE concluded that the existing route dark collision rate is 50% below the national average. When combining this aspect with the upgrade from the current road layout to a new dual carriageway many of the existing hazards will also be removed further strengthening the case for dark collision reduction (such as removal of at grade junctions). This has enabled the RSE to conclude that road lighting will not be required within the project. However the use of the following should be considered within the design;

- 'intelligent' style road studs to pre-light the route
- Use of a white lining system that included the reflective beading
- Reflectors on the VRS or painting it black & white.

All the above measure are effective in reducing collisions during the hours of darkness in addition to their known benefits in daylight conditions. The use of bike guard on the vehicle restraint system (VRS) will further improve safety for powered two wheelers.

It is recommended that lighting should not be provided on any of the sections of the A1 Morpeth to Felton project. There is no economic or safety benefit supporting the installation of road lighting within the project.

The RSE has suggested areas which should be considered within the main line and slip roads/junctions within the design where feasible to mitigate the installation of road lighting.



The Table below summarises the requirement for road lighting following assessment by both the lighting engineer and the RSE;

# **TA49/07 Recommendations**

SECTION	Economic Conclusion	Road Safety Conclusion	Combined Conclusion
Section A – Scheme limits to A697 Junction (ch500 – 2200)			
Section B – A697 Junction to Fenrother Junction (ch2200 – 5000)			
Section C – Fenrother Junction to Westmoor Junction (ch5000 – 11600)			
Section D – Westmoor Junction to Scheme Limits (ch11600 – 13600)			

Key	Lighting Required	
	Lighting Not Required	



# 1 INTRODUCTION

- 1.1.1. WSP have been commissioned by Highways England to undertake PCF Stage 2 (Option Selection) for the A1 Morpeth to Felton.
- 1.1.2. The A1 in Northumberland is an important route between England and Scotland, especially for long distance travel along the eastern side of the country. The A1 between Morpeth to Felton and Alnwick to Ellingham is currently a single carriageway.
- 1.1.3. This stretch of road needs improving because journey times are generally slow it can be hard to overtake, leading to some drivers overtaking unsafely. There are limited alternative routes making it difficult to provide alternative routes if the A1 requires maintenance or if there are any unplanned events on the road.
- 1.1.4. This report focuses on the road lighting element of the scheme and whether there is economic justification for road lighting in accordance with Design Manual for Roads and Bridges (DMRB) TA49/07 'Appraisal of new and replacement lighting on the strategic motorway and all-purpose trunk road network'.
- 1.1.5. Following the economic assessment of the lighting requirements, the results will be reviewed by a Road Safety Engineer who will provide comments and recommendations from a safety aspect in accordance with items such as the road usage, accident history and the local environment.

# 1.2 PURPOSE AND SCOPE OF REPORT

- 1.2.1. The purpose of this report is to assess whether it is economically justifiable to provide road lighting throughout the scheme, whilst assessing the benefit of providing new lighting in the areas that are currently unlit. The report assesses the need for the replacement in accordance with Highways England DMRB.
- 1.2.2. In order to assess if the road lighting proposal identified is economically justifiable an economic assessment has been completed in accordance with Technical Advice Note TA49/07 'Appraisal of new and replacement lighting on the strategic motorway and all-purpose trunk road network'.
- 1.2.3. In order to determine if the installation of road lighting is justified in accordance with Highways England requirements an outline design is completed to enable a build-up of Capital (CAPEX) and Operating (OPEX) costs. These cost are fed into Highways England's Scheme Appraisal Report (SAR) spread sheet in order to determine whether the costs are, as a minimum, fully recovered, principally through accident saving's over the life expectancy of the installation.
- 1.2.4. As part of this appraisal it is advised that a Road Safety Engineers Briefing Report (RSEB) is also carried out by a Road Safety Engineer (RSE) to provide an independent view of the application of road lighting and accident data in general.
- 1.2.5. The findings of this report are detailed within the Conclusions and Recommendations section of this report and are summarised within the Executive Summary.



# 2 PROJECT DETAILS

# 2.1 PROJECT BACKGROUND

- 2.1.1. The A1 Morpeth to Felton duelling upgrade involves widening the existing A1 but with a significant deviation from the existing A1 in the 'middle' of this section. There will be a new A1 between Priests Bridge and Burgham Park, to the west of the current A1 and of Tindale Hill and Causey Park Bridge. There will be three new junctions: at Highlaws; at Fenrother; and at Westmoor. Access to the A1 will be via the new junctions only and we will need to close most of the current local accesses onto the A1. There will be sections provided to the new junctions as part of the scheme.
- 2.1.2. The new junctions will provide access to local villages and maintain the east-west traffic sections, with new local roads where necessary to provide access to businesses and properties. The existing A1 between Priests Bridge and Burgham Park will be retained to provide access to the villages in this area. It will be reclassified as a local road. The underpass at Parkwood would be extended under the widened A1.
- 2.1.3. The A1 Alnwick to Ellingham dualling upgrade involves widening the A1 to dual carriageway along the existing road. There will be one new junction at South Charlton, connecting the A1, B6341 and B6347. Access will be provided for businesses and properties to the new junctions. Farm access and the bridleway/public right of way near Broxfield will be maintained via a bridge.
- 2.1.4. This report considers the A1 Morpeth to Felton section only with a separate report considered for the A1 Alnwick to Ellingham.



# 2.2 PREFERRED ROUTE

- 2.2.1. As part of the preferred route announcement in September 2017 three options where considered for the proposed improvements between Morpeth and Felton;
- 2.2.2. Orange Option: upgrade the existing road to dual carriageway, either widening to the east or the west depending on the local features that we need to consider
- 2.2.3. Green Option: build a new carriageway to the west of the existing road between Priest's Bridge and Burgham Park
- 2.2.4. Blue Option: upgrade the majority of the existing road to dual carriageway, with approximately 1.2 miles (2 km) section of new carriageway to the east of the A1 near Causey Park Bridge
- 2.2.5. The Green route has been selected as the preferred route. The decision for the preferred route was made following consideration of numerous factors such as cost, benefits, ease of construction and environmental impacts.
- 2.2.6. This lighting assessment uses the green route as the base for considering if lighting is required within the scheme limits.



Figure 1 - Route Options



# 2.3 ROUTE SECTIONS

2.3.1. In order to split the scheme into smaller sections the proposed scheme has been separated into 4 separate sections to consider the requirements for lighting in smaller condensed sections rather than one full section for the scheme.

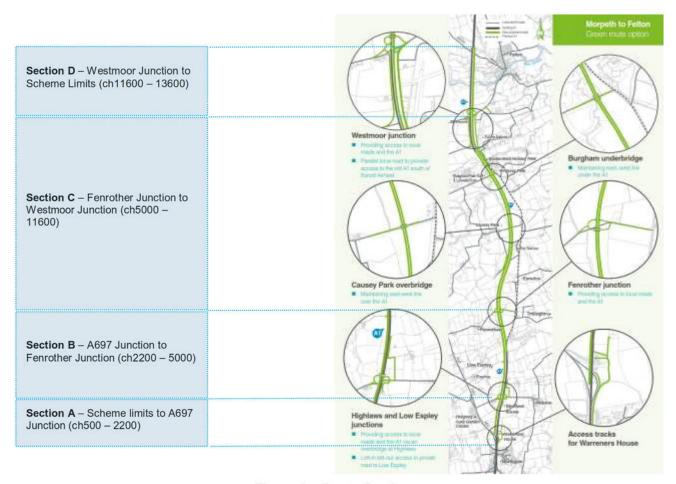


Figure 2 - Route Sections



# 3 EXISTING ALIGNMENT AND ROAD LIGHTING

# 3.1 EXISTING ALIGNMENT

3.1.1. For the purpose of this report the existing alignment has not been considered as the proposed route is both off line and not using the same principal geometry and route. However the RSE has considered the existing route and considered the accidents for the route.

# 3.2 EXISTING ROAD LIGHTING DESCRIPTION

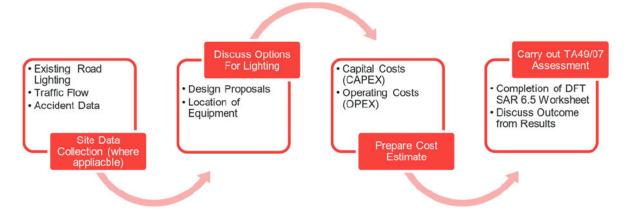
3.2.1. None of the existing route or immediate connecting roads between the Morpeth to Felton are currently lit.



#### 3.3 ECONOMICAL APPRAISAL PROCESS

- 3.3.1. In order to assess if the road lighting proposal identified is economically justifiable an economic assessment needs to be completed in accordance with the Highways England's DMRB Technical Advice Note TA49/07.
- 3.3.2. The economic assessment aspect of this report follows the requirements of TA49/07 in which the Benefit Cost Ratio (BCR) is calculated. The BCR is a calculation that determines the value for money that could be provided in terms of accident savings provided by lighting if it was to be installed within the project. If the BCR is greater than 1.0 then the scheme benefits outweigh the costs, thus road lighting can be justified.
- 3.3.3. As part of this assessment it is advised that a RSEB is also carried out by a RSE to provide an independent review of the replacement of lighting and accident data in general. A full copy of the RSEB for this section of road under consideration is included in Appendix E.
- 3.3.4. To ensure a common approach in carrying out the economic assessment the Department for Transport (DfT) produced a Scheme Appraisal Report (SAR) template. Using the SAR, version 6.5d the following items have been used to populate the data required for the A1 Morpeth to Felton;
  - Traffic flow data.
  - Accident data from the previous 5 years (where applicable).
  - Capital costs (CAPEX).
  - Operating costs (OPEX).
  - Installation costs.
  - Decommissioning costs.
  - Personal Injury Collision (PIC) saved in opening year.
- 3.3.5. The economic assessment process introduced by TA49/07 uses PIC savings as the basis for justification for lighting. This is achieved by using existing accident data, where applicable, as a benchmark and calculating how many night-time accidents would be saved by the renewal of lighting. This report has used 5 year historical road traffic accident data to inform a decision on the predicted accident savings based on the preferred route (as detailed in the RSEB) specific to the network as specified in TA49/07. It should be noted that the RSE report provides an in depth review of existing and proposed based on the new route.
- 3.3.6. The economic assessment process also incorporates average traffic flow information as provided within the Scheme Appraisal Report.
- 3.3.7. The economic assessment process for the A1 Morpeth to Felton followed within production of this report is summarised in Figure 3 below. This provides information on the level of input required at each stage in order to provide sufficient information for input into the economic assessment process.

Figure 3 - TA49/07 Process





# 3.4 SITE DATA COLLECTION

- 3.4.1. This report has used 5 year historical road traffic accident data specific to the network supplied by the project team. The data used is detailed within the RSE report and considers the existing accident data for the current route.
- 3.4.2. The PSV percentage was not available from the information obtained and has not been used in the SAR. The predicted traffic growth information was not available at the time of carrying out the SAR but an assumption has been made of 30% in line with Highways England SAR6.5 and DFT guidance.



# 4 OPTIONS FOR ROAD LIGHTING

# 4.1 OPTIONS BREAKDOWN

- 4.1.1. TA49/07 states that the assessment process should produce an outline design "in sufficient depth to enable costs to be estimated reasonably accurately".
- 4.1.2. A road lighting design solution for each of the sections defined in Section 2.3 was developed and selected against the following criteria:
  - The requirement for compliance with the latest design standards specified within the DMRB (i.e TD34).
  - Incorporation of the latest lighting technology available with respect to luminaire optics and lighting column configuration.
  - Selection of the most cost effective replacement option based on initial capital investment costs and life cycle maintenance.
- 4.1.3. Table 1 below provides the proposed road lighting design solution for each section which has been considered for the purposes of this TA49 assessment.

Table 1 - Proposed Road Lighting Design Solution for Each Section

Section	Proposed Lighting Solution
А	Main Carriageway: Road lighting columns of 12m nominal height complete with a post top mounted (twin stub bracket) and LED luminaires (2 No.) mounted within the central reservation.
	Slip Roads: Road lighting columns of 10m nominal height with a post-top mounted LED luminaire mounted in a single sided arrangement in the verge.
В	Main Carriageway: Road lighting columns of 12m nominal height complete with a post top mounted (twin stub bracket) and LED luminaires (2 No.) mounted within the central reservation.
	Slip Roads: Road lighting columns of 10m nominal height with a post-top mounted LED luminaire mounted in a single sided arrangement in the verge.
С	Main Carriageway: Road lighting columns of 12m nominal height complete with a post top mounted (twin stub bracket) and LED luminaires (2 No.) mounted within the central reservation.
	Slip Roads: Road lighting columns of 10m nominal height with a post-top mounted LED luminaire mounted in a single sided arrangement in the verge.
D	Main Carriageway: Road lighting columns of 12m nominal height complete with a post top mounted (twin stub bracket) and LED luminaires (2 No.) mounted within the central reservation.
	Slip Roads: Road lighting columns of 10m nominal height with a post-top mounted LED luminaire mounted in a single sided arrangement in the verge.



# 4.2 DESIGN STANDARDS

- 4.2.1. The section of the A1 Morpeth to Felton under consideration in Table 2 will be designed in accordance with DMRB document TD34/07 'Design for Road Lighting for the Strategic Motorway and All Purpose Trunk Road Network' which states that the road lighting shall be designed in accordance with BS5489-1:2013 'Code of Practice for the Design of Road Lighting Part 1: Lighting of Roads and Public Amenity Areas'.
- 4.2.2. TD34/07 sets out the required extent of lighting that should be provided within a typical scenario, this guidance has been followed for the proposed outline design where applicable.

## 4.3 IDENTIFY LIGHTING CLASS

4.3.1. As part of the design process a lighting class has to be selected for each section of the A1 Morpeth to Felton in accordance with BS5489-1:2013. The required lighting class is selected based on the criteria set out in in Table 2 below which has been extracted from Table A.2 'Lighting Classes for traffic routes (v > 40mph)' of BS5489-1:2013.

Table 2 - Lighting Classes for Traffic Routes (v > 40mph) extracted from BS5489-1:2013

Traffic Flow	Lighting Class			
	Dual Carriageway	Single Carriageway		
	Junction Density High	Junction Density Low		
High to very high	M2	M3	M2	
Low to Moderate	M3	M4	M3	
Very low	M4	M5	M4	

4.3.2. Table 3 below provides the recommended lighting class for each section as determined from Table 2 above.

Table 3 - Proposed Lighting Class for Each Section

Section	Description	Proposed Lighting Class
А	Main Carriageway	M3
	Slip Road	M3
В	Main Carriageway	M3
	Slip Road	M3
С	Main Carriageway	M4
	Slip Road	M4
D	Main Carriageway	M4
	Slip Road	M4

4.3.3. Table 3 identifies a lighting class for the main carriageway and for the associated slip roads for each section. The required lighting parameters for each lighting class are highlighted in Table 4 below which has been extracted from Table 1 'M Lighting Classes' of BS EN13201-2:2015.



Table 4 - M3 and M4 Lighting Class Parameters extracted from BS EN 13201-2:2015

Requirements	Lighting Class M3	Lighting Class M4
Lav in cd-m2 (Minimum Maintained)	1.0	0.75
Uo (Minimum)	0.4	0.4
UI (Minimum)	0.6	0.6
TI (Disability Glare) (Maximum)	15%	15%
Rei (Requirement for Edge illuminance) (Minimum)	0.5	0.5

### 4.4 DESIGN PARAMETERS

- 4.4.1. The basic road lighting design parameters for the A1 Morpeth to Felton have included the following: -
  - IP 66, LED luminaire units (mounted at 0° tilt) to be used throughout to minimise the environmental impact (i.e. light spill) caused by the proposed lighting scheme.
  - Only luminaires with a luminous intensity rating of G4 to G6 have been considered within this design.
  - A maintenance factor of 0.83 was applied for all LED luminaire units.

### 4.5 PREPARE COST ESTIMATES

- 4.5.1. The TA49 economic assessment requires the input of capital cost (CAPEX) and operating costs (OPEX).
- 4.5.2. The capital cost associated with each section has been calculated using the unit lighting column rates provided in Appendix A. It should be noted that these rates have been derived for assessment purposes and although they have been based on UK industry rates they have not been verified by production of accurate drawings or design calculations. The capital cost applicable to each section is detailed in Table 5 below.

Table 5 - Capital Cost Summary

Section	Location	CAPEX
Α	A697 (Warreners House Junction) to Highlaws and Low Esplay Junction	£281,723.00
В	Highlaws and Low Esplay Junction to Fenrother Junction	£435,298.50
С	Fenrother Junction to Westmoor Junction	£734,370.00
D	Westmoor Junction to Scheme Limits (ch 13,600)	£232,394.50
All Sections		£1,683,786.00

- 4.5.3. All sections considered exceed the minimum £100,000 requirement to be considered under a TA49 appraisal in accordance with the SAR guidance.
- 4.5.4. The operating costs which consider maintenance, energy and decommissioning costs associated with each section have been calculated using the unit lighting column rate costs provided in Appendix B. It should be noted that these rates have been derived for assessment purposes only using industry standard rates.
- 4.5.5. The SAR6.5 template requires the input of the additional annual average maintenance costs calculated from the overall operating costs. However it is considered that additional maintenance costs should only be added



to existing maintenance costs where existing lighting units are being retained. As there is no scope / provision to retain existing lighting units within this scheme the additional maintenance costs have been considered as the full maintenance cost per annum for the proposed lighting units. Therefore the annual average maintenance costs applicable to each section are detailed in Table 6 below.

Table 6 – Additional Annual Average Maintenance Costs

Section	Location	OPEX
Α	A697 (Warreners House Junction) to Highlaws and Low Esplay Junction	£29,429.84
В	Highlaws and Low Esplay Junction to Fenrother Junction	£44,496.96
С	Fenrother Junction to Westmoor Junction	£87,579.56
D	Westmoor Junction to Scheme Limits (ch 13,600)	£27,515.07
All Sections	Sections A to D	£189,039.43

# 4.6 CARRY OUT TA49 ECONOMIC ASSESSMENT

- 4.6.1. TA49/07 instructs the assessor to use Highway England's publication Scheme Appraisal Report 6.5 (SAR6.5) to assess the monetised benefits of lighting.
- 4.6.2. The SAR6.5 template states that all lighting systems with a capital investment cost of greater than £100,000 should be assessed in accordance with SAR6.5. As detailed in Table 5.
- 4.6.3. The figures/information gathered are input into the SAR6.5 template which automatically calculates the monetised benefits of lighting. Appendix C contains all SAR6.5 worksheets for information.



# 5 ASSESSMENT OF RESULTS

# 5.1 INTERPRETATION OF RESULTS

- 5.1.1. In order to calculate the BCR the following figures were calculated for each section.
  - Present Value Benefits (PVB); represents the monetised savings when considering accident savings in the opening year discounted to the base year (2010).
  - Present Value Costs (PVC); are the costs applicable to the project discounted to the base year (2010) and converted to market prices by applying a factor equivalent to the general taxation level in the economy.
     This is necessary to enable comparison with monetised benefits on a like-for-like basis
  - Net Present Value (NPV); is the comparison of PVC/PVB to enable a positive or negative lighting benefit.
- 5.1.2. Table 7 below provides a breakdown of figures (works costs) obtained from outline designs carried out for each individual section, together with figures automatically calculated when collated data is input into the SAR6.5 template. The accompanying SAR6.5 worksheets for the individual sections are provided within Appendix C, with the figures for the lit, unlit and whole sections determined by combining the costs and figures accordingly.

**Table 7 - BCR Calculation Summary** 

Section	Capital Cost	PIC Saving in Yr 1	PVB	PVC	NPV (PVB-PVC)	BCR (PVB/PVC)		
А	£281,723.00	0.00	£0.00	£651,808.00	-£651,808.00	0.000		
В	£435,298.50	0.01	£8,668.00	£996,024.00	-£987,356.00	0.004		
С	£734,370.00	0.07	£138,682.00	£1,880,072.00	-£1,741,390.00	0.064		
D	£232,394.50	0.06	£34,670.00	£601,691.00	-£567,021.00	0.016		
All Sections	£1,683,786.00	0.14	£182,020.00	£4,129,595.00	-£3,947,575.00	0.021		
Key	Key							
	BCR less than 1.0			Lighting not economically justified				
	BCR greater that	an or equal to 1	1.0	Lighting economically justified				

- 5.1.3. Table 7 above shows that each individual section returns a BCR of less than 1.0, indicating that a proposed lighting scheme in each individual section, and as a combined scheme, is not economically justifiable.
- 5.1.4. It should be noted that within the OPEX calculations completed, no energy saving initiatives have been applied. Should energy saving initiatives be applied in any future design, technology such as controlled dimming, through MoRLiCS compatible CMS systems, could increase the BCR figures and potentially provide a higher BCR in some instances when considering the proposed lighting installation. It however is unlikely to increase above the required level of 1.0.



# 6 ROAD SAFETY ENGINEERS REPORT

### 6.1 REQUIREMENTS

- 6.1.1. Within TA49/07 it is a requirement to engage the Road Safety Engineer (RSE) to make an independent assessment of the scheme under consideration. Within Appendix E there is copy of the full Road Safety Engineers Briefing report (RSEB) carried out by Road Safety Initiatives (RSI). A summary of the full RSEB is provided in Section 6.2 below.
- 6.1.2. This information provided within this report was completed by Lyn Turner (WSP RSE) on 28/11/2017.
- 6.1.3. The purpose of this RSEB is to review and understand the accident data for the existing route and consider how the proposed alignment will impact on the accidents. In addition to considering the likely benefit or disbenefit any proposed road lighting may have on the accident rates for the route.
- 6.1.4. This RSEB also considers Interim Advice Note 167/12, Revision 1 Guidance for the Removal of Road Lighting. This is because IAN 167/12 provides supplementary requirements and guidance to TA49/07 and TD 34/07 (Design of Road Lighting for the Strategic Motorway and All Purpose Trunk Road Network).
- 6.1.5. The RSEB comprised an examination of relevant documents relating to the proposed scheme and analysis of provided five-year collision data and the impact on the proposed alignment and accident savings. The collision data considered has been derived from collision statistics validated by the DfT (known as Nationally Validated data). Collisions have been "rationalised" to exclude those where driver gross negligence has been shown to be a significant contributory factor, in accordance with advice given in IAN 167/12 where applicable.

### 6.2 SUMMARY OF REPORT

- 6.2.1. The dual carriageway section of the A1 is currently below the national averages for dark collision, where no street lighting is present, by more than 50%.
- 6.2.2. The Road Safety Engineers opinion as a qualified HD19 Audit Team Leader, as the route is to be upgraded to a new dual carriageway which will be of a higher standard than the existing single carriageway, with many highway hazards such as at-grade junctions removed and looking at the evidence of the historic collisions, they do not believe that at this time street lighting is required and conclude that on the mainline the numbers of dark collisions should not increase by more than the 10% as stated in TA49/07. However, the use of items listed below and regular maintenance of the route will also help in the reduction of collisions on the new route.
- 6.2.3. With regards to the new grade separated junctions, these could be more complex. It is widely known that compact junctions, have a collision record due to the tight nature of the radii, leading to loss of control collisions, with the most vulnerable vehicle type powered two wheelers, however other vehicles are susceptible too, such as loss of control type incidents. However, by upgrading these junctions to grade separated junctions, from the data it can be seen that 21 collisions have been removed through rationalisation and these made up collision types such as junction and u-turning trends.
- 6.2.4. Ideally the junctions should be assessed on a junction by junction basis using the GD04 assessment or COBALT tool or the comparison of like for like STATS19 collision data to analyse against.
- 6.2.5. In the absence of these items, it cannot be categorically advised not to provide street lighting on the junctions, however there are other methods in which to highlight the junctions to the motorists during the hours of darkness or inclement weather. These can include the use of:
  - 'intelligent' style road studs to pre-light the route
  - Use of a white lining system that included the reflective beading
  - Reflectors on the VRS or painting it black & white.
- 6.2.6. All the above measure are effective in reducing collisions during the hours of darkness in addition to their known benefits in daylight conditions.
- 6.2.7. The use of bike guard on the vehicle restraint system (VRS) will further improve safety for powered two wheelers.



# 6.3 PREDICTED PIC SAVINGS

- 6.3.1. Design Manual for Roads and Bridges TA49/07 gives a formula for predicting collision savings. The standard talks about the proportion of darkness collisions on all types of strategic roads is on average 28% of the total collisions occurring during the hours of daylight and darkness, however, this figure was sought from Road Casualties Great Britain 2004. Looking at Road Casualties Great Britain 2015, this figure has decreased to 27%.
- 6.3.2. Within TA49/07 section 4, table 1 gives a generalised indication of the darkness PIA saving due to road lighting on links, suitable for appraisal.
- 6.3.3. For an all-purpose Dual carriageway the figure of 10% is noted.
- 6.3.4. Part of the scheme within this document is going to be on new links as the route deviates from the existing alignment. Other parts of the route are on the existing alignment but are replacing a single carriageway with a dual carriageway. All of the scheme extent is currently unlit.
- 6.3.5. The standard makes reference darkness savings on a new link which refers to Volume 13, COBA which has since been redrawn. The standard also makes reference to darkness savings on an existing unlit link. Both refer to the calculation of the number of opening year darkness collisions multiplied by the 10% figure which will give the predicted collision saving.

Table 8 - PIC Savings

	Section A	Section B	Section C	Section D	Total
Total Number of Rationalised collisions (5 Years)	0	11	12	6	38
Total During Darkness (5 Years)	0	1	4	2	7
Collisions in darkness per annum (actual)	0	0.2	0.8	0.4	1.4
Predicted Collision saving = no. of opening year darkness collisions x 10%	0	0.004	0.064	0.016	0.196



# 7 ASSESSMENT OF THE NON QUANTIFIABLE BENEFITS

### 7.1 REQUIREMENTS

- 7.1.1. TA49/07 uses predicted PIC cost savings to assess the need for lighting and although it is stated within the document that lighting may provide other non-quantifiable benefits (non-neutral impact) the guidance is limited and does not provide any definitive guidance with respect to how a non-quantifiable benefit may be assessed.
- 7.1.2. Therefore in the absence of any clear guidance an assessment matrix and associated guidance note has been developed to assess each section against the non-quantifiable issues identified for the purposes of this assessment. It should be noted that TA49/07 states that road construction departures from standards (such as narrow lanes) cannot be considered as a situation where lighting alone should be automatically introduced to mitigate the risk of the departure.
- 7.1.3. Table 8 below highlights the assessment matrix developed for the purposes of this assessment using the model developed in part with TA49 as a basis so that the non-quantifiable benefits of each section could be assessed in a structured manner.

Table 8 - Non-Quantifiable Benefits of Lighting - Assessment Matrix

Description	Section A	Section B	Section C	Section D
Road Users				
Journey ambience	Positive	Positive	Positive	Positive
Driver Safety (accident reduction)	Neutral	Neutral	Neutral	Neutral
Driver security	Neutral	Neutral	Neutral	Neutral
Pedestrian safety	Neutral	Neutral	Neutral	Neutral
Night-time routine maintenance	Neutral	Neutral	Neutral	Neutral
Road Configuration				
Unusual number of lanes / constant lane changes	Neutral	Neutral	Neutral	Neutral
Poor site lines and visibility	Neutral	Neutral	Neutral	Neutral
Complex / unusual road Alignment	Neutral	Neutral	Neutral	Neutral
Severe bends	Neutral	Neutral	Neutral	Neutral
Narrow Lanes	Neutral	Neutral	Neutral	Neutral
Close proximity of junctions (<1000m)	Neutral	Neutral	Neutral	Neutral
Emergency Refuge (ER) / Hard Shoulder (HS)				
HS present	Positive	Positive	Positive	Positive
Discontinuous HS with ER	N/A	N/A	N/A	N/A
Discontinuous HS without ER	N/A	N/A	N/A	N/A



7.1.4. Table 9 below highlights the assessment matrix developed for the purposes of this assessment using the model developed in part with TA49 as a basis so that the non-quantifiable benefits of each section could be assessed in a structured manner.

Table 9 - Non-Quantifiable Benefits of Lighting Guidance Note

Description	Note	Default Position	Comment
Road Users		M.	
Journey ambience	1	Positive	-
Driver Safety (accident reduction)	2	Neutral	This value will always be neutral if the TA49 economic assessment has confirmed that lighting cannot be justified on economic grounds.
Driver security	3	Neutral	This value should always default to neutral if fear of crime / personal safety is not of significant concern at the given location
Pedestrian safety / security	4	Neutral	This value should always default to neutral if no pedestrian access / facility is provided.
Night-time routine maintenance	5	Neutral	Should be neutral unless regular night-time maintenance is essential and lighting is considered essential for the night-time routine maintenance activities.
Road Configuration			
Unusual number of lanes / constant lane changes	6	Neutral	This value should always default to neutral unless there are unusual quantities of lane changes.
Poor site lines and visibility	7	Neutral	This value should always default to neutral unless the assessor can determine that lighting would assist driver perception.
Complex / unusual road Alignment	8	Neutral	This value should always default to neutral unless there is definitive evidence that lighting would assist driver direction and perception.
Severe bends	9	Neutral	This value should always default to neutral unless there is definitive evidence that lighting would assist.
Narrow Lanes	10	Positive	If narrow lanes exist then lighting should be provided to highlight the areas of concern.
Close proximity of junctions (<1000m)	11	Positive	It has been shown that road junction in close proximity can benefit from lighting. For the purpose of this assessment the junction proximity has been taken from the end / commencement of the slip roads.
Emergency Refuge (	ER) / Ha	rd Shoulde	r (HS)
HS present	12	Neutral	If a hard shoulder is present this should always default to neutral
Discontinuous hard shoulder with ER	13	Neutral	If a hard shoulder is present this should always default to neutral
Discontinuous HS without ER	14	Neutral	If a hard shoulder is present this should always default to neutral



7.1.5. Table 10 below provides the conclusion for each item identified for the assessment of non-quantifiable benefits.

Table 10 - Non-Quantifiable Benefits of Lighting, Section Conclusions

Section	Description	Non-quantifiable Benefit (i.e., positive)	Conclusion
A	<ul><li>Journey Ambience</li><li>Hard Shoulder Present</li></ul>	<ul> <li>Journey ambience alone cannot be considered justification for lighting.</li> <li>As no hard shoulder is present it is considered that lighting could be beneficial in identifying broken down vehicles in locations where a hard shoulder isn't present.</li> </ul>	Mainline lighting and slip road lighting could be considered as a form of mitigation for safety where other safety measures cannot be implemented.
В	<ul><li>Journey     Ambience</li><li>Hard Shoulder     Present</li></ul>	<ul> <li>Journey ambience alone cannot be considered justification for lighting.</li> <li>As no hard shoulder is present it is considered that lighting could be beneficial in identifying broken down vehicles in locations where a hard shoulder isn't present.</li> </ul>	Mainline lighting and slip road lighting could be considered as a form of mitigation for safety where other safety measures cannot be implemented.
С	<ul><li>Journey Ambience</li><li>Hard Shoulder Present</li></ul>	<ul> <li>Journey ambience alone cannot be considered justification for lighting.</li> <li>As no hard shoulder is present it is considered that lighting could be beneficial in identifying broken down vehicles in locations where a hard shoulder isn't present.</li> </ul>	Mainline lighting and slip road lighting could be considered as a form of mitigation for safety where other safety measures cannot be implemented.
D	<ul><li>Journey Ambience</li><li>Hard Shoulder Present</li></ul>	<ul> <li>Journey ambience alone cannot be considered justification for lighting.</li> <li>As no hard shoulder is present it is considered that lighting could be beneficial in identifying broken down vehicles in locations where a hard shoulder isn't present.</li> </ul>	Mainline lighting and slip road lighting could be considered as a form of mitigation for safety where other safety measures cannot be implemented.



# 8 CONCLUSION AND RECOMMENDATIONS

# 8.1 CONCLUSION

#### The TA49 economic assessment (quantifiable)

- 8.1.1. When considering the implementation of road lighting through the TA49 appraisal process it has been demonstrated, through calculation, that lighting is not economically justified. This is mainly due to the number of PIC savings being determined as low should road lighting be proposed. All sections (A to D) and the scheme as a whole have resulted in BCR's of less than 1.0 being calculated. This confirms that the cost of providing a lighting scheme far outweighs any costs saved through PIC savings.
- 8.1.2. It is possible that OPEX savings could be considered such as controlled dimming through MoRLiCS compatible CMS systems or a reduction of the lighting extents. However from an economically quantifiable view point it is unlikely that any sections within the scheme would produce a BCR that exceeds 1.0 in order to justify a new lighting scheme if reduced OPEX costs were applied.

#### The TA49 lighting benefits assessment (Non-quantifiable)

8.1.3. The non-quantifiable assessment process considered has concluded that there is a level of non-quantifiable justification for the introduction of new lighting. It is considered that journey ambience alone cannot be considered for justification as this could be considered to be a direct link to the 10% accident savings lighting provides within the quantifiable element of the SAR process. It is possible however that lighting may help where there is no hard shoulder to identify broken down vehicles during the hours of darkness. This potential saving is not quantifiable and should be mitigated by other safety initiatives.

## **Road Safety Engineers Assessment**

- 8.1.4. The RSE concluded that the existing route dark collision rate is 50% below the national average. When combining this aspect with the upgrade from the current road layout to a new dual carriageway many of the existing hazards will also be removed further strengthening the case for dark collision reduction (such as removal of at grade junctions). This has enabled the RSE to conclude that road lighting will not be required within the project. However the use of the following should be considered within the design;
  - 'intelligent' style road studs to pre-light the route
  - Use of a white lining system that included the reflective beading
  - Reflectors on the VRS or painting it black & white.
- 8.1.5. All the above measure are effective in reducing collisions during the hours of darkness in addition to their known benefits in daylight conditions.
- 8.1.6. The use of bike guard on the vehicle restraint system (VRS) will further improve safety for powered two wheelers.

### 8.2 RECOMMENDATION

- 8.2.1. It is recommended that lighting should not be provided on any of the sections of the A1 Morpeth to Felton project. There is no economic or safety benefit supporting the installation of road lighting within the project.
- 8.2.2. The RSE has suggested areas which should be considered within the main line and slip roads/junctions within the design where feasible to mitigate the installation of road lighting.

# Appendix A

CAPITAL COSTS (CAPEX)



#### **CAPEX Cost Sheet - Link A**

				TYPE C	TYPE D		
Item	Description	12m road lighting column with a twin post top mounted luminaires each with a 21klm LED output	12m road lighting column with a twin post top mounted luminaires each with a 17klm LED output	10M Road Lighting Column with a Single Post Top Iuminaire with a 15klm LED output	10M Road Lighting Column with a Single Post Top luminaire with a 10klm LED output		
1	Column	£1,600.00	£1,600.00	£1,400 00	£1,400.00		
2	Bracket Arm	£150.00	£150.00				
3	Luma 2 luminaire	£500.00	£500.00				
4	Luma 1 luminaire			£250.00	£250.00		
5	Passive Termination (Sensor)	£140.00	£140.00	£140.00	£140.00		
6	Termination	£70.00	£70.00	£70.00	£70.00		
7	2.5mm <sup>2</sup> 2 core Cu cable XLPE/SWA/PVC*	£75.00	£75.00	£50.00	£50.00		
8	25mm <sup>2</sup> 3 core Cu cable XLPE/SWA/PVC*	£480.00	£480.00	£480.00	£480.00		
9	Ear h Electrode*	£35.00	£35.00	£35.00	£35.00		
10	Feeder Pillar*	£110.00	£110.00	£110.00	£110.00		
11	Trenching*	£170.00	£170.00	£170.00	£170.00		
12	Cross Carriageway ducting*	£110.00	£110.00	£110.00	£110.00		
13	Chambers*	£60.00	£60.00	£60.00	£60.00		
14	DNO*	£140.00	£140.00	£140.00	£140.00		
15	Traffic Management - TM*	£728.00	£728.00	£603.00	£603.00		
16	Detailed Design Fee*	£364.00	£364.00	£301.50	£301.50		
Total Capex	cost prior to TM & Detailed Design Fee	£3,640.00	£3,640.00	£3,015.00	£3,015.00	£0.00	£0.00
Total Capex	x Cost	£4,732	£4,732	£3,920	£3,920	£0	£0
	Proposed Quantity	38	0	26	0	0	0
	Sub Tota	£179,816.00	£0.00	£101,907 00	£0.00	£0.00	£0.00
	Link Total			£281,72	3.00		

<sup>\*</sup>Capex costs are based on the following assumptions: tem 7, 8 & 11 - 40m Column spacings; All items - include Installation; Item 10 - 80 columns per feeder pillar; Item 10 - 16 earth electrodes per site/link; tem 14 - Assumed suitable DNO mains cable laid in the vicinity of Feeder Pillar; tem 15 - 20% of Total Capex Cost prior to TM & Detailed Design Fee; tem 16 - 10% of Total Capex Cost prior to TM & Detailed Design Fee.

#### **CAPEX Cost Sheet - Link B**

		TYPE A	TYPE B	TYPE C	TYPE D		
Item	Description	12m road lighting column with a twin post top mounted luminaires each with a 21klm LED output	12m road lighting column with a twin post top mounted luminaires each with a 17klm LED output	10M Road Lighting Column with a Single Post Top luminaire with a 15klm LED output	10M Road Lighting Column with a Single Post Top luminaire with a 10klm LED output		
1	Column	£1,600.00	£1,600.00	£1,400 00	£1,400.00		
2	Bracket Arm	£150.00	£150.00				
3	Luma 2 luminaire	£500.00	£500.00				
4	Luma 1 luminaire			£250.00	£250.00		
5	Passive Termination (Sensor)	£140.00	£140.00	£140.00	£140.00		
6	Termination	£70.00	£70.00	£70.00	£70.00		
7	2.5mm <sup>2</sup> 2 core Cu cable XLPE/SWA/PVC*	£75.00	£75.00	£50.00	£50.00		
8	25mm <sup>2</sup> 3 core Cu cable XLPE/SWA/PVC*	£480.00	£480.00	£480.00	£480.00		
9	Ear h Electrode*	£35.00	£35.00	£35.00	£35.00		
10	Feeder Pillar*	£110.00	£110.00	£110.00	£110.00		
11	Trenching*	£170.00	£170.00	£170.00	£170.00		
12	Cross Carriageway ducting*	£110.00	£110.00	£110.00	£110.00		
13	Chambers*	£60.00	£60.00	£60.00	£60.00		
14	DNO*	£140.00	£140.00	£140.00	£140.00		
15	Traffic Management - TM*	£728.00	£728.00	£603.00	£603.00		
16	Detailed Design Fee*	£364.00	£364.00	£301.50	£301.50		
Total Capex	cost prior to TM & Detailed Design Fee	£3,640.00	£3,640.00	£3,015.00	£3,015.00	£0.00	£0.00
Total Capex	c Cost	£4,732	£4,732	£3,920	£3,920	£0	£0
	Proposed Quantity	63	0	35	0	0	0
	Sub Tota	£298,116.00	£0.00	£137,182 50	£0.00	£0.00	£0.00
Link Total				£435,29	<u> </u>		

<sup>\*</sup>Capex costs are based on the following assumptions: tem 7, 8 & 11 - 40m Column spacings; All items - include Installation; Item 10 - 80 columns per feeder pillar; Item 10 - 16 earth electrodes per site/link; tem 14 - Assumed suitable DNO mains cable laid in the vicinity of Feeder Pillar; tem 15 - 20% of Total Capex Cost prior to TM & Detailed Design Fee; tem 16 - 10% of Total Capex Cost prior to TM & Detailed Design Fee.

#### **CAPEX Cost Sheet - Link C**

		TYPE A	TYPE B	TYPE C	TYPE D		
Item	Description	12m road lighting column with a twin post top mounted luminaires each with a 21klm LED output	12m road lighting column with a twin post top mounted luminaires each with a 17klm LED output	10M Road Lighting Column with a Single Post Top Iuminaire with a 15klm LED output	10M Road Lighting Column with a Single Post Top luminaire with a 10klm LED output		
1	Column	£1,600.00	£1,600.00	£1,400 00	£1,400.00		
2	Bracket Arm	£150.00	£150.00				
3	Luma 2 luminaire	£500.00	£500.00				
4	Luma 1 luminaire			£250.00	£250.00		
5	Passive Termination (Sensor)	£140.00	£140.00	£140.00	£140.00		
6	Termination	£70.00	£70.00	£70.00	£70.00		
7	2.5mm <sup>2</sup> 2 core Cu cable XLPE/SWA/PVC*	£75.00	£75.00	£50.00	£50.00		
8	25mm <sup>2</sup> 3 core Cu cable XLPE/SWA/PVC*	£480.00	£480.00	£480.00	£480.00		
9	Ear h Electrode*	£35.00	£35.00	£35.00	£35.00		
10	Feeder Pillar*	£110.00	£110.00	£110.00	£110.00		
11	Trenching*	£170.00	£170.00	£170.00	£170.00		
12	Cross Carriageway ducting*	£110.00	£110.00	£110.00	£110.00		
13	Chambers*	£60.00	£60.00	£60.00	£60.00		
14	DNO*	£140.00	£140.00	£140.00	£140.00		
15	Traffic Management - TM*	£728.00	£728.00	£603.00	£603.00		
16	Detailed Design Fee*	£364.00	£364.00	£301.50	£301.50		
Total Capex	cost prior to TM & Detailed Design Fee	£3,640.00	£3,640.00	£3,015.00	£3,015.00	£0.00	£0.00
Total Capex	c Cost	£4,732	£4,732	£3,920	£3,920	£0	£0
	Proposed Quantity	0	132	5	23	0	0
	Sub Total	£0 00	£624,624.00	£19,597.50	£90,148.50	£0.00	£0.00
	Link Total			£734,37	0.00		

<sup>\*</sup>Capex costs are based on the following assumptions: tem 7, 8 & 11 - 40m Column spacings; All items - include Installation; Item 10 - 80 columns per feeder pillar; tem 10 - 16 earth electrodes per site/link; tem 14 - Assumed suitable DNO mains cable laid in the vicinity of Feeder Pillar; tem 15 - 20% of Total Capex Cost prior to TM & Detailed Design Fee; tem 16 - 10% of Total Capex Cost prior to TM & Detailed Design Fee.

#### **CAPEX Cost Sheet - Section D**

		TYPE A	TYPE B	TYPE C	TYPE D		
Item	Description	12m road lighting column with a twin post top mounted luminaires each with a 21klm LED output	12m road lighting column with a twin post top mounted luminaires each with a 17klm LED output	10M Road Lighting Column with a Single Post Top Iuminaire with a 15klm LED output	10M Road Lighting Column with a Single Post Top luminaire with a 10klm LED output		
1	Column	£1,600.00	£1,600.00	£1,400 00	£1,400.00		
2	Bracket Arm	£150.00	£150.00				
3	Luma 2 luminaire	£500.00	£500.00				
4	Luma 1 luminaire			£250.00	£250.00		
5	Passive Termination (Sensor)	£140.00	£140.00	£140.00	£140.00		
6	Termination	£70.00	£70.00	£70.00	£70.00		
7	2.5mm <sup>2</sup> 2 core Cu cable XLPE/SWA/PVC*	£75.00	£75.00	£50.00	£50.00		
8	25mm <sup>2</sup> 3 core Cu cable XLPE/SWA/PVC*	£480.00	£480.00	£480.00	£480.00		
9	Ear h Electrode*	£35.00	£35.00	£35.00	£35.00		
10	Feeder Pillar*	£110.00	£110.00	£110.00	£110.00		
11	Trenching*	£170.00	£170.00	£170.00	£170.00		
12	Cross Carriageway ducting*	£110.00	£110.00	£110.00	£110.00		
13	Chambers*	£60.00	£60.00	£60.00	£60.00		
14	DNO*	£140.00	£140.00	£140.00	£140.00		
15	Traffic Management - TM*	£728.00	£728.00	£603.00	£603.00		
16	Detailed Design Fee*	£364.00	£364.00	£301.50	£301.50		
Total Capex	cost prior to TM & Detailed Design Fee	£3,640.00	£3,640.00	£3,015.00	£3,015.00	£0.00	£0.00
Total Capex	c Cost	£4,732	£4,732	£3,920	£3,920	£0	£0
	Proposed Quantity	0	40	0	11	0	0
	Sub Total	£0 00	£189,280.00	£0.00	£43,114.50	£0.00	£0.00
	Link Total			£232,39	4.50		

<sup>\*</sup>Capex costs are based on the following assumptions: tem 7, 8 & 11 - 40m Column spacings; All items - include Installation; Item 10 - 80 columns per feeder pillar; tem 10 - 16 earth electrodes per site/link; tem 14 - Assumed suitable DNO mains cable laid in the vicinity of Feeder Pillar; tem 15 - 20% of Total Capex Cost prior to TM & Detailed Design Fee; tem 16 - 10% of Total Capex Cost prior to TM & Detailed Design Fee.

# Appendix B

**OPERATING COSTS (OPEX)** 



#### OPEX Costs Link A

#### Existing Annual Unit Operational Costs

	Quantitity	0	0	0	0
Item	Description				
1	Routine Maintenance	£17 00	£12 00	£0.00	60.00
		£9.00	£9.00		
2	Scouting	£9.00	£9.00	0.00	0.00
3	Lamp Replacement (3 year cycle SON-T, N/A for LED)	£12 00	26.00	00.03	20.00
	Non-Routine Maintenance	£0.00	£0.00	£0.00	£0.00
5	Energy Consumpton	£27 .5	£8 62	£0.00	£0.00
-					
6	TM (20% of Total Opex cost prior to TM)	£62 51	£22 32	0.03	00.03
otal Ope	otal Opex cost prior to M		£111 62	£0 00	£0 00
otal Ope	x Cost (Per Unit)	£375 04	£133 95	£0 00	£0 00
otal Ope	x Cost	£0 00	£0 00	£0 00	£0 00

#### Annual Energy C. sts.

Figure from Sheet 1. Energy Costs	

Syste Wattage	558	172	0	0
Pice e KW ( e ce)	0.12	0.12	0.12	0.12
Burning Hours	,100	,100	,100	,100
Present Day Annual Energy Cost	£27 .5	£8 62	20.00	£0.00
Eea Cooet	3. 73	3. 73	3. 73	3. 73
OYMC (Energy)	£0 00	£0 00	£0 00	£0 00

CO2 Emissi ns				
05 a Pe K	0	0	0	0
CO2 E issosoe 30 Yeas g	0	0	0	0

#### Exisitng OYMC Costs

OYMC (Maintenance Cost)	£0 00
OYMC (Energy)	.60.00
CO2 Emissi ns ver 0 Years nnes	

#### Proposed Annual Unit Operational Costs

	<b>T</b>	ype A	ype B	ype C	ype D	ype E	ype F
	Quantitity	38	0	26	0	0	0
Item	Description	12m road	12m road	10M Road	10M Road		
		lighting column	lighting column with a tw n post	Light ng Co umn with a Single	Lighting Co umn		
		with a twin post top mounted	top mounted	Post op	with a Single Post op		
		luminaires each	luminaires each	luminaire with a	luminaire with a		
			with a 17klm LED		10klm LED		
		utnut	utnut	utnut	utput		
1	Routine Maintenance	£12.00	£12.00	£12.00	£12.00	£0.00	£0.00
2	Scou ing (N/A for CMS)	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00
3	Lamp Rep acement (N/A for LED)	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00
	Non-Rou ine Maintenance	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00
5	Energy Consumpton	£82.08	£111.8	£96. 8	£82.08	£0.00	£0.00
6	TM (20% of Total Opex cost prior to TM)	£18.82	£2 .77	£21.70	£18.82	£0.00	£0.00
otal O	pex cost prior to M	£94 08	£123 84	£108 48	£94 08	£0 00	£0 00
otal O	pex Cost (Per Unit)	£112 90	£148 61	£130 18	£112 90	£0 00	£0 00
otal O	pex Cost	£4 290 05	£0 00	£3 384 58	£0 00	£0 00	£0 00

#### Annual Energy C. sts.

_	UMSUG Values Used	L٨
7		$\Gamma$

Syste Wattage	171	233	201	171	119	86
Pice e KW (e ce)	0.12	0.12	0.12	0.12	0.12	0.12
Burning Hours 20/20 PECU	.000	,000	.000	.000	,000	.000
Present Day Annual Energy Cost	£82.08	£111.8	£96. 8	£82.08	£57.12	£ 1.28
Eea Cooet	3. 73	3. 73	3. 73	3. 73	3. 73	3. 73
OYMC (Energy)	£10 752 27	£0 00	£8 647 48	£0 00	£0 00	£0 00
	21070227	20 00	20 047 40	20 00	1 10 00	1 1000
CO2 Emissi ns	LIG TOLL!	20 00	20 047 40	20 00	1 20 00	20 00
	3,535	0	2,8 3	0	0	0

Decomm ssioning Cost (= 20% of Total Capital Cost)	£56 344 60	1
Capita isation Factor (from PAR)	25 9	From Table C.3 par guidance no
OYMC (Decommisioning Costs)	£2 175 47	

784 476

#### Proposed OYMC Costs

OYMC (Maintenance Cost)	£7 674 62
OYMC (Energy)	£19 399 75
OYMC (Dec. mmissi_ning C_st)	£2 1 5
-	
CO2 Emissi ns ver 0 Years nnes	784 476

#### FINAL CALCULA ION FOR USE IN HE REPOR

CYMC (Maintenance C. st)
= Propsoed Maintenance Cost - Existing Maintenance
Cost £7 674 62

OYMC (Energy) = Propsoed Energy - Existing Energy £19 399 75

OYMC (Decommisioning Costs) £2 175 47

OYMC (Maintenance Cost) OYMC (Energy)
OYMC (Decommissioning Cost)

£29.2.9.84 Input this value into SAR worksheet "Cost Master" Maintenance PVC box

CO2 Emissions over 30 Years = Proposed Emissions - Ex siting Emissions

#### OPEX Costs Link B

#### Existing Annual Unit Operational Costs

	Quantitity	0	0	0	0
Item	Description		0	0	
-					
1	Routine Maintenance	£17 00	£12 00	£0.00	20.00
2	Scouting	£9.00	£9.00	20.00	£0.00
3	Lamp Replacement (3 year cycle SON-T, N/A for LED)	£12 00	£6.00	£0.00	£0.00
	Non-Routine Maintenance	£0.00	£0.00	£0.00	£0.00
5	Energy Consumpton	£27 .5	£8 62	20.00	£0.00
6	TM (20% of Total Opex cost prior to TM)	£62 51	£22 32	£0.00	£0.00
otal Ope	x cost prior to M	£312 54	£111 62	£0 00	£0 00
otal Ope	x Cost (Per Unit)	£375 04	£133 95	£0 00	£0 00
otal Ope	x Cost	£0 00	£0 00	£0 00	£0 00

#### Annual Fnergy C. sts.

	. [
Figure from Sheet 1.	
Energy Costs	_>ŀ
00010	<sup>'</sup> [

Syste Wattage	558	172	0	0
Pice e KW (e ce)	0.12	0.12	0.12	0.12
Burning Hours	,100	,100	,100	,100
Present Day Annual Energy Cost	£27 .5	£8 62	£0.00	£0.00
Eea Cooet	3. 73	3. 73	3. 73	3. 73
OYMC (Energy)	£0 00	£0 00	£0 00	£0 00

CO2 Emissi ns				
0.5 g Pe K	0	0	0	0
CO2 E isso so e 30 Yea s g	0	0	0	0

#### Exisitng OYMC Costs

OYMC (Maintenance Cost)	£0 00
OYMC (Energy)	£0.00
CO2 Emissi ns ver 0 Years nnes	0

#### Proposed Annual Unit Operational Costs

	<b>r</b>	ype A	ype B	ype C	vpe D	ype E	ype F
Item	Quantitity Description	12m road lighting column	12m road lighting column	35 10M Road Light ng Co umn	10M Road Lighting Co umn	0	0
		with a twin post top mounted	with a tw n post top mounted	with a Single Post op	with a Single Post op		
			with a 17klm LED		10klm LED		
1	Routine Maintenance	£12.00	£12.00	£12.00	£12.00	£0.00	£0.00
2	Scou ing (N/A for CMS)	20.00	£0.00	£0.00	£0.00	£0.00	£0.00
3	Lamp Rep acement (N/A for LED)	20.00	20.00	£0.00	£0.00	£0.00	£0.00
	Non-Rou ine Maintenance	20.00	20.00	£0.00	£0.00	£0.00	£0.00
5	Energy Consumpton	£82.08	£111.8	£96. 8	£82.08	£0.00	£0.00
6	TM (20% of Total Opex cost prior to TM)	£18.82	£2 .77	£21.70	£18.82	£0.00	£0.00
otal O	pex cost prior to M	£94 08	£123 84	£108 48	£94 08	£0 00	£0 00
otal O	pex Cost (Per Unit)	£112 90	£148 61	£130 18	£112 90	£0 00	£0 00
otal O	pex Cost	£7 112 45	£0 00	£4 556 16	£0 00	£0 00	£0 00

#### Annual Energy C. sts.

UMSUG Values Used	L
7	$\Gamma$

Syste Wattage	171	233	201	171	119	86
Pice e KW ( e ce)	0.12	0.12	0.12	0.12	0.12	0.12
Burning Hours 20/20 PECU	,000	.000	.000	,000	,000	,000
Present Day Annual Energy Cost	£82.08	£111.8	£96. 8	£82.08	£57.12	£ 1.28
Eea Cooet	3. 73	3. 73	3. 73	3. 73	3. 73	3. 73
OYMC (Energy)	£17 826 13	£0 00	£11 640 84	£0 00	£0 00	£0 00
CO2 Emissi ns						
CO2 Emissi ns 0.5 g Pe K	5,861	0	3,827	0	0	0

#### lec missi ning C sts

Decomm ssioning Cost (= 20% of Total Capital Cost)	£87 059 70	
Capita isation Factor (from PAR)	25 9	From Table C.3 par guidance notes
OYMC (Decommisioning Costs)	£3 361 38	

#### Proposed OYMC Costs

FINAL CALCULA ION FOR USE IN HE REPOR

OYMC (Decommisioning Costs)

OYMC (Maintenance Cost)	£11 668 61
OYMC (Energy)	£29 466 97
OYMC (Dec. mmissi_ning C_st)	£ 61 8
-	
CO2 Emissi ns ver 0 Years nnes	1 191 569

# OYMC (Maintanance C. st) = Proposed Maintenance Cost - Existing Maintenance Cost OYMC (Energy) = Proposed Energy Existing Energy E29 466 97

£3 361 38

OYMC (Maintenance Cost) OYMC (Energy)
OYMC (Decommissioning Cost)

£ 96.96 Input this value into SAR worksheet "Cost Master" Maintenance PVC box

CO2 Emissions over 30 Years 1 191 569 = Proposed Emissions - Existing Emissions

#### OPEX Costs Link C

#### Existing Annual Unit Operational Costs

	Quantitity	0	0	0	0
Item	Description		0	0	
-					
1	Routine Maintenance	£17 00	£12 00	£0.00	20.00
2	Scouting	£9.00	£9.00	20.00	£0.00
3	Lamp Replacement (3 year cycle SON-T, N/A for LED)	£12 00	£6.00	£0.00	£0.00
	Non-Routine Maintenance	£0.00	£0.00	£0.00	£0.00
5	Energy Consumpton	£27 .5	£8 62	20.00	£0.00
6	TM (20% of Total Opex cost prior to TM)	£62 51	£22 32	£0.00	£0.00
otal Ope	x cost prior to M	£312 54	£111 62	£0 00	£0 00
otal Ope	x Cost (Per Unit)	£375 04	£133 95	£0 00	£0 00
otal Ope	x Cost	£0 00	£0 00	£0 00	£0 00

#### Annual Energy C sts

Figure from Sheet 1.	l
Energy Costs	 ļ

Syste Wattage	558	172	0	0
Pice e KW (e ce)	0.12	0.12	0.12	0.12
Burning Hours	,100	,100	,100	,100
Present Day Annual Energy Cost	£27 .5	£8 62	£0.00	£0.00
Eea Cooet	3. 73	3. 73	3. 73	3. 73
OYMC (Energy)	£0 00	£0 00	£0 00	£0 00

CO2 Emissi ns				
0.5 g Pe K	0	0	0	0
CO2 E isso so e 30 Yea s g	0	0	0	0

#### Exisitng OYMC Costs

OYMC (Maintenance Cost)	£0 00
OYMC (Energy)	£0.00
CO2 Emissi ns ver 0 Years nnes	0

#### Proposed Annual Unit Operational Costs

	<b>T</b>	ype A	ype B	ype C	ype D	ype E	ype F
Item	Quantitity Description	12m road lighting column with a twin post top mounted luminaires each with a 21klm LED	132 12m road lighting column with a tw n post top mounted luminaires each with a 17klm LED	10M Road Light ng Co umn with a Single Post op luminaire with a 15klm LED	10M Road Lighting Co umn with a Single Post op luminaire with a 10klm LED	0	0
1	Routine Maintenance	£12.00	£12.00	£12.00	£12.00	£0.00	£0.00
2	Scou ing (N/A for CMS)	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00
3	Lamp Rep acement (N/A for LED)	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00
	Non-Rou ine Maintenance	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00
5	Energy Consumpton	£82.08	£111.8	£96. 8	£82.08	£0.00	£0.00
6	TM (20% of Total Opex cost prior to TM)	£18.82	£2 .77	£21.70	£18.82	£0.00	£0.00
otal O	pex cost prior to M	£94 08	£123 84	£108 48	£94 08	£0 00	£0 00
otal O	pex Cost (Per Unit)	£112 90	£148 61	£130 18	£112 90	£0 00	£0 00
otal O	pex Cost	£0 00	£19 616 26	£650 88	£2 596 61	£0 00	£0 00

#### Annual Energy C. sts.

ݛ	UMSUG Values Used	L
7		$\Gamma'$

Syste Wattage	171	233	201	171	119	86
Pice e KW ( e ce)	0.12	0.12	0.12	0.12	0.12	0.12
Burning Hours 20/20 PECU	,000	.000	.000	,000	,000	,000
Present Day Annual Energy Cost	£82.08	£111.8	£96. 8	£82.08	£57.12	£ 1.28
Eea Cooet	3. 73	3. 73	3. 73	3. 73	3. 73	3. 73
OYMC (Energy)	£0 00	£50 892 08	£1 662 98	£6 507 95	£0 00	£0 00
CO2 Emissi ns						
05 a Pe K	0	16,731	5 7	2,1 0	0	0
CO2 E issio so e 30 Yeas g	0	2,057,9 5, 72	67,2 6,560	263,16 ,896	0	0

#### Dec missi ning C sts

Decomm ssioning Cost (= 20% of Total Capital Cost)	£146 874 00	
Capita isation Factor (from PAR)	25 9	From Table C.3 par guidance notes
OYMC (Decommisioning Costs)	£5 670 81	· -

#### Proposed OYMC Costs

£22 863 74
£59 063 01
£5 6 0 81
2 388 357

#### FINAL CALCULA ION FOR USE IN HE REPOR

OYMC (Maintenance C st)
= Propsoed Maintenance Cost - Existing Maintenance
Cost £22 863 74

OYMC (Energy) = Propsoed Energy - Existing Energy £59 063 01

OYMC (Decommisioning Costs)

£5 670 81

OYMC (Maintenance Cost) OYMC (Energy)
OYMC (Decommissioning Cost)

£8. 59. 56 Input this value into SAR worksheet "Cost Master" Maintenance PVC box

CO2 Emissions over 30 Years = Proposed Emissions - Exsiting Emissions

2 388 357

#### OPEX Costs Section D

#### Existing Annual Unit Operational Costs

	Quantitity	0	0	0	0
Item	Description				
1	Routine Maintenance	£17 00	£12 00	£0.00	60.00
		£9.00	£9.00		
2	Scouting	£9.00	£9.00	0.03	0.00
3	Lamp Replacement (3 year cycle SON-T, N/A for LED)	£12 00	26.00	00.03	20.00
	Non-Routine Maintenance	£0.00	£0.00	£0.00	£0.00
5	Energy Consumpton	£27 .5	£8 62	£0.00	£0.00
-					
6	TM (20% of Total Opex cost prior to TM)	£62 51	£22 32	0.03	00.03
otal Ope	x cost prior to M	£312 54	£111 62	£0 00	£0 00
otal Ope	x Cost (Per Unit)	£375 04	£133 95	£0 00	£0 00
otal Ope	x Cost	£0 00	£0 00	£0 00	£0 00

#### Annual Energy C. sts.

Figure from Sheet 1. Energy Costs	

Syste Wattage	558	172	0	0
Pice e KW (e ce)	0.12	0.12	0.12	0.12
Burning Hours	,100	,100	,100	,100
Present Day Annual Energy Cost	£27 .5	£8 62	£0.00	£0.00
Eea Cooet	3. 73	3. 73	3. 73	3. 73
OYMC (Energy)	£0 00	£0 00	£0 00	£0 00

CO2 Emissi ns				
0.5 g Pe K	0	0	0	0
CO2 E isso so e 30 Yea s g	0	0	0	0

#### Exisitng OYMC Costs

OYMC (Maintenance Cost)	£0 00
OYMC (Energy)	.60.00
CO2 Emissi ns ver 0 Years nnes	

#### Proposed Annual Unit Operational Costs

		vpe A	vpe B	vpe C	vpe D	vpe E	vpe F
	Quantitity	0	40	0	11	0	0
Item	Description	12m road lighting column with a twin post top mounted luminaires each	12m road lighting column with a tw n post top mounted luminaires each	10M Road Light ng Co umn with a Single Post op Iuminaire with a	10M Road Lighting Co umn with a Single Post op Iuminaire with a		
			with a 17klm LED	15klm LED	10klm LED		
		utnut	utnut	utput	utput		
1	Routine Maintenance	£12.00	£12.00	£12.00	£12.00	£0.00	£0.00
2	Scou ing (N/A for CMS)	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00
3	Lamp Rep acement (N/A for LED)	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00
	Non-Rou ine Maintenance	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00
5	Energy Consumpton	£82.08	£111.8	£96. 8	£82.08	£0.00	£0.00
6	TM (20% of Total Opex cost prior to TM)	£18.82	£2 .77	£21.70	£18.82	£0.00	£0.00
otal O	pex cost prior to M	£94 08	£123 84	£108 48	£94 08	£0 00	£0 00
otal O	pex Cost (Per Unit)	£112 90	£148 61	£130 18	£112 90	£0 00	£0 00
otal O	pex Cost	£0 00	£5 944 32	£0 00	£1 241 86	£0 00	£0 00

#### Annual Energy C. sts.



Syste Wattage	171	233	201	171	119	86
Pice e KW (e ce)	0.12	0.12	0.12	0.12	0.12	0.12
Burning Hours 20/20 PECU	,000	,000	,000	.000	,000	,000
Present Day Annual Energy Cost	£82.08	£111.8	£96. 8	£82.08	£57.12	£ 1.28
Eea Cooet	3. 73	3. 73	3. 73	3. 73	3. 73	3. 73
OYMC (Energy)	£0 00	£15 421 84	£0 00	£3 112 50	£0 00	£0 00
CO2 Emissi ns						
CO2 Emissi ns 0.5 g Pe K	0	5,070	0	1,023	0	0

#### Dec missi ning C sts

Capita isation Factor (from PAR)	25 9	From Table C.3 par guidance notes
OYMC (Decommissioning Costs)	£1 794 55	

#### Proposed OYMC Costs

OYMC (Maintenance Cost)	£7 186 18
OYMC (Energy)	£18 534 34
OYMC (Dec. mmissi_ning C_st)	£1 9 55
-	
CO2 Emissi ns ver 0 Years nnes	749 481

# FINAL CALCULA ION FOR USE IN HE REPOR OYMC (Maintenance Cost - Existing Maintenance Cost - Existing Energy Existing Emissions Existing Emissions Existing Emissions Existing Emissions

## **Appendix C**

SCHEME APPRAISAL REPORTS (SAR

6.5)



### A1 A1 M2F Link A Commitment of Works Expenditure Standard SAR TITLE WORKSHEET

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-∕ac	IC.	- 1

CAD	A4 A4 MOE Link A Committee		ulco Espanditura Otandard CAD			
SAR name:	AT AT MZF LINK A COMMIT	nent of Wo	rks Expenditure Standard SAR			
HA Area / DBFO:	Area 14		SAR file name:	14A1A1M2FLinkA	211217.xlsm	
Trunk Road number:	A1 Short name: A1 M2F Link A					
Trank Road Hallibol.	7.1		Short hame.		nclude Road Number in	Short Name
Full title:	A1 Morpeth to Felton					
Location OSGR:	Start Point or Mid-Po Easting (6 digits) Northing			End P Easting (6 digits)	oint Northing (6 digits)	
Does the scheme in	volve Compulsory Purchase	or Highway	vs Act Orders? No ▼			
Scheme stage:	Commitment of Works Expenditure	re 🔻	Scheme category:	Safety	•	
Scheme cost range:	>£100K	•	SAR type:	Standard	d SAR	
Tota	I cost to HA for budgetary pu	rposes (curi	rent prices including non-recoverable VAT):	£309,	579	
Agent's Scheme Ref.:			Current PIN: TBC		Previous PINs:	
	/ Amended by		Checked by		Appro	
	Baguley	Name:	Chris Atkins	Name:	Stephen	
	ley@wsp.com	Email:	chris.atkins@wsp.com	Email:	stephen.hallid	
Date: 02/0	06/2017	Date:	02/06/2017	Date:	02/06	/2017
		Name: Email:	HA Project Manager			



### A1 A1 M2F Link A Commitment of Works Expenditure Standard SAR

Page: 2

### SCHEME DETAILS WORKSHEET

N.B. Excessively long comments on this	and / or other pages should instead be entered in a separate document file or files and referenced in the Attachments page.
Problem to be addressed: New A1 sch	eme (dualing) requires consideration for the potential requirement for road lighting in accordance with TA49/07.
(Brief reasons for carrying out	
the scheme)	
,	
Proposed solution: Complete a	Scheme Appraisal Report (SAR) to determine the Benefit Cost Ratio (BCR) of road ligh ing for the applicable link / links of the A1
(Brief description of proposed	
scheme)	
30.10.113)	
Other solutions considered: None.	
(State 'None' if there are	
none - do not leave blank)	
mene de necioave siamiy	
Expected outcomes: If BCR is les	s than 1.0 then the HE may consider not providing road lighting for the applicable link / links of the A1
(Results considered probable	
given analyses conducted)	
given analyses conducted)	
M	onth Year
Expected Date of Opening: December	▼ 2022 ▼
Accessed Body Longitude	in for Annual David
Dead limbin	ion for Assessment Period: passessed over 30 year period as per TA49/07.
30 ▼ years Road lighting	assessed over 50 year period as per 1 A49/07.
More Information	
Wiore information	
History and Programme Dates	Data Entry Completed SAR Completed Additional Comments
Conception	
Start of Public Consultation	
Preferred Solution Decision	
Draft Order Publication	
Intermediate	:
Commitment of Works Expenditure	: 21/11/2017
Commencement of Operation	

N.B. 'Data Entry Completed' indicates the date in which the person filling in the SAR reached the point where no more user data was required. 'SAR Completed' indicates the date when others filled in all additional approvals information.



### A1 A1 M2F Link A Commitment of Works Expenditure Standard SAR TRAFFIC & ACCIDENTS WORKSHEET

Page: 3

Road type:	All-Purpose		AADT (vehicles): 30	0,000	Two-way
Road width:	D2	•	Percentage HGVs: 1	10%	]
Speed limit:	50mph or more	•	Year of AADT: 2019	5 🔻	Ī
			nd Final Assessment Year hbined and for those time periods (e.g. weekday peak period, 30%	. •	1
affic Growth sho hour or daily) i	ould relate to all v n which monetise	ehicle types con d benefits are re	nd Final Assessment Year hbined and for those time periods (e.g. weekday peak period, ceived. Where more than one link receives monetised ge growth on those links.	, <b>V</b>	Ī

### **Reported Injury Accident Information**

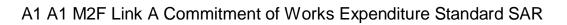
Geographic area covered:

N/A for new road, predicited accident savings applied based on similar schemes/scenarios

	12-month		Accidents					Casu	alties	
	period from	Fatal	Serious	Slight	TOTAL	•	Fatal	Serious	Slight	TOTAL
	01/01/2012	0	0	0	0		0	0	0	0
	01/01/2013	0	0	0	0		0	0	0	0
	01/01/2014	0	0	0	0		0	0	0	0
	01/01/2015	0	0	0	0		0	0	0	0
	01/01/2016	0	0	0	0		0	0	0	0
TOTAL:	5	0	0	0	0		0	0	0	0
AVERAGE:	per annum	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0

Severity Index: 0.0%

Additional information (eg overall	
accident rate; national comparison):	



### GHWAYS ENCY

### COSTS MASTER INPUT WORKSHEET

N.B. The term "Estimate Price Year / Quarter" in each of Parts A - D relates to the year and quarter to which the prices entered relate - i.e. the price base - rather than the current year and quarter.

A. Works Costs	Estimate Year / Qtr I	RPI factor to 2010:	0.7551
	Estimate Price Year / Quarter: 2020 Q1 Estimate Year / Qtr p	rice growth factor:	1.5826
1 Carias 100 Bralinainarias (taran a	Estimate Year / Qtr	cost growth factor:	1.0562
<ol> <li>Series 100 – Preliminaries (temp. a</li> <li>Series 200 – Site Clearance</li> </ol>	ccommodation, traffic management)		
3. Series 300 – Fencing			
4. Series 400 – Safety Fences, Barrie	rs and Guardrails		
5. Series 500 – Drainage 6. Series 600 – Earthworks			
7. Series 600 – Earthworks (landscap	ing)		
8. Series 700 – Pavements			
9. Series 1100 – Kerbs and Footways 10. Series 1200 – Traffic Signs (include			
11. Series 1300 to 1500 – Lighting, El		£281	723.00
12. Series 1600 to 2500 – Structures			
13. Series 2700 – Statutory Undertake 14. Series 2700 – Noise Insulation We			
15. Series 2700 – Accommodation W			
16. Series 3000 – Landscape and Eco			
17. Technology Renewal Costs 15 Ye	ears After Construction: £ Disc'd to Constr'n Year:		
18. Other Costs - Specify:	wals Costs (sum of items A1 - A18) discounted to Construction Year	£281,723.00	(a)
Total Works and Technology Kene	wais costs (sum of items AT - ATO) discounted to construction Teal	2201,723.00	(a)
A1 Propagation and Supervision C	oete		1
A1. Preparation and Supervision Co	Estimate Price Year / Quarter: 2020 Q1		
1. Preparation	Default Costs OR User Specified Costs  OR User Specified Costs		786.53
2. Supervision  Total Preparation and Supervision	Bolduli Costs City Cost Openined Costs	£14,	466.32 (a1)
Total Treparation and Supervision	COSIS (Sum of Items A1.1 - A1.2)	220,232.03	(α.)
D Land Carta			
B. Land Costs	Estimate Price Year / Quarter: Choose	RPI:	0.0
	Estimate Frior Fear / Quarter.	IXI I.L	0.0
1. HA Valuer's estimate of cost of land	d acquisition		
<ul><li>2. Estimate of Part 1 compensation</li><li>3. HA Valuer's estimate of rehousing</li></ul>	and the second s		
4. HA Valuer's estimate of resoleable			
Total Land Costs (sum of items B1	- B4)	£0.00	(b)
C. Other Costs		p-	
	Estimate Price Year / Quarter: Choose	RPI:	0.0
Public Transport Subsidies			
2. Local Government Investment Con	tributions (enter as -ve sum for contirbutions towards costs included in Part A)		
3. Other – Specify:  Total Other Costs (sum of items C1	1 - C3/	£0.00	(c)
Total Other Costs (Sum of Items C	1 - 03)	20.00	(0)
D. Contributions			
D. Contributions	Estimate Price Year / Quarter: Choose	RPI:	0.0
<ol> <li>SU Betterment; Deferment or reneval.</li> <li>Developer Contributions</li> </ol>	wal, etc		
3. Other – Specify			
Total Contributions (sum of items	D1 - D3)	£0.00	(d)
E. Scheme Costs for Budgeting Pu	rposes		
	Does the scheme have a Risk Assessment ? Without Risk Assessment		
1. Risk Allowance	Does the scheme have a Nisk Assessment ! Without Nisk Assessment		
	Mean Risk Allowance in Works Costs price year prices (£):		
2. Non-Recoverable VAT	Percentage of cost for which VAT is not recoverable:  % Mo	re Information	
	Construction Year / Quarter, or Construction Year / Qtr p		1.6253
3. Construction Year / Quarter	mid-point of construction period if 2021 Q1 Construction Year / Qtr period is longer than one quarter: Construction Year / Qtr I		1.0562 0.7353
	, a see a gas attended and a gas		5.1.000
4. Scheme Costs	TOTAL Scheme Implementation Costs in Construction Year Prices	£309,579	9
T. OURGING OUSIS	(including Risk, Non-Recoverable VAT and Optimism Bias)	2509,573	
F. Present Value of Costs (PVC)			
, ,			
4. Change in Mainten	Additional annual average		
Change in Maintenance Costs	maintenance costs in Works 29,249 More Information Costs price-year prices (£):		
	. , , , , , , , , , , , , , , , , , , ,		
2. Scheme PVC	TOTAL PVC in 2010 Market Prices, Discounted to 2010:	£651,808	3
1			



### A1 A1 M2F Link A Commitment of Works Expenditure Standard SAR PUBLIC ACCOUNTS WORKSHEET

Page: 8

Local Government Funding	TOTAL £		NB:
Investment costs:	0	(a)	<ol> <li>Costs appear as positive numbers, while increases in revenues and 'Developer and Other Contributions' appear as negative numbers.</li> </ol>
Central Government Funding: Transport			2. Costs over whole Assessment Period in 2010
Operating costs:	466,270	(b)	market prices discounted to 2010.
Investment costs:	185,538	(c)	3. Unless the scheme affects grants and subsidies or
Developer and other contributions:	0	(d)	government revenues other than fuel tax, this table is
Net Impact:	651,808	(e) = (b) + (c) + (d)	sufficient. In all other cases please refer to the ACO.
Central Government Funding: Non-Transport Indirect Tax Revenues:  TOTALS  Broad Transport Budget:	0 <b>651,808</b>		sheet - Standard SARs only) sent Value of Costs (PVC)
Wider Public Finances:	0	(h) = (f) = Indirect T	ax Revenues
Assessment Score (PVC):	0.652M		
Key Points: N/A  (Any special considerations or simplifications)  Do not leave blank			



### A1 A1 M2F Link A Commitment of Works Expenditure Standard SAR

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### NON-WEBTAG VM WORKSHEET

### **PART A: ROADWORKER SAFETY**

NB This impact is relevant to improvement schemes which are expected to reduce or increase accidents involving roadworkers or the potential for such accidents.

	ROAD	WORKER RISK EXPOS	URE		
Risk Level	Without Scheme (Person-Hrs)	With Scheme (Person-Hrs)	Change (Person-Hrs)	Risk Weighting	Assessment
High Risk			0	3	0
Medium Risk			0	2	0
Low Risk			0	1	0
				Assessment Score:	Not Applicable

Risk exposure values should be entered for the whole assessment period in relation to maintenance activities that will be change as a result of the scheme ie changes in how highway elements are to be maintained, or changes in the elements to be maintained. The risk exposure values entered for each risk category will represent the sum of the hours spent on all highway elements where the scheme affects the maintenance of more than one element.

Explanation for changes to risk exposure: (Do not leave blank if Assessment Score is non-zero)	
VM Points:	N/A

#### PART B: EQUALITY ACT COMPLIANCE

NB This impact is relevant to improvement schemes which improve or reduce compliance with the requirements of the Equality Act 2010. It does not apply to new highway features which have been designed to be EA compliant eg a new pedestrian crossing.

Assessment Score: Choose	•	Assessment Score Definitions
Justification for Assessment Score:		
(Do not leave blank if Assessment Score is non-Neutral)		
VM Points: N/A		



### A1 A1 M2F Link A Commitment of Works Expenditure Standard SAR

### WEBTAG APPRAISABLE VM WORKSHEET

### **COSTS SUMMARY FOR SCHEME:**

Scheme Costs (PVC): £ 651,808

### **RESULTS SUMMARY FOR WEBTAG SCHEME IMPACTS:**

IMPACT		Assessment Score (PVB or Qualitative)		BCR (PVB ÷ PVC)		VM Points	
ECONOMY: TEE (Business Users)		Not Applicable		Not Applicable		Not Applicable	
ECONOMY DELIVER OF THE A	DDV	Neutral		Not Applicable		0.00	
ECONOMY: Reliability (Business Users) —	IRV	Neutral		Not Applicable		0.00	
ECONOMY: Regeneration		Not Applicable		Not Applicable		Not Applicable	
ECONOMY: Wider Impacts		Not Applicable		Not Applicable		Not Applicable	
		•			Sub-Total:	0.00	
ENVIRONMENT: Noise		Not Applicable		Not Applicable		Not Applicable	
ENVIRONMENT: Air Quality		Not Applicable		Not Applicable		Not Applicable	
ENVIRONMENT: Greenhouse Gases		Not Applicable		Not Applicable		Not Applicable	
ENVIRONMENT: Landscape		Not Applicable	0.00	Not Applicable		Not Applicable	5.0
ENVIRONMENT: Townscape		Not Applicable	0.00	Not Applicable		Not Applicable	5.0
ENVIRONMENT: Heritage of Historic Resources		Not Applicable	0.00	Not Applicable		Not Applicable	5.0
ENVIRONMENT: Biodiversity		Not Applicable	0.00	Not Applicable		Not Applicable	5.0
ENVIRONMENT: Water Environment		Not Applicable	0.00	Not Applicable		Not Applicable	5.0
		•	1.00		Sub-Total:	Not Applicable	0
			0.00		_		_
SOCIETY: TEE (Commuting and Other Use	ers)	Not Applicable		Not Applicable		Not Applicable	
SOCIETY: Reliability (Commuting and —	DDV	Neutral		Not Applicable		0.00	
SOCIETY. Other Users)	IRV	Neutral		Not Applicable		0.00	
SOCIETY: Physical Activity		Not Applicable		Not Applicable		Not Applicable	
SOCIETY: Journey Quality		Not Applicable		Not Applicable		Not Applicable	
						0.00	
SOCIETY: Accidents		£0		0.00		0.00	
SOCIETY: Accidents SOCIETY: Security		£0  Not Applicable		0.00 Not Applicable		Not Applicable	
SOCIETY: Security		Not Applicable		Not Applicable		Not Applicable	
SOCIETY: Security SOCIETY: Access to Services		Not Applicable  Not Applicable		Not Applicable  Not Applicable		Not Applicable  Not Applicable	
SOCIETY: Security  SOCIETY: Access to Services  SOCIETY: Affordability		Not Applicable  Not Applicable  Not Applicable		Not Applicable  Not Applicable  Not Applicable		Not Applicable  Not Applicable  Not Applicable	
SOCIETY: Security  SOCIETY: Access to Services  SOCIETY: Affordability  SOCIETY: Severance		Not Applicable  Not Applicable  Not Applicable  Not Applicable		Not Applicable  Not Applicable  Not Applicable  Not Applicable	Sub-Total:	Not Applicable  Not Applicable  Not Applicable  Not Applicable	
SOCIETY: Security  SOCIETY: Access to Services  SOCIETY: Affordability  SOCIETY: Severance		Not Applicable  Not Applicable  Not Applicable  Not Applicable		Not Applicable  Not Applicable  Not Applicable  Not Applicable	Sub-Total:	Not Applicable  Not Applicable  Not Applicable  Not Applicable  Not Applicable	

### RESULTS SUMMARY FOR NON-WEBTAG SCHEME IMPACTS:

	IMPACT	Assessment Score	BCR		VM Points	
NON-WEBTAG	Roadworker Safety	Not Applicable	Not Applicable		Not Applicable	
NON-WEBTAG	Disabled Users	Not Applicable	Not Applicable		Not Applicable	
				Sub-Total:	Not Applicable	

### RESULTS SUMMARY FOR ALL SCHEME IMPACTS:

		Total PVB	Total BCR	Total VM Points	
စ	WebTAG Impacts: Monetised	£0	0.00	0.0	
PACI	WebTAG Impacts: Unmonetised	Not Applicable	Not Applicable	Not Applicable	
⊒	Non-WebTAG Impacts	Not Applicable	Not Applicable	Not Applicable	
AL AL	TOTAL FOR SCHEME	£0	0.00	0.0	



### A1 A1 M2F Link A Commitment of Works Expenditure Standard SAR SOCIETY: Accidents

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**SOCIETY: Accidents** 

Scheme Title: A1 Morpeth to Felton		
Scheme Stage: Commitment of Works Expenditure	Date:	02/06/2017

For advice and guidance on completing this worksheet, please refer to WebTag Unit A4.1 - WebTAG: TAG unit A4-1 social impact appraisal, November 2014 - Publications - GOV.UK Complete white cells only

Help
User Notes

PART A

Predicted number of personal injury accidents saved in opening year:	0
(If the scheme results in a predicted increase in Accident rates, enter as a NEGATIVE value)	U

Time of Day of Accident Savings: Night Time only (N.B. Choose "Night Time only" for schemes affecting accidents specifically at night.)

	0	saved in Opening Year: (a)	Number of Personal Injury Accidents (PIAs) saved in Opening Year: (a)					
£ / Year	154,290	Average cost of an accident in (b) Opening Year:	Time of Day Night Time only	Road Type Rural Dual AP	Opening Year 2022			
£ / Year	0	ening Year: (a) × (b) = (c)	Annual accident benefits in Opening Year: (a) × (b) = (c)					
7	21.222	Accident benefits capitalisation factor (d)	Traffic Growth Over Assessment Period	Assessment Period (years)	Road Type			
£ in 2010 pric	0	,	Rural Dual AP 30 30% (from Table C.5):  Accident benefits over Assessment Period discounted to Opening Year: (c) × (d) = (e)					
<b>-</b>	0.662	2010 (from Table C.3a): (f)	Discount factor from Opening Year to 2010 (from Table C.3a): (f)					
		Accident benefits over Assessment Period discounted to 2010: (e) × (f) = (g)						
<u>-</u>	0	ted to 2010: (e) × (f) = (g)	sment Period discoun	Accident benefits over Asses				
£ in 2010 prio	<b>0</b> 25.877	Accident numbers capitalisation factor (h) (from Table C.5):	Traffic Growth over Assessment Period 30%	Assessment Period (years)	Road Type Rural Dual AP			

### PART B

Has COBA analysis been undertaken? Yes No No.B. If COBA has been used, data entered into the top row of the table below should be copied from the COBA output.

	Number of Casualties Saved			Number of Personal Injury	£ Benefits in 2010 prices,	
	Fatal	Serious	Slight	Accidents (PIAs) Saved	discounted to 2010	
Accident impact over Assessment Period (j):				0	£0	
Accident impact during construction (k):						
Accident impact during future maintenance (I):						
Total accident impact [(m) = (j) + (k) + (l)]:				0	£0	

If either row (k) or row (l) or both are omitted, an appropriate Key Points entry must be made.

Assessment Score:	PVB = £0.000M					
Metrics:	0 accidents saved.					
Key Points: (Explanation for results) Do not leave blank.	N/A					



### A1 A1 M2F Link B Commitment of Works Expenditure Standard SAR TITLE WORKSHEET

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ac	IC.	

OAD	SAR name: A1 A1 M2F Link B Commitment of Works Expenditure Standard SAR						
SAR name:	AT AT MIZE LINK B COMMITM	ent of vvoi	rks Expenditure Standard SAR				
HA Area / DBFO:	Area 14	Area 14 SAR file name: 14A1A1M2FLinkB 211217.xlsm					
Trunk Road number:	Δ1		Short name:	A1 M2F Link B			
Trank Road Hallibot.	7.1		N.B. Do not include Road Number in Short Name				
Full title:	A1 Morpeth to Felton						
Location OSGR:	Start Point or Mid-Po Easting (6 digits) Northing (			Easting (6 digits)	oint Northing (6 digits)		
Does the scheme in	volve Compulsory Purchase	or Highway	vs Act Orders? No ▼				
Scheme stage:	Commitment of Works Expenditure		Scheme category:	Safety	•		
Scheme cost range:	>£100K		SAR type:	Standard	d SAR		
Tota	I cost to HA for budgetary pur	poses (curr	rent prices including non-recoverable VAT):	£478,	339		
Agent's Scheme Ref.:			Current PIN: TBC		Previous PINs:		
	/ Amended by		Checked by		Approv		
	Baguley	Name:	Chris Atkins	Name:	Stephen		
	ley@wsp.com	Email:	chris.atkins@wsp.com	Email:	stephen.hallid		
Date: 02/0	06/2017	Date:	02/06/2017	Date:	02/06/	/2017	
		Name: Email:	HA Project Manager				



### A1 A1 M2F Link B Commitment of Works Expenditure Standard SAR

Page: 2

### SCHEME DETAILS WORKSHEET

N.B. Excessively long comments on this a	and / or other pages should instead be entered in a separate document file or files and referenced in the Attachments page.
Problem to be addressed: New A1 sche	eme (dualing) requires consideration for the potential requirement for road lighting in accordance with TA49/07.
(Brief reasons for carrying out	
the scheme)	
,	
Proposed solution: Complete a	Scheme Appraisal Report (SAR) to determine the Benefit Cost Ratio (BCR) of road ligh ing for the applicable link / links of the A1
(Brief description of proposed	
scheme)	
Other solutions considered: None.	
(State 'None' if there are	
none - do not leave blank)	
y	
Expected outcomes: If BCR is less	s than 1.0 then the HE may consider not providing road lighting for the applicable link / links of the A1
(Results considered probable	
given analyses conducted)	
given analyses conducted)	
M	onth Year
Expected Date of Opening: December	▼ 2022 ▼
	ion for Assessment Period:
30 ▼ years Road lighting	assessed over 30 year period as per TA49/07.
More Information	
History and Programme Dates	Data Entry Completed SAR Completed Additional Comments
Conception	
Start of Public Consultation	
Preferred Solution Decision	
Draft Order Publication	
Intermediate	
Commitment of Works Expenditure	
	1 21/11/2017 1
Commencement of Operation	

N.B. 'Data Entry Completed' indicates the date in which the person filling in the SAR reached the point where no more user data was required. 'SAR Completed' indicates the date when others filled in all additional approvals information.



### A1 A1 M2F Link B Commitment of Works Expenditure Standard SAR TRAFFIC & ACCIDENTS WORKSHEET

Page: 3

Road type.	All-Purpose		AADT (vehicles): 30,000	Two-way
Road width:	D2	lacksquare	Percentage HGVs: 10%	]
Speed limit:	50mph or more	•	Year of AADT: 2015 ▼	
		ed benefits are re	mbined and for those time periods (e.g. weekday peak period, ecceived. Where more than one link receives monetised	
• /	hould be the flow	r-weighted avera	age growth on those links.	

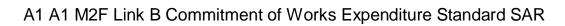
### **Reported Injury Accident Information**

Geographic area covered:

N/A for new road, predicited accident savings applied based on similar schemes/scenarios

	12-month	Accidents					Casu	alties		
	period from	Fatal	Serious	Slight	TOTAL	•	Fatal	Serious	Slight	TOTAL
	01/01/2012	0	0	0	0		0	0	0	0
	01/01/2013	0	0	0	0		0	0	0	0
	01/01/2014	0	0	0	0		0	0	0	0
	01/01/2015	0	0	0	0		0	0	0	0
	01/01/2016	0	0	0	0		0	0	0	0
TOTAL:	5	0	0	0	0		0	0	0	0
AVERAGE:	per annum	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0
		•	Seve	rity Index:	0.0%					

Additional information (eg overall	
accident rate; national comparison):	



### GHWAYS ENCY

### COSTS MASTER INPUT WORKSHEET

N.B. The term "Estimate Price Year / Quarter" in each of Parts A - D relates to the year and quarter to which the prices entered relate - i.e. the price base - rather than the current year and quarter.

A. Works Costs	Estimate Year / Qtr	RPI factor to 2010:	0.7551
	Estimate Price Year / Quarter: 2020 Q1 Estimate Year / Qtr p	_	1.5826
1 Series 100 – Preliminaries (temp.)	Estimate Year / Qtr accommodation, traffic management)	cost growth factor:	1.0562
2. Series 200 – Site Clearance	accommonation, name management,		
3. Series 300 – Fencing	ana and Cuandasila		
<ul><li>4. Series 400 – Safety Fences, Barrio</li><li>5. Series 500 – Drainage</li></ul>	ers and Guardians		
6. Series 600 – Earthworks			
7. Series 600 – Earthworks (landscar	ping)		
8. Series 700 – Pavements 9. Series 1100 – Kerbs and Footway	S S		
10. Series 1200 – Traffic Signs (inclu			
11. Series 1300 to 1500 – Lighting, E		£435,29	98.00
12. Series 1600 to 2500 – Structures 13. Series 2700 – Statutory Undertak			
14. Series 2700 – Noise Insulation W			
15. Series 2700 – Accommodation W			
16. Series 3000 – Landscape and Ed 17. Technology Renewal Costs 15 Yo			
18. Other Costs - Specify:	2   2   3   3   3   3   3   3   3   3		
Total Works and Technology Rene	ewals Costs (sum of items A1 - A18) discounted to Construction Year	£435,298.00	(a)
A1. Preparation and Supervision C	Costs Estimate Price Year / Quarter: 2020 Q1		
1 Propagation		20.04	) 02
Preparation     Supervision	Default Costs OR User Specified Costs  Default Costs OR User Specified Costs	£8,940 £22,35	
Total Preparation and Supervision	·	£31,293.24	(a1)
B. Land Costs			
	Estimate Price Year / Quarter: Choose	RPI:	0.0
4. LIA Valuar's actimate of sect of lan	d cognicition		
<ol> <li>HA Valuer's estimate of cost of lar</li> <li>Estimate of Part 1 compensation</li> </ol>	id acquisition		
3. HA Valuer's estimate of rehousing			
<ol> <li>HA Valuer's estimate of resaleable</li> <li>Total Land Costs (sum of items B<sup>2</sup></li> </ol>		£0.00	(b)
Total Land Costs (sum of items b		20.00	(b)
C. Other Costs			
C. Other Costs	Estimate Price Year / Quarter: Choose	RPI:	0.0
		1	
Public Transport Subsidies     Local Government Investment Co.	ntributions (enter as -ve sum for contirbutions towards costs included in Part A)		
3. Other – Specify:			
Total Other Costs (sum of items C	1 - C3)	£0.00	(c)
D. Contributions	Estimate Price Year / Quarter: Choose	RPI:	0.0
	Estimate Frice Fear / Quarter. Onlose	ТСГ 1.	0.0
1. SU Betterment; Deferment or rene	wal, etc		
Developer Contributions     Other – Specify			
Total Contributions (sum of items	D1 - D3)	£0.00	(d)
E. Scheme Costs for Budgeting Po	urposes		
	Dood the cohome have a Diels Assessment of With set Diels Asses	1	
1. Risk Allowance	Does the scheme have a Risk Assessment ? Without Risk Assessment	J	
	Mean Risk Allowance in Works Costs price year prices (£):		
2. Non-Recoverable VAT	Percentage of cost for which VAT is not recoverable:   Mo	ore Information	
2 Construction Voor / Overton	Construction Year / Quarter, or Construction Year / Qtr p		1.6253
3. Construction Year / Quarter	mid-point of construction period if 2021 Q1 Construction Year / Qtr period is longer than one quarter: Construction Year / Qtr		1.0562 0.7353
		_	
4. Scheme Costs	TOTAL Scheme Implementation Costs in Construction Year Prices	£478,339	
	(including Risk, Non-Recoverable VAT and Optimism Bias)	,	
F. Present Value of Costs (PVC)			
	A LPV		
Change in Maintenance Costs	Additional annual average maintenance costs in Works 44,497 More Information	1	
2 92	Costs price-year prices (£):	J	
2. Scheme PVC	TOTAL PVC in 2010 Market Prices, Discounted to 2010:	£996,024	
	=		



### A1 A1 M2F Link B Commitment of Works Expenditure Standard SAR PUBLIC ACCOUNTS WORKSHEET

Page: 8

Local Government Funding	TOTAL £		NB:	
Investment costs:	0	(a)	<ol> <li>Costs appear as positive numbers, while increases in revenues and 'Developer and Other Contributions' appear as negative numbers.</li> </ol>	
Central Government Funding: Transport			2. Costs over whole Assessment Period in 2010	
Operating costs:	709,344	(b)	market prices discounted to 2010.	
Investment costs:	286,680	(c)	3. Unless the scheme affects grants and subsidies or	
Developer and other contributions:	0	(d)	government revenues other than fuel tax, this table is	
Net Impact:	996,024	(e) = (b) + (c) + (d)	sufficient. In all other cases please refer to the ACO.	
Central Government Funding: Non-Transport Indirect Tax Revenues: 0 (f) (from 'TEE' worksheet - Standard SARs only)  TOTALS  Broad Transport Budget: 996,024 (g) = (a) + (e) = Present Value of Costs (PVC)				
Wider Public Finances:	0	(h) = (f) = Indirect T	ax Revenues	
Assessment Score (PVC):	D.996M			
Key Points: N/A  (Any special considerations  or simplifications)  Do not leave blank				



### A1 A1 M2F Link B Commitment of Works Expenditure Standard SAR

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### NON-WEBTAG VM WORKSHEET

### **PART A: ROADWORKER SAFETY**

NB This impact is relevant to improvement schemes which are expected to reduce or increase accidents involving roadworkers or the potential for such accidents.

	ROAD				
Risk Level	Without Scheme (Person-Hrs)	With Scheme (Person-Hrs)	Change (Person-Hrs)	Risk Weighting	Assessment
High Risk			0	3	0
Medium Risk			0	2	0
Low Risk			0	1	0
				Assessment Score:	Not Applicable

Risk exposure values should be entered for the whole assessment period in relation to maintenance activities that will be change as a result of the scheme ie changes in how highway elements are to be maintained, or changes in the elements to be maintained. The risk exposure values entered for each risk category will represent the sum of the hours spent on all highway elements where the scheme affects the maintenance of more than one element.

Explanation for changes to risk exposure: (Do not leave blank if Assessment Score is non-zero)	
VM Points:	N/A

#### PART B: EQUALITY ACT COMPLIANCE

NB This impact is relevant to improvement schemes which improve or reduce compliance with the requirements of the Equality Act 2010. It does not apply to new highway features which have been designed to be EA compliant eg a new pedestrian crossing.

Assessment Score: Choose	•	Assessment Score Definitions
Justification for Assessment Score: (Do not leave blank if Assessment Score is non-Neutral)		
VM Points: N/A		



### A1 A1 M2F Link B Commitment of Works Expenditure Standard SAR

### WEBTAG APPRAISABLE VM WORKSHEET

### **COSTS SUMMARY FOR SCHEME:**

Scheme Costs (PVC): £ 996,024

### **RESULTS SUMMARY FOR WEBTAG SCHEME IMPACTS:**

IMPACT		Assessment Score (PVB or Qualitative)		BCR (PVB ÷ PVC)		VM Points	
ECONOMY: TEE (Business Users)		Not Applicable		Not Applicable		Not Applicable	T
	DDV	Neutral		Not Applicable		0.00	
ECONOMY: Reliability (Business Users) —	IRV	Slight Beneficial		Not Applicable		0.00	1
ECONOMY: Regeneration		Not Applicable		Not Applicable		Not Applicable	1
ECONOMY: Wider Impacts		Not Applicable		Not Applicable		Not Applicable	
		•			Sub-Total:	0.00	
ENVIRONMENT: Noise		Not Applicable		Not Applicable		Not Applicable	
ENVIRONMENT: Air Quality		Not Applicable		Not Applicable		Not Applicable	
ENVIRONMENT: Greenhouse Gases		Not Applicable		Not Applicable		Not Applicable	
ENVIRONMENT: Landscape		Not Applicable	0.00	Not Applicable		Not Applicable	5.00
ENVIRONMENT: Townscape		Not Applicable	0.00	Not Applicable		Not Applicable	5.00
ENVIRONMENT: Heritage of Historic Resources		Not Applicable	0.00	Not Applicable		Not Applicable	5.00
ENVIRONMENT: Biodiversity		Not Applicable	0.00	Not Applicable		Not Applicable	5.00
ENVIRONMENT: Water Environment		Not Applicable	0.00	Not Applicable		Not Applicable	5.00
		•	1.00		Sub-Total:	Not Applicable	0
			0.00		_		•
SOCIETY: TEE (Commuting and Other Use	ers)	Not Applicable		Not Applicable		Not Applicable	
SOCIETY: Reliability (Commuting and	DDV	Neutral		Not Applicable		0.00	
Other Users)	IRV	Slight Beneficial					1
SOCIETY: Physical Activity				Not Applicable		0.00	
OCOIL I I. I Hydiodi / tottvity		Not Applicable		Not Applicable  Not Applicable		0.00 Not Applicable	
SOCIETY: Journey Quality		Not Applicable  Not Applicable					
				Not Applicable		Not Applicable	
SOCIETY: Journey Quality		Not Applicable		Not Applicable  Not Applicable		Not Applicable  Not Applicable	
SOCIETY: Journey Quality SOCIETY: Accidents		Not Applicable £8,668		Not Applicable Not Applicable 0.01		Not Applicable  Not Applicable  0.00	
SOCIETY: Journey Quality SOCIETY: Accidents SOCIETY: Security		Not Applicable £8,668  Not Applicable		Not Applicable  Not Applicable  0.01  Not Applicable		Not Applicable  Not Applicable  0.00  Not Applicable	
SOCIETY: Journey Quality SOCIETY: Accidents SOCIETY: Security SOCIETY: Access to Services		Not Applicable £8,668  Not Applicable  Not Applicable		Not Applicable  Not Applicable  0.01  Not Applicable  Not Applicable		Not Applicable  Not Applicable  0.00  Not Applicable  Not Applicable	
SOCIETY: Journey Quality  SOCIETY: Accidents  SOCIETY: Security  SOCIETY: Access to Services  SOCIETY: Affordability		Not Applicable £8,668  Not Applicable  Not Applicable  Not Applicable		Not Applicable Not Applicable 0.01 Not Applicable Not Applicable Not Applicable		Not Applicable  Not Applicable  0.00  Not Applicable  Not Applicable  Not Applicable	
SOCIETY: Journey Quality  SOCIETY: Accidents  SOCIETY: Security  SOCIETY: Access to Services  SOCIETY: Affordability  SOCIETY: Severance		Not Applicable £8,668  Not Applicable Not Applicable Not Applicable Not Applicable		Not Applicable  Not Applicable  0.01  Not Applicable  Not Applicable  Not Applicable  Not Applicable	Sub-Total:	Not Applicable  Not Applicable  0.00  Not Applicable  Not Applicable  Not Applicable  Not Applicable	
SOCIETY: Journey Quality  SOCIETY: Accidents  SOCIETY: Security  SOCIETY: Access to Services  SOCIETY: Affordability  SOCIETY: Severance		Not Applicable £8,668  Not Applicable Not Applicable Not Applicable Not Applicable		Not Applicable  Not Applicable  0.01  Not Applicable  Not Applicable  Not Applicable  Not Applicable	Sub-Total:	Not Applicable  Not Applicable  0.00  Not Applicable  Not Applicable  Not Applicable  Not Applicable  Not Applicable  Not Applicable	

### RESULTS SUMMARY FOR NON-WEBTAG SCHEME IMPACTS:

	IMPACT	Assessment Score	BCR		VM Points	
NON-WEBTAG	Roadworker Safety	Not Applicable	Not Applicable		Not Applicable	
NON-WEBTAG	Disabled Users	Not Applicable	Not Applicable		Not Applicable	
				Sub-Total:	Not Applicable	

### RESULTS SUMMARY FOR ALL SCHEME IMPACTS:

		Total PVB	Total BCR	Total VM Points	
စ	WebTAG Impacts: Monetised	£8,668	0.01	0.0	
PAC	WebTAG Impacts: Unmonetised	Not Applicable	Not Applicable	Not Applicable	
∃	Non-WebTAG Impacts	Not Applicable	Not Applicable	Not Applicable	
AL AL	TOTAL FOR SCHEME	£8,668	0.01	0.0	

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### A1 A1 M2F Link B Commitment of Works Expenditure Standard SAR

SOCIETY: Accidents

**SOCIETY: Accidents** 

Scheme Title: A1 Morpeth to Felton		
Scheme Stage: Commitment of Works Expenditure	Date:	02/06/2017

For advice and guidance on completing this worksheet, please refer to WebTag Unit A4.1 -WebTAG: TAG unit A4-1 social impact appraisal, November 2014 - Publications - GOV.UK **Complete white cells only** 

Help **User Notes** 

**PART A** 

Predicted number of personal injury accidents saved in opening year:	0.004
(If the scheme results in a predicted increase in Accident rates, enter as a NEGATIVE value)	0.004

Time of Day of Accident Savings: Night Time only (N.B. Choose "Night Time only" for schemes affecting accidents specifically at night.)

accidents	0.004	saved in Opening Year: (a)	Number of Personal Injury Accidents (PIAs) saved in Opening Year: (					
£ / Year	154,290	Average cost of an accident in (b) Opening Year:	Time of Day Night Time only	Road Type Rural Dual AP	Opening Year 2022			
£ / Year	617	ening Year: (a) × (b) = (c)	ccident benefits in Op	Annual a				
	21.222	Accident benefits capitalisation factor (d) (from Table C.5):	Traffic Growth Over Assessment Period 30%	Assessment Period (years)	Road Type Rural Dual AP			
£ in 2010 pric	13,097	·		benefits over Assessment Pe				
	0.662	2010 (from Table C.3a): (f)	from Opening Year to 2	Discount factor				
£ in 2010 prid	8,668	ted to 2010: (e) × (f) = (g)	sment Period discoun	Accident benefits over Asses				
	25.877	Accident numbers capitalisation factor (h) (from Table C.5):	Traffic Growth over Assessment Period 30%	Assessment Period (years)	Road Type Rural Dual AP			
		,	-	-				

### **PART B**

N.B. If COBA has been used, data entered into the top row of the table below C Yes 

No Has COBA analysis been undertaken? should be copied from the COBA output.

	Number of Casualties Saved			Number of Personal Injury	£ Benefits in 2010 prices,
	Fatal	Serious	Slight	Accidents (PIAs) Saved	discounted to 2010
Accident impact over Assessment Period (j):				0	£8,668
Accident impact during construction (k):					
Accident impact during future maintenance (I):					
Total accident impact [(m) = (j) + (k) + (l)]:				0	£8,668

If either row (k) or row (l) or both are omitted, an appropriate Key Points entry must be made.

Assessment Score:	PVB = £0.009M
Metrics:	0 accidents saved.
Key Points: (Explanation for results) Do not leave blank.	N/A



### A1 A1 M2F Link C Commitment of Works Expenditure Standard SAR TITLE WORKSHEET

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0.45	A4 A4 MOELL L O O		1 5 19 00 1 1005			1
SAR name:	A1 A1 M2F Link C Commitm	nent of Wo	rks Expenditure Standard SAR			
HA Area / DBFO:	Area 14	•	SAR file name:	14A1A1M2FLinkC	211217.xlsm	
Trunk Road number:	Δ1		Short name:	A1 M2F Link C		
Trunk Road number.	Λ1		Short name.		nclude Road Number in	Short Name
Full title:	A1 Morpeth to Felton					
Location OSGR:	Start Point or Mid-Po Easting (6 digits) Northing			End P Easting (6 digits)	Northing (6 digits)	
Does the scheme in	volve Compulsory Purchase	or Highway	vs Act Orders? No ▼			
Scheme stage:	Commitment of Works Expenditur	e 🔻	Scheme category:	Safety	•	
Scheme cost range:	>£100K		SAR type:	Standard	d SAR	
Tota	I cost to HA for budgetary pu	rposes (curi	rent prices including non-recoverable VAT):	£806,	983	
Agent's Scheme Ref.:			Current PIN: TBC		Previous PINs:	
	/ Amended by		Checked by		Appro	
	Baguley	Name:	Chris Atkins	Name:	Stephen	
	ley@wsp.com	Email:	chris.atkins@wsp.com	Email:	stephen.hallid	
Date: 02/0	06/2017	Date:	02/06/2017	Date:	02/06	/2017
		Name: Email:	HA Project Manager			



### A1 A1 M2F Link C Commitment of Works Expenditure Standard SAR

Page: 2

### SCHEME DETAILS WORKSHEET

N.B. Excessively long comments on this	and / or other pages should instead be entered in a separate document file or files and referenced in the Attachments page.
Problem to be addressed: New A1 sch	eme (dualing) requires consideration for the potential requirement for road lighting in accordance with TA49/07.
(Brief reasons for carrying out	
the scheme)	
,	
Proposed solution: Complete a	Scheme Appraisal Report (SAR) to determine the Benefit Cost Ratio (BCR) of road ligh ing for the applicable link / links of the A1
(Brief description of proposed	
scheme)	
55.1.5.11.5)	
Other solutions considered: None.	
(State 'None' if there are	
none - do not leave blank)	
none de not leave blanky	
Expected outcomes: If BCR is le	s than 1.0 then the HE may consider not providing road lighting for the applicable link / links of the A1
(Results considered probable	
given analyses conducted)	
given analyses conducted)	
	lonth Year
700	
Expected Date of Opening: Decembe	<b>▼</b> 2022 <b>▼</b>
	ion for Assessment Period:
30 ▼ years Road lightin	g assessed over 30 year period as per TA49/07.
M 1-6	
More Information	
History and Programme Dates	Data Entry Completed SAR Completed Additional Comments
Conception	
Start of Public Consultation	
Preferred Solution Decision	
Draft Order Publication	
Intermediate	
Commitment of Works Expenditure	
Commencement of Operation	
Commencement of Operation	•

N.B. 'Data Entry Completed' indicates the date in which the person filling in the SAR reached the point where no more user data was required. 'SAR Completed' indicates the date when others filled in all additional approvals information.



### A1 A1 M2F Link C Commitment of Works Expenditure Standard SAR TRAFFIC & ACCIDENTS WORKSHEET

Page: 3

ils of the Key	/ Trunk Road in	the Scheme	
Road type:	All-Purpose		AADT (vehicles): 30,000 Two-way
Road width:	D2	<b>T</b>	Percentage HGVs: 10%
Speed limit:	50mph or more	•	Year of AADT: 2015 ▼
			and Final Assessment Year mbined and for those time periods (e.g. weekday peak period,     30% ▼
ic Growth sho our or daily) ir	ould relate to all von which monetise	rehicle types co ed benefits are r	
ic Growth sho our or daily) ir fits, growth sh	ould relate to all von which monetise	rehicle types co ed benefits are r r-weighted avera ecasts: SAR6.5 U	mbined and for those time periods (e.g. weekday peak period, eceived. Where more than one link receives monetised age growth on those links.
ic Growth sho our or daily) ir fits, growth sh	ould relate to all von which monetise nould be the flow	rehicle types co ed benefits are re- reweighted averages	mbined and for those time periods (e.g. weekday peak period, eceived. Where more than one link receives monetised age growth on those links.  Ser Notes and DFT paper 'Road Traffic Forecasts 2015' w.gov.uk/government/uploads/system/uploads/attachment_data/file/411471/road-traffic-

### **Reported Injury Accident Information**

Geographic area covered:

N/A for new road, predicited accident savings applied based on similar schemes/scenarios

	12-month		Accid	dents			Casu	alties	
	period from	Fatal	Serious	Slight	TOTAL	Fatal	Serious	Slight	TOTAL
	01/01/2012	0	0	0	0	0	0	0	0
	01/01/2013	0	0	0	0	0	0	0	0
	01/01/2014	0	0	0	0	0	0	0	0
	01/01/2015	0	0	0	0	0	0	0	0
	01/01/2016	0	0	0	0	0	0	0	0
TOTAL:	5	0	0	0	0	0	0	0	0
AVERAGE:	per annum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
			Seve	rity Index:	0.0%				

Additional information (eg overall	
accident rate; national comparison):	



### GHWAYS ENCY

### COSTS MASTER INPUT WORKSHEET

N.B. The term "Estimate Price Year / Quarter" in each of Parts A - D relates to the year and quarter to which the prices entered relate - i.e. the price base - rather than the current year and quarter.

A. Works Costs	Estimate Year / Qtr	RPI factor to 2010:	0.7551
	Estimate Price Year / Quarter: 2020 Q1 Estimate Year / Qtr p	_	1.5826
1 Series 100 – Preliminaries (temp.)	Estimate Year / Qtr accommodation, traffic management)	cost growth factor:	1.0562
2. Series 200 – Site Clearance	accommodation, traine management)		
3. Series 300 – Fencing			
<ul><li>4. Series 400 – Safety Fences, Barrio</li><li>5. Series 500 – Drainage</li></ul>	ers and Guardrails		
6. Series 600 – Earthworks			
7. Series 600 – Earthworks (landsca	ping)		
8. Series 700 – Pavements			
<ol> <li>Series 1100 – Kerbs and Footway</li> <li>Series 1200 – Traffic Signs (included)</li> </ol>			
11. Series 1300 to 1500 – Lighting, E		£734,37	70.00
12. Series 1600 to 2500 – Structures			
13. Series 2700 – Statutory Undertal 14. Series 2700 – Noise Insulation W			
15. Series 2700 – Accommodation W			
16. Series 3000 – Landscape and Ed			
17. Technology Renewal Costs 15 Your Control of the	ears After Construction: £ Disc'd to Constr'n Year:		
18. Other Costs - Specify:	ewals Costs (sum of items A1 - A18) discounted to Construction Year	£734,370.00	(a)
Total Works and Technology Kene	ewais Costs (sum of items AT - ATO) discounted to Construction Teal	2734,370.00	(a)
A4 Drangestian and Supervision C	New to		
A1. Preparation and Supervision C	Estimate Price Year / Quarter: 2020 Q1		
1. Preparation	Default Costs OR User Specified Costs	£15,08	3.80
2. Supervision	Default Costs  OR  User Specified Costs  OR  Default Costs	£37,70	
Total Preparation and Supervision	·	£52,793.29	(a1)
B. Land Costs			
	Estimate Price Year / Quarter: Choose	RPI:	0.0
4 IIA Valuaria astimata at apat at lar			
<ol> <li>HA Valuer's estimate of cost of lar</li> <li>Estimate of Part 1 compensation</li> </ol>	id acquisition		
3. HA Valuer's estimate of rehousing			
4. HA Valuer's estimate of resaleable		CO 00	(b)
Total Land Costs (sum of items B	I - D4)	£0.00	(b)
<u> </u>			
C. Other Costs	Estimate Price Year / Quarter: Choose	RPI:	0.0
			0.0
1. Public Transport Subsidies			
Local Government Investment Cor     Other – Specify:	ntributions (enter as -ve sum for contirbutions towards costs included in Part A)		
Total Other Costs (sum of items C	1 - C3)	£0.00	(c)
D. Contributions			
	Estimate Price Year / Quarter: Choose	RPI:	0.0
SU Betterment; Deferment or rene	wal. etc		
2. Developer Contributions	,		
3. Other – Specify  Total Contributions (sum of items	D1 - D3)	£0.00	(d)
	D1 - D3)	20.00	(u)
E. Scheme Costs for Budgeting Po	Irnococ		
E. Scheme Costs for Budgeting Fi	ui poses		
	Does the scheme have a Risk Assessment ? Without Risk Assessment		
1. Risk Allowance		•	
	Mean Risk Allowance in Works Costs price year prices (£):		
2. Non-Recoverable VAT	Percentage of cost for which VAT is not recoverable:  Mo	re Information	
3. Construction Year / Quarter	Construction Year / Quarter, or Construction Year / Qtr pmid-point of construction period if 2021 Q1 Construction Year / Qtr		1.6253 1.0562
o. Construction real / Qualter	period is longer than one quarter:  Construction Year / Qtr		0.7353
4. Scheme Costs	TOTAL Scheme Implementation Costs in Construction Year Prices	£806,983	
	(including Risk, Non-Recoverable VAT and Optimism Bias)	· ·	
F. Present Value of Costs (PVC)			
Change in Maintenance Costs	Additional annual average maintenance costs in Works 87,598 More Information		
1. Change in Maintenance Costs	maintenance costs in Works 87,598 More Information  Costs price-year prices (£):		
2. Scheme PVC	TOTAL PVC in 2010 Market Prices, Discounted to 2010:	£1,880,072	
2. Conomo 1 VO	101AL 1 10 in 2010 market 1 11063, Discounted to 2010.	£1,000,01Z	



### A1 A1 M2F Link C Commitment of Works Expenditure Standard SAR PUBLIC ACCOUNTS WORKSHEET

Page: 8

Local Government Funding	TOTAL £		NB:
Investment costs:	0	(a)	<ol> <li>Costs appear as positive numbers, while increases in revenues and 'Developer and Other Contributions' appear as negative numbers.</li> </ol>
Central Government Funding: Transport			2. Costs over whole Assessment Period in 2010
Operating costs:	1,396,428	(b)	market prices discounted to 2010.
Investment costs:	483,644	(c)	3. Unless the scheme affects grants and subsidies or
Developer and other contributions:	0	(d)	government revenues other than fuel tax, this table is
Net Impact:	1,880,072	(e) = (b) + (c) + (d)	sufficient. In all other cases please refer to the ACO.
Central Government Funding: Non-Transport Indirect Tax Revenues:  TOTALS  Broad Transport Budget:	0 <b>1,880,072</b>		sheet - Standard SARs only) sent Value of Costs (PVC)
Wider Public Finances:	0	(h) = (f) = Indirect T	ax Revenues
Assessment Score (PVC):	1.880M		
Key Points: N/A  (Any special considerations or simplifications)  Do not leave blank			



### A1 A1 M2F Link C Commitment of Works Expenditure Standard SAR

### Page: 12

### NON-WEBTAG VM WORKSHEET

### **PART A: ROADWORKER SAFETY**

NB This impact is relevant to improvement schemes which are expected to reduce or increase accidents involving roadworkers or the potential for such accidents.

	ROAD	WORKER RISK EXPOS	URE			
Risk Level	Without Scheme (Person-Hrs)	With Scheme (Person-Hrs)	Change (Person-Hrs)	Risk Weighting	Assessment	
High Risk			0	3	0	
Medium Risk			0	2	0	
Low Risk			0	1	0	
				Assessment Score:	Not Applicable	

Risk exposure values should be entered for the whole assessment period in relation to maintenance activities that will be change as a result of the scheme ie changes in how highway elements are to be maintained, or changes in the elements to be maintained. The risk exposure values entered for each risk category will represent the sum of the hours spent on all highway elements where the scheme affects the maintenance of more than one element.

Explanation for changes to risk exposure: (Do not leave blank if Assessment Score is non-zero)	
VM Points:	N/A

#### PART B: EQUALITY ACT COMPLIANCE

NB This impact is relevant to improvement schemes which improve or reduce compliance with the requirements of the Equality Act 2010. It does not apply to new highway features which have been designed to be EA compliant eg a new pedestrian crossing.

Assessment Score: Choose	•	Assessment Score Definitions
Justification for Assessment Score:  (Do not leave blank if Assessment Score is non-Neutral)		
VM Points: N/A		



### A1 A1 M2F Link C Commitment of Works Expenditure Standard SAR

### WEBTAG APPRAISABLE VM WORKSHEET

### **COSTS SUMMARY FOR SCHEME:**

Scheme Costs (PVC): £ 1,880,072

### **RESULTS SUMMARY FOR WEBTAG SCHEME IMPACTS:**

IMPACT		Assessment Score (PVB or Qualitative)		BCR (PVB ÷ PVC)		VM Points	
ECONOMY: TEE (Business Users)		Not Applicable		Not Applicable		Not Applicable	
FOONOMY STATE OF THE STATE OF T	DDV	Neutral		Not Applicable		0.00	1
ECONOMY: Reliability (Business Users) —	IRV	Slight Beneficial		Not Applicable		0.00	
ECONOMY: Regeneration		Not Applicable		Not Applicable		Not Applicable	
ECONOMY: Wider Impacts		Not Applicable		Not Applicable		Not Applicable	
				•	Sub-Total:	0.00	
ENVIRONMENT: Noise		Not Applicable		Not Applicable		Not Applicable	
ENVIRONMENT: Air Quality		Not Applicable		Not Applicable		Not Applicable	
ENVIRONMENT: Greenhouse Gases		Not Applicable		Not Applicable		Not Applicable	
ENVIRONMENT: Landscape		Not Applicable	0.00	Not Applicable		Not Applicable	5.00
ENVIRONMENT: Townscape		Not Applicable	0.00	Not Applicable		Not Applicable	5.00
ENVIRONMENT: Heritage of Historic Resources		Not Applicable	0.00	Not Applicable		Not Applicable	5.00
ENVIRONMENT: Biodiversity		Not Applicable	0.00	Not Applicable		Not Applicable	5.00
ENVIRONMENT: Water Environment		Not Applicable	0.00	Not Applicable		Not Applicable	5.00
			1.00		Sub-Total:	Not Applicable	0
			0.00				_
SOCIETY: TEE (Commuting and Other Use	ers)	Not Applicable		Not Applicable		Not Applicable	
SOCIETY: Reliability (Commuting and Other Users)	DDV	Neutral		Not Applicable		0.00	
Other Users)	IRV	Slight Beneficial		Not Applicable		0.00	
SOCIETY: Physical Activity		Not Applicable		Not Applicable		Not Applicable	
SOCIETY: Journey Quality		Not Applicable		Not Applicable		Not Applicable	
SOCIETY: Accidents		£138,682		0.07		0.01	
SOCIETY: Security		Not Applicable		Not Applicable		Not Applicable	
SOCIETY: Access to Services		Not Applicable		Not Applicable		Not Applicable	
SOCIETY: Affordability		Not Applicable		Not Applicable		Not Applicable	
SOCIETY: Severance		Not Applicable		Not Applicable		Not Applicable	
SOCIETY: Option Values		Not Applicable		Not Applicable		Not Applicable	
					Sub-Total:	0.01	
		1				Not Applicable	
PUBLIC ACCOUNTS: Wider Public Finances		Not Applicable		Not Applicable		Not Applicable	

### RESULTS SUMMARY FOR NON-WEBTAG SCHEME IMPACTS:

	IMPACT	Assessment Score	BCR		VM Points	
NON-WEBTAG	Roadworker Safety	Not Applicable	Not Applicable		Not Applicable	
NON-WEBTAG	Disabled Users	Not Applicable	Not Applicable		Not Applicable	
				Sub-Total:	Not Applicable	

### RESULTS SUMMARY FOR ALL SCHEME IMPACTS:

		Total PVB	Total BCR	Total VM Points	
စ	WebTAG Impacts: Monetised	£138,682	0.07	0.0	
PAG	WebTAG Impacts: Unmonetised	Not Applicable	Not Applicable	Not Applicable	
Ä.	Non-WebTAG Impacts	Not Applicable	Not Applicable	Not Applicable	
¥	TOTAL FOR SCHEME	£138,682	0.07	0.0	



### A1 A1 M2F Link C Commitment of Works Expenditure Standard SAR SOCIETY: Accidents

Page: 16

**SOCIETY: Accidents** 

Scheme Title: A1 Morpeth to Felton		
	_	
Scheme Stage: Commitment of Works Expenditure	Date:	02/06/2017

For advice and guidance on completing this worksheet, please refer to WebTag Unit A4.1 - WebTAG: TAG unit A4-1 social impact appraisal, November 2014 - Publications - GOV.UK Complete white cells only

Help
User Notes

PART A

Predicted number of personal injury accidents saved in opening year:	0.064
(If the scheme results in a predicted increase in Accident rates, enter as a NEGATIVE value)	0.004

Time of Day of Accident Savings: Night Time only (N.B. Choose "Night Time only" for schemes affecting accidents specifically at night.)

accidents	0.064	Number of Personal Injury Accidents (PIAs) saved in Opening Year: (a) 0.064						
£ / Year	154,290	Average cost of an accident in (b) Opening Year:	Time of Day Night Time only	Road Type Rural Dual AP	Opening Year 2022			
£ / Year	9,875	ening Year: (a) × (b) = (c)	ccident benefits in Op	Annual a				
	21.222	Accident benefits capitalisation factor (d)	Traffic Growth Over Assessment Period	Assessment Period (years)	Road Type Rural Dual AP			
£ in 2010 pric	209,557		Rural Dual AP 30 30% (from Table C.5):  Accident benefits over Assessment Period discounted to Opening Year: (c) × (d) = (e)					
	0.662	2010 (from Table C.3a): (f)	from Opening Year to 2	Discount factor				
£ in 2010 prid	138,682	ted to 2010: (e) × (f) = (g)	sment Period discoun	Accident benefits over Asses				
	25.877	Accident numbers capitalisation factor (h) (from Table C.5):	Traffic Growth over Assessment Period 30%	Assessment Period (years)	Road Type Rural Dual AP			
		\ 3 a.a.a a.a.j.						

### PART B

	Nu	umber of Casualties Sav	ed	Number of Personal Injury	£ Benefits in 2010 prices,
	Fatal	Serious	Slight	Accidents (PIAs) Saved	discounted to 2010
Accident impact over Assessment Period (j):				2	£138,682
Accident impact during construction (k):					
Accident impact during future maintenance (I):					
Total accident impact [(m) = (j) + (k) + (l)]:				2	£138,682

If either row (k) or row (l) or both are omitted, an appropriate Key Points entry must be made.

Assessment Score:	PVB = £0.139M
Metrics:	2 accidents saved.
Key Points: (Explanation for results) Do not leave blank.	N/A



### A1 A1 M2F Link D Commitment of Works Expenditure Standard SAR TITLE WORKSHEET

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ac	IC.	

0.45	A4 A4 MOELL L B O					1
SAR name:	A1 A1 M2F Link D Commite	nent of Wo	rks Expenditure Standard SAR			
HA Area / DBFO:	Area 14		SAR file name:	14A1A1M2FLinkD	211217.xlsm	
Trunk Road number:	Δ1		Short name:	A1 M2F Link D		
Trank Road Hamber.	N.B. Do not include Road Number in Short Name					
Full title:	A1 Morpeth to Felton					
Location OSGR:	Start Point or Mid-Po			End P Easting (6 digits)	oint Northing (6 digits)	
Does the scheme in	volve Compulsory Purchase	or Highway	vs Act Orders? No ▼			
Scheme stage:	Commitment of Works Expenditur	e l ▼	Scheme category:	Safety	•	
Scheme cost range:	>£100K		SAR type:	Standard	d SAR	
Tota	cost to HA for budgetary pu	rposes (curi	rent prices including non-recoverable VAT):	£272,	079	
Agent's Scheme Ref.:			Current PIN: TBC		Previous PINs:	
	/ Amended by		Checked by		Appro	
	Baguley	Name:	Chris Atkins	Name:	Stephen	
	ley@wsp.com	Email:	chris.atkins@wsp.com	Email:	stephen.hallid	
Date: 02/0	6/2017	Date:	02/06/2017	Date:	02/06	/2017
		Name: Email:	HA Project Manager			



### A1 A1 M2F Link D Commitment of Works Expenditure Standard SAR

Page: 2

### SCHEME DETAILS WORKSHEET

	s and / or other pages should instead be entered in a separate document file or files and referenced in the Attachments page.
Problem to be addressed: New A1 so	heme (dualing) requires consideration for the potential requirement for road lighting in accordance with TA49/07.
(Brief reasons for carrying out	
the scheme)	
,	
Proposed solution: Complete	a Scheme Appraisal Report (SAR) to determine the Benefit Cost Ratio (BCR) of road ligh ing for the applicable link / links of the A1
(Brief description of proposed	
scheme)	
5555,	
Other solutions considered: None.	
(State 'None' if there are	
none - do not leave blank)	
Expected outcomes: If BCR is le	ess than 1.0 then the HE may consider not providing road lighting for the applicable link / links of the A1
(Results considered probable	
given analyses conducted)	
given analyses sendusted)	
	Month Year
Expected Date of Opening: December	
Expected Date of Opening. December	1 2022
Assessment Period Justifica	ation for Assessment Period:
Don't Bold	ng assessed over 30 year period as per TA49/07.
30 ▼ years Road lighti	ing assessed over 50 year period as per 17440/01.
More Information	
more information	
History and Programme Dates	Data Entry Completed SAR Completed Additional Comments
Conceptio	n:
Start of Public Consultatio	n:
Preferred Solution Decisio	n:
Draft Order Publicatio	n:
Intermediat	e:
Commitment of Works Expenditur	e: 21/11/2017
Commencement of Operatio	n:

N.B. 'Data Entry Completed' indicates the date in which the person filling in the SAR reached the point where no more user data was required. 'SAR Completed' indicates the date when others filled in all additional approvals information.



### A1 A1 M2F Link D Commitment of Works Expenditure Standard SAR TRAFFIC & ACCIDENTS WORKSHEET

Page: 3

Road type:	All-Purpose		AADT (vehicles): 30,000 Two-way
Road width:	D2	•	Percentage HGVs: 10%
Speed limit:	50mph or more	•	Year of AADT: 2015 ▼
			d Final Assessment Year
ffic Growth sho hour or daily) ii	ould relate to all v	rehicle types comb ed benefits are rec	d Final Assessment Year bined and for those time periods (e.g. weekday peak period, period, weekday peak period, period. Where more than one link receives monetised period prowth on those links.

### **Reported Injury Accident Information**

Geographic area covered:

N/A for new road, predicited accident savings applied based on similar schemes/scenarios

	12-month	Accidents						Casu	alties	
	period from	Fatal	Serious	Slight	TOTAL	_'	Fatal	Serious	Slight	TOTAL
	01/01/2012	0	0	0	0		0	0	0	0
	01/01/2013	0	0	0	0		0	0	0	0
	01/01/2014	0	0	0	0		0	0	0	0
	01/01/2015	0	0	0	0		0	0	0	0
	01/01/2016	0	0	0	0		0	0	0	0
TOTAL:	5	0	0	0	0		0	0	0	0
AVERAGE:	per annum	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0

Additional information (eg overall	
accident rate; national comparison):	

Severity Index: 0.0%



### A1 A1 M2F Link D Commitment of Works Expenditure Standard SAR

### COSTS MASTER INPUT WORKSHEET

N.B. The term "Estimate Price Year / Quarter" in each of Parts A - D relates to the year and quarter to which the prices entered relate - i.e. the price base - rather than the current year and quarter.

A. Works Costs	Estimate Year / Qtr	RPI factor to 2010:	0.7551
	Estimate Price Year / Quarter: 2020 Q1 Estimate Year / Qtr p		1.5826
1. Series 100 – Preliminaries (temp. a	Estimate Year / Qtr	cost growth factor:	1.0562
2. Series 200 – Site Clearance	accommodation, traine management,		
3. Series 300 – Fencing	and Cuandralla		
<ul><li>4. Series 400 – Safety Fences, Barrie</li><li>5. Series 500 – Drainage</li></ul>	ers and Guardraiis		
6. Series 600 – Earthworks			
7. Series 600 – Earthworks (landscap	ping)		
<ul><li>8. Series 700 – Pavements</li><li>9. Series 1100 – Kerbs and Footways</li></ul>	S S		
10. Series 1200 – Traffic Signs (inclu			
11. Series 1300 to 1500 – Lighting, E		£232,39	94.00
12. Series 1600 to 2500 – Structures 13. Series 2700 – Statutory Undertak			
14. Series 2700 – Noise Insulation W			
15. Series 2700 – Accommodation W			
16. Series 3000 – Landscape and Ed 17. Technology Renewal Costs 15 Ye			
18. Other Costs - Specify:	2 2.00 4 to 30.104 11 1 241.		
Total Works and Technology Rene	ewals Costs (sum of items A1 - A18) discounted to Construction Year	£232,394.00	(a)
A1. Preparation and Supervision C			
	Estimate Price Year / Quarter: 2020 Q1		
1. Preparation	Default Costs OR User Specified Costs  Default Costs OR User Specified Costs	£9,546	
2. Supervision  Total Preparation and Supervision	Beradit decid	£23,86 £33,413.25	6.61 (a1)
Total i reparation and oupervision	Costs (sum of items A1.1 - A1.2)	233,413.23	(4.1)
B. Land Costs			
D. Lanu CUSIS	Estimate Price Year / Quarter: Choose	RPI:	0.0
		_	
1. HA Valuer's estimate of cost of lan	d acquisition		
<ul><li>2. Estimate of Part 1 compensation</li><li>3. HA Valuer's estimate of rehousing</li></ul>	costs		
4. HA Valuer's estimate of resaleable	land residue (enter as –ve sum)		
Total Land Costs (sum of items B	I - B4)	£0.00	(b)
C. Other Costs	Estimate Price Year / Quarter: Choose	RPI:	0.0
	Estimate Frice Teal / Quarter. Choose	KFI.	0.0
Public Transport Subsidies			
<ol> <li>Local Government Investment Cor</li> <li>Other – Specify:</li> </ol>	ntributions (enter as -ve sum for contirbutions towards costs included in Part A)		
Total Other Costs (sum of items C	1 - C3)	£0.00	(c)
D. Contributions		22.	
	Estimate Price Year / Quarter: Choose	RPI:	0.0
SU Betterment; Deferment or rene	wal, etc		
Developer Contributions     Other – Specify			
Total Contributions (sum of items	D1 - D3)	£0.00	(d)
E. Scheme Costs for Budgeting Pu	urposes		
-			
		-	
1. Risk Allowance	Does the scheme have a Risk Assessment ? Without Risk Assessment	J	
1. NISK Allowance	Mean Risk Allowance in Works Costs price year prices (£):		
2. Non-Recoverable VAT	Percentage of cost for which VAT is not recoverable: % Mo	re Information	
	Construction Year / Quarter, or Construction Year / Qtr p		1.6253
3. Construction Year / Quarter	mid-point of construction period if 2021 Q1 Construction Year / Qtr period is longer than one quarter: Construction Year / Qtr		1.0562 0.7353
	penod is longer than one quarter. Construction fear? Qtr	137 Flactor to 2010.	0.1333
A Scheme Costs	TOTAL Scheme Implementation Costs in Construction Year Prices	£272,079	
4. Scheme Costs	(including Risk, Non-Recoverable VAT and Optimism Bias)	1212,019	
F. Present Value of Costs (PVC)			
	Additional annual average	1	
Change in Maintenance Costs	maintenance costs in Works 27,515 More Information Costs price-year prices (£):	]	
2 Schoma DVC	TOTAL DVC in 2040 Market Prices Discounted to 2040	0004-004	
2. Scheme PVC	TOTAL PVC in 2010 Market Prices, Discounted to 2010:	£601,691	



### A1 A1 M2F Link D Commitment of Works Expenditure Standard SAR PUBLIC ACCOUNTS WORKSHEET

Page: 8

Local Government Funding	TOTAL £		NB:
Investment costs:	0	(a)	<ol> <li>Costs appear as positive numbers, while increases in revenues and 'Developer and Other Contributions' appear as negative numbers.</li> </ol>
Central Government Funding: Transport			2. Costs over whole Assessment Period in 2010
Operating costs:	438,628	(b)	market prices discounted to 2010.
Investment costs:	163,063	(c)	3. Unless the scheme affects grants and subsidies or
Developer and other contributions:	0	(d)	government revenues other than fuel tax, this table is
Net Impact:	601,691	(e) = (b) + (c) + (d)	sufficient. In all other cases please refer to the ACO.
Central Government Funding: Non-Transport Indirect Tax Revenues:  TOTALS  Broad Transport Budget:	0 <b>601,691</b>	_	sheet - Standard SARs only) sent Value of Costs (PVC)
	001,001		Sent value of costs (i vo)
Wider Public Finances:	0	(h) = (f) = Indirect T	ax Revenues
Assessment Score (PVC):  Key Points: N/A  (Any special considerations	0.602M	]	
or simplifications)			
Do not leave blank			



### A1 A1 M2F Link D Commitment of Works Expenditure Standard SAR

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### NON-WEBTAG VM WORKSHEET

### **PART A: ROADWORKER SAFETY**

NB This impact is relevant to improvement schemes which are expected to reduce or increase accidents involving roadworkers or the potential for such accidents.

	ROAD	ROADWORKER RISK EXPOSURE			
Risk Level	Without Scheme (Person-Hrs)	With Scheme (Person-Hrs)	Change (Person-Hrs)	Risk Weighting	Assessment
High Risk			0	3	0
Medium Risk			0	2	0
Low Risk			0	1	0
				Assessment Score:	Not Applicable

Risk exposure values should be entered for the whole assessment period in relation to maintenance activities that will be change as a result of the scheme ie changes in how highway elements are to be maintained, or changes in the elements to be maintained. The risk exposure values entered for each risk category will represent the sum of the hours spent on all highway elements where the scheme affects the maintenance of more than one element.

Explanation for changes to risk exposure: (Do not leave blank if Assessment Score is non-zero)	
VM Points:	N/A

#### PART B: EQUALITY ACT COMPLIANCE

NB This impact is relevant to improvement schemes which improve or reduce compliance with the requirements of the Equality Act 2010. It does not apply to new highway features which have been designed to be EA compliant eg a new pedestrian crossing.

Assessment Score: Choose ▼	Assessment Score Definitions
Justification for Assessment Score: (Do not leave blank if Assessment Score is non-Neutral)	
VM Points: N/A	



### A1 A1 M2F Link D Commitment of Works Expenditure Standard SAR

### WEBTAG APPRAISABLE VM WORKSHEET

### **COSTS SUMMARY FOR SCHEME:**

Scheme Costs (PVC): £ 601,691

### **RESULTS SUMMARY FOR WEBTAG SCHEME IMPACTS:**

IMPACT		Assessment Score (PVB or Qualitative)		BCR (PVB ÷ PVC)		VM Points	
ECONOMY: TEE (Business Users)		Not Applicable		Not Applicable		Not Applicable	
50011011111 - 11111111111111111111111111	DDV	Neutral		Not Applicable		0.00	
ECONOMY: Reliability (Business Users) —	IRV	Slight Beneficial		Not Applicable		0.00	
ECONOMY: Regeneration		Not Applicable		Not Applicable		Not Applicable	
ECONOMY: Wider Impacts		Not Applicable		Not Applicable		Not Applicable	
				•	Sub-Total:	0.00	
ENVIRONMENT: Noise		Not Applicable		Not Applicable		Not Applicable	Τ
ENVIRONMENT: Air Quality		Not Applicable		Not Applicable		Not Applicable	
ENVIRONMENT: Greenhouse Gases		Not Applicable		Not Applicable		Not Applicable	
ENVIRONMENT: Landscape		Not Applicable	0.00	Not Applicable		Not Applicable	5.0
ENVIRONMENT: Townscape		Not Applicable	0.00	Not Applicable		Not Applicable	5.0
ENVIRONMENT: Heritage of Historic Resources		Not Applicable	0.00	Not Applicable		Not Applicable	5.0
ENVIRONMENT: Biodiversity		Not Applicable	0.00	Not Applicable		Not Applicable	5.0
ENVIRONMENT: Water Environment		Not Applicable	0.00	Not Applicable		Not Applicable	5.0
		•	1.00		Sub-Total:	Not Applicable	0
			0.00		_		_
SOCIETY: TEE (Commuting and Other Use	ers)	Not Applicable		Not Applicable		Not Applicable	
SOCIETY: Reliability (Commuting and —	DDV	Neutral		Not Applicable		0.00	
SOCIETY. Other Users)	IRV	Slight Beneficial		Not Applicable		0.00	
SOCIETY: Physical Activity		Not Applicable		Not Applicable		Not Applicable	
SOCIETY: Journey Quality		Not Applicable		Not Applicable		Not Applicable	
SOCIETY: Accidents		£34,670		0.06		0.01	
SOCIETY: Security		Not Applicable		Not Applicable		Not Applicable	
SOCIETY: Access to Services		Not Applicable		Not Applicable		Not Applicable	
SOCIETY: Affordability		Not Applicable		Not Applicable		Not Applicable	
,					1		
SOCIETY: Severance		Not Applicable		Not Applicable		Not Applicable	
		Not Applicable  Not Applicable		Not Applicable  Not Applicable		Not Applicable  Not Applicable	
SOCIETY: Severance					Sub-Total:		
SOCIETY: Severance					Sub-Total:	Not Applicable	

### RESULTS SUMMARY FOR NON-WEBTAG SCHEME IMPACTS:

	IMPACT	Assessment Score	BCR		VM Points	
NON-WEBTAG	Roadworker Safety	Not Applicable	Not Applicable		Not Applicable	
NON-WEBTAG	Disabled Users	Not Applicable	Not Applicable		Not Applicable	
				Sub-Total:	Not Applicable	

### RESULTS SUMMARY FOR ALL SCHEME IMPACTS:

		Total PVB	Total BCR	Total VM Points
Ϋ́	WebTAG Impacts: Monetised	£34,670	0.06	0.0
	WebTAG Impacts: Unmonetised	Not Applicable	Not Applicable	Not Applicable
E	Non-WebTAG Impacts	Not Applicable	Not Applicable	Not Applicable
AL AL	TOTAL FOR SCHEME	£34,670	0.06	0.0



### A1 A1 M2F Link D Commitment of Works Expenditure Standard SAR SOCIETY: Accidents

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**SOCIETY: Accidents** 

Scheme Title: A1 Morpeth to Felton		
Scheme Stage: Commitment of Works Expenditure	Date:	02/06/2017

For advice and guidance on completing this worksheet, please refer to WebTag Unit A4.1 - WebTAG: TAG unit A4-1 social impact appraisal, November 2014 - Publications - GOV.UK Complete white cells only

Help
User Notes

PART A

Predicted number of personal injury accidents saved in opening year:	0.016
(If the scheme results in a predicted increase in Accident rates, enter as a NEGATIVE value)	0.010

Time of Day of Accident Savings: Night Time only (N.B. Choose "Night Time only" for schemes affecting accidents specifically at night.)

accidents	0.016	saved in Opening Year: (a)	Number of Personal Injury Accidents (PIAs) saved in Opening Year: (a)				
£ / Year	154,290	Average cost of an accident in (b) Opening Year:	Time of Day Night Time only	Road Type Rural Dual AP	Opening Year 2022		
£ / Year	2,469	ening Year: (a) × (b) = (c)	ccident benefits in Op	Annual a			
	21.222	Accident benefits capitalisation factor (d) (from Table C.5):	Traffic Growth Over Assessment Period 30%	Assessment Period (years)	Road Type Rural Dual AP		
£ in 2010 pric	52,389	·	<del>.</del>	benefits over Assessment Pe			
	0.662	2010 (from Table C.3a): (f)	from Opening Year to 2	Discount factor			
£ in 2010 prid	34,670	ted to 2010: (e) × (f) = (g)	sment Period discoun	Accident benefits over Asses			
	25.877	Accident numbers capitalisation factor (h) (from Table C.5):	Traffic Growth over Assessment Period 30%	Assessment Period (years)	Road Type Rural Dual AP		
		,		•			

### PART B

	N	Number of Personal Injury	£ Benefits in 2010 prices,		
	Fatal	Serious	Slight	Accidents (PIAs) Saved	discounted to 2010
Accident impact over Assessment Period (j):				0	£34,670
Accident impact during construction (k):					
Accident impact during future maintenance (I):					
Total accident impact [(m) = (j) + (k) + (l)]:				0	£34,670

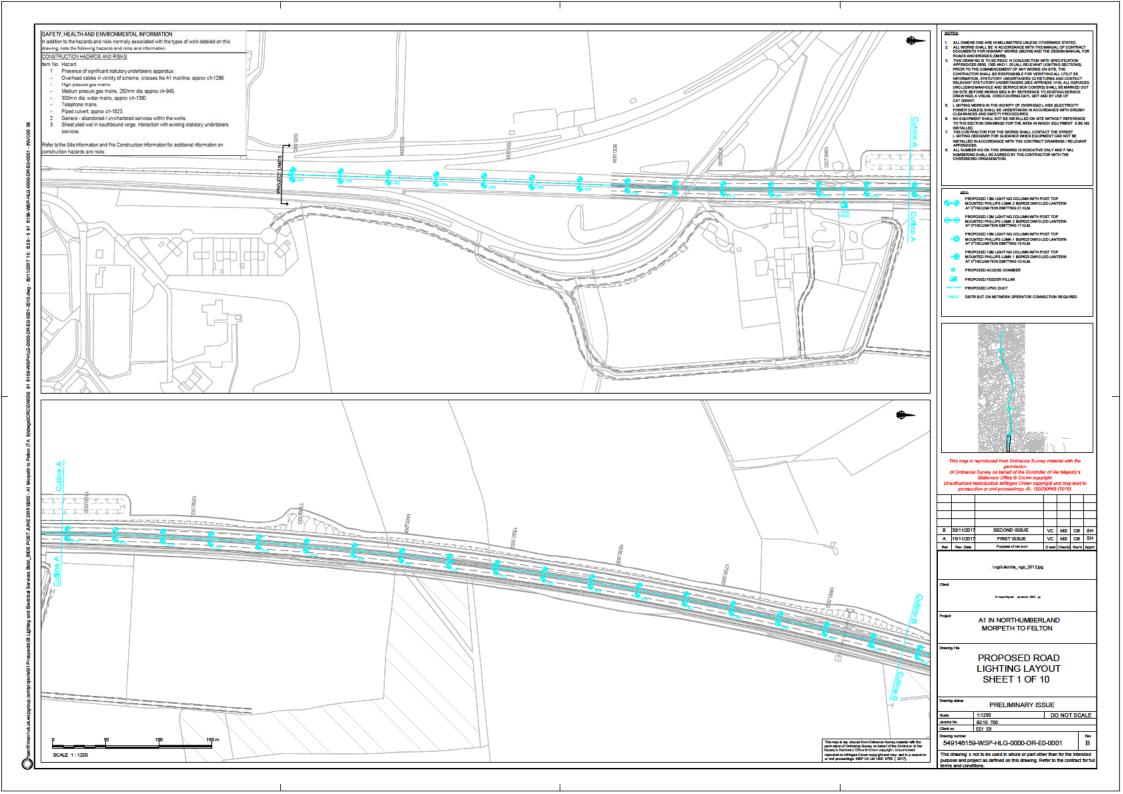
If either row (k) or row (l) or both are omitted, an appropriate Key Points entry must be made.

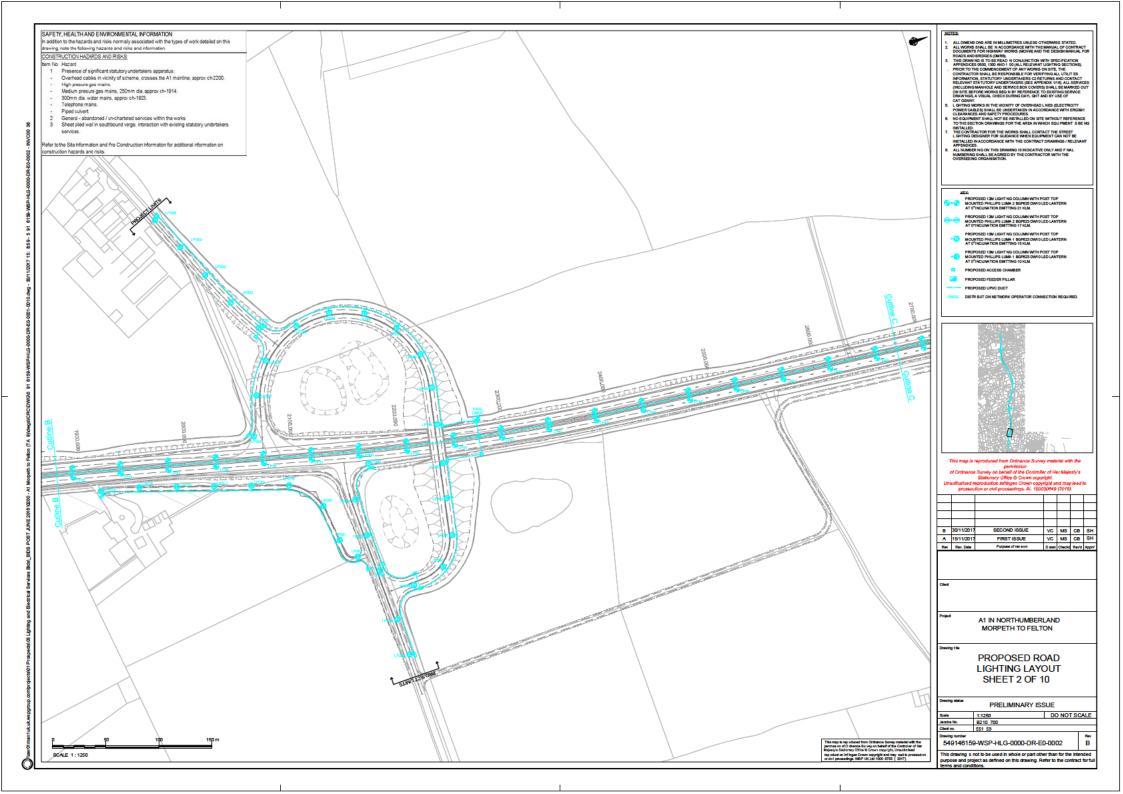
Assessment Score:	PVB = £0.035M
Metrics:	0 accidents saved.
Key Points: (Explanation for results) Do not leave blank.	N/A

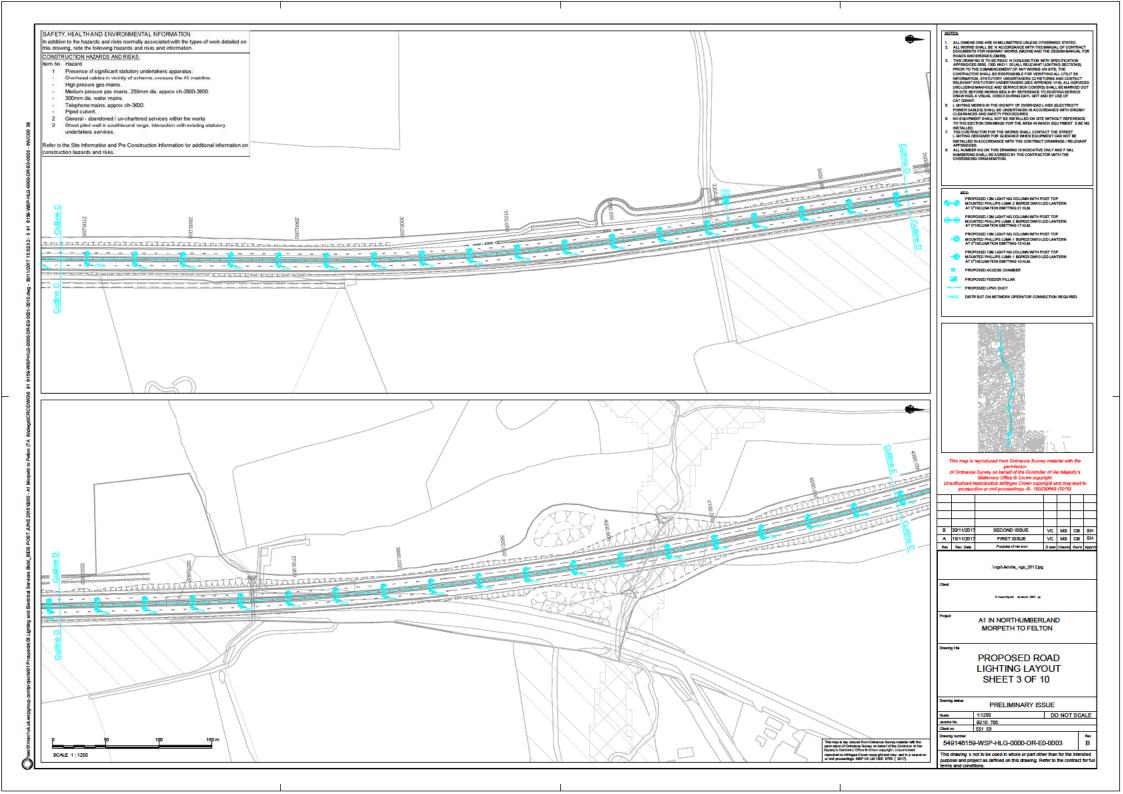
# Appendix D

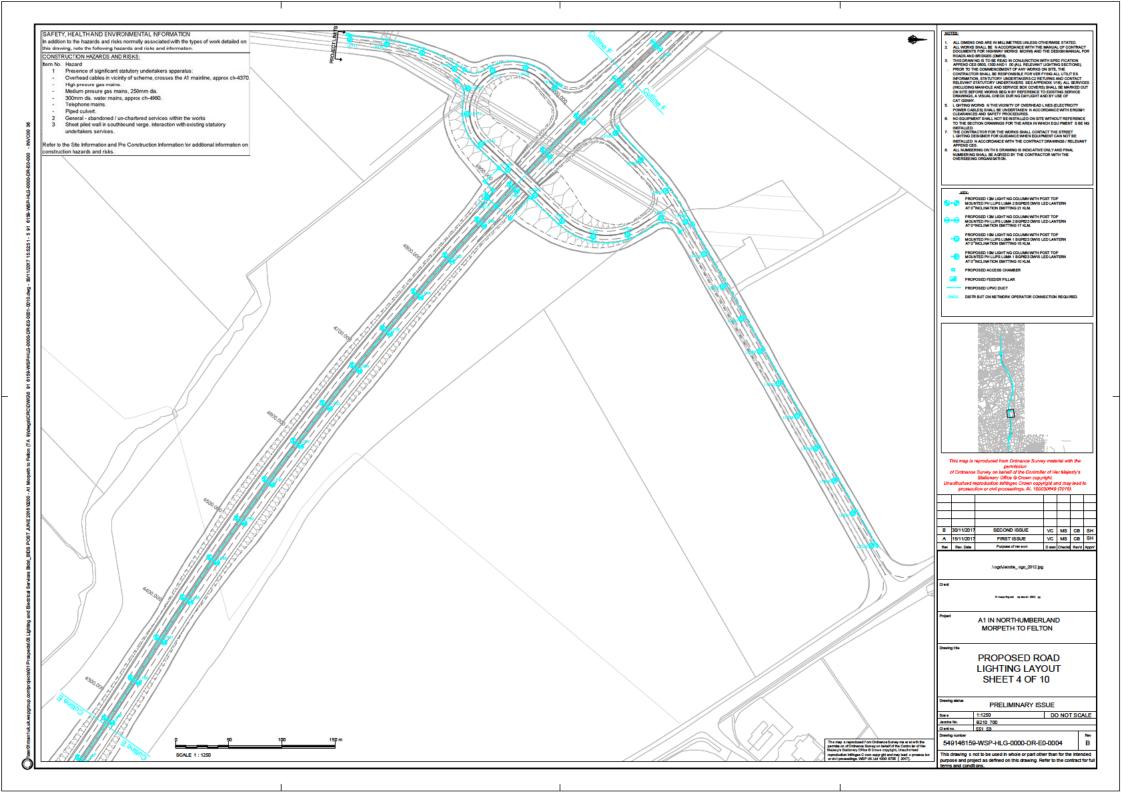
**SCHEME DRAWINGS** 

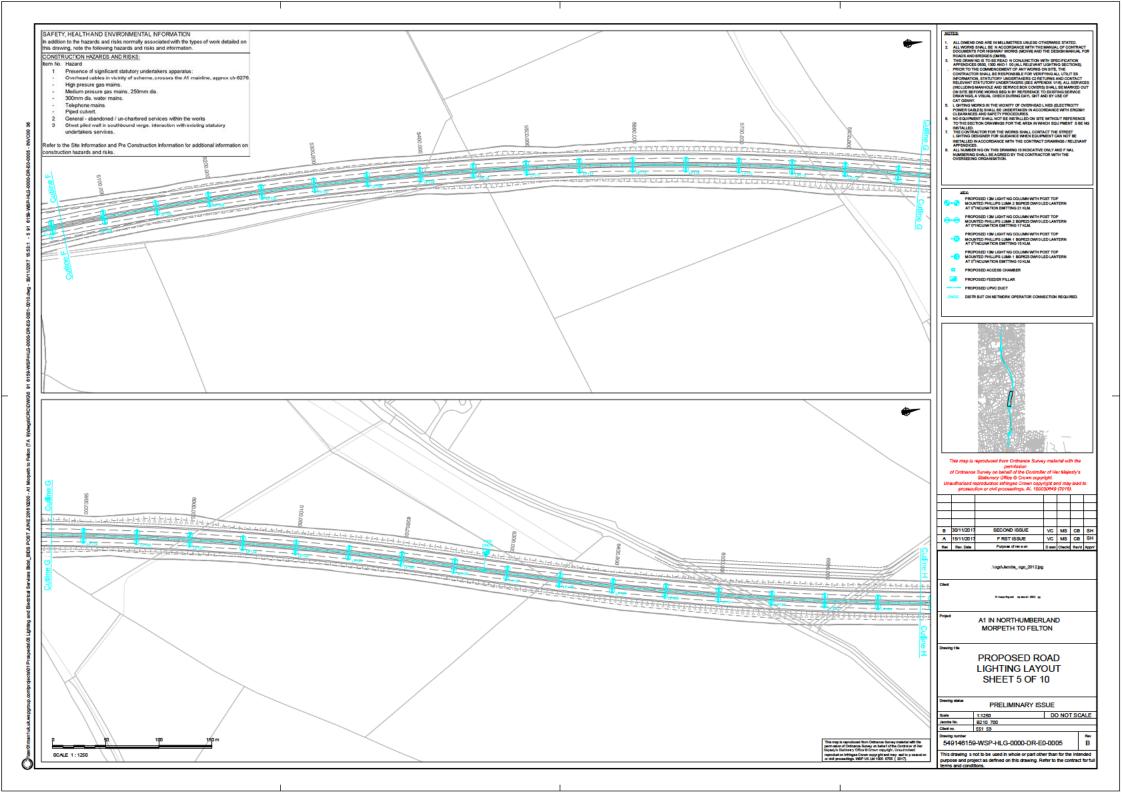


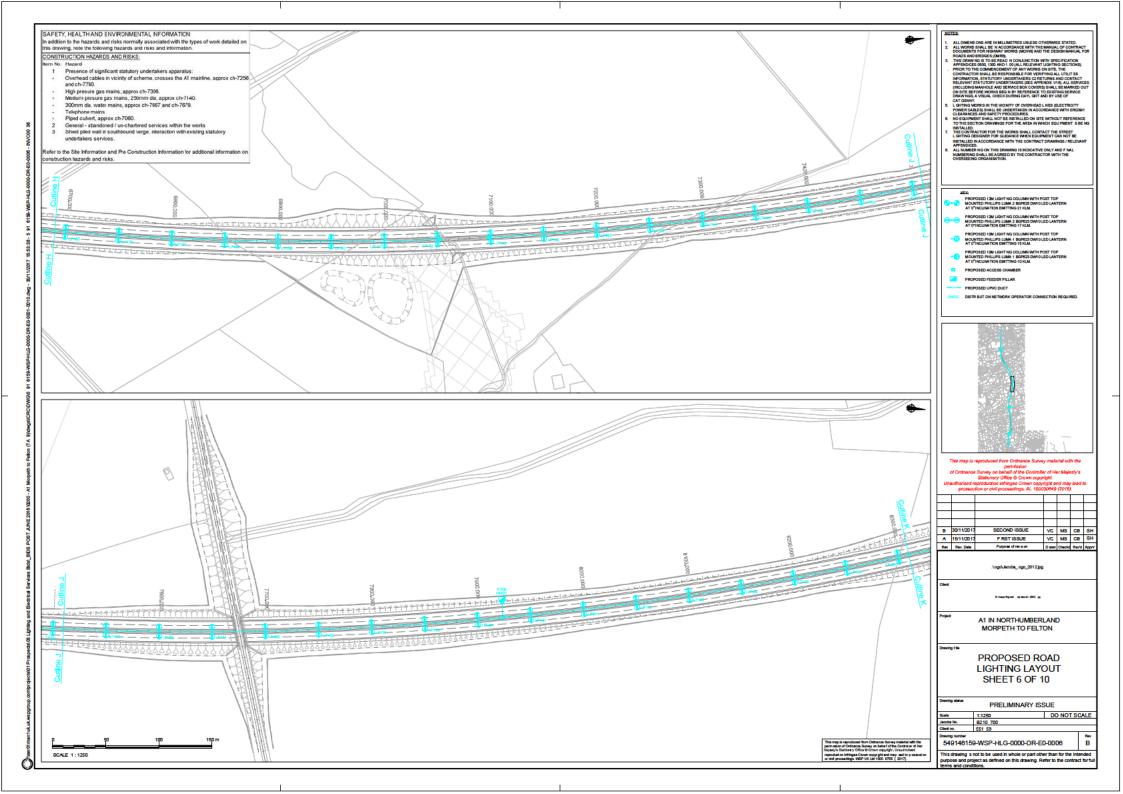


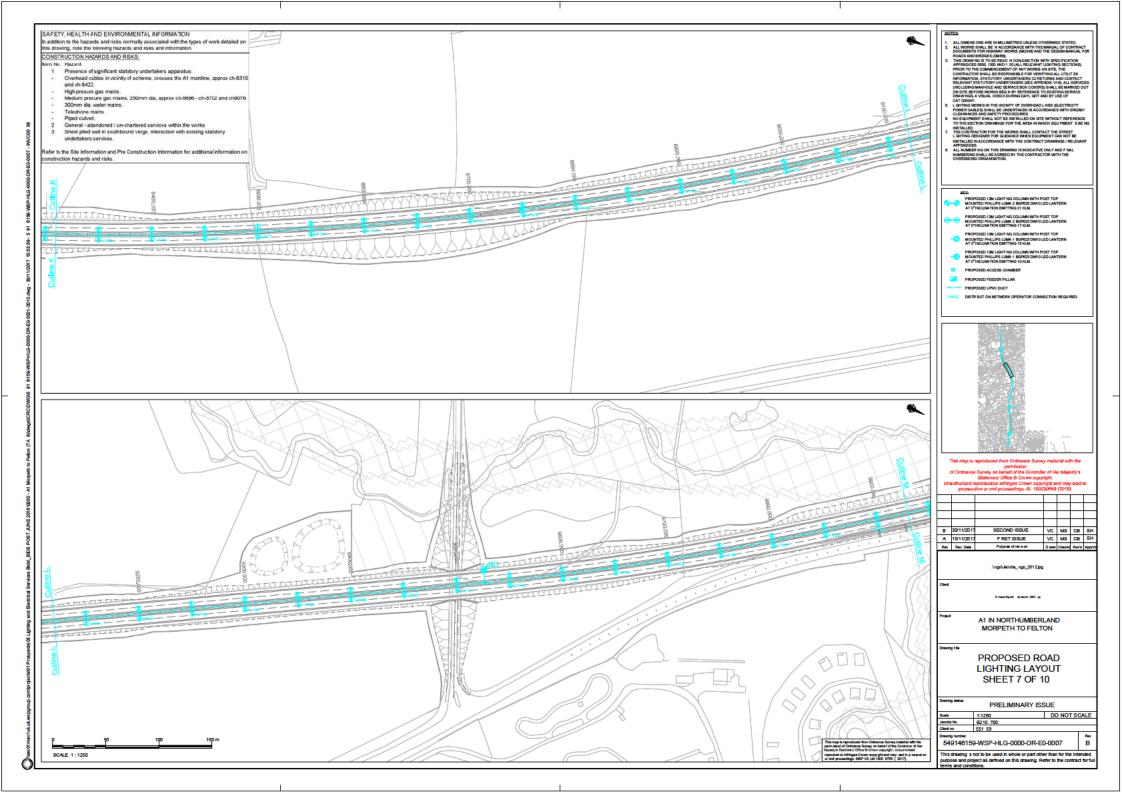


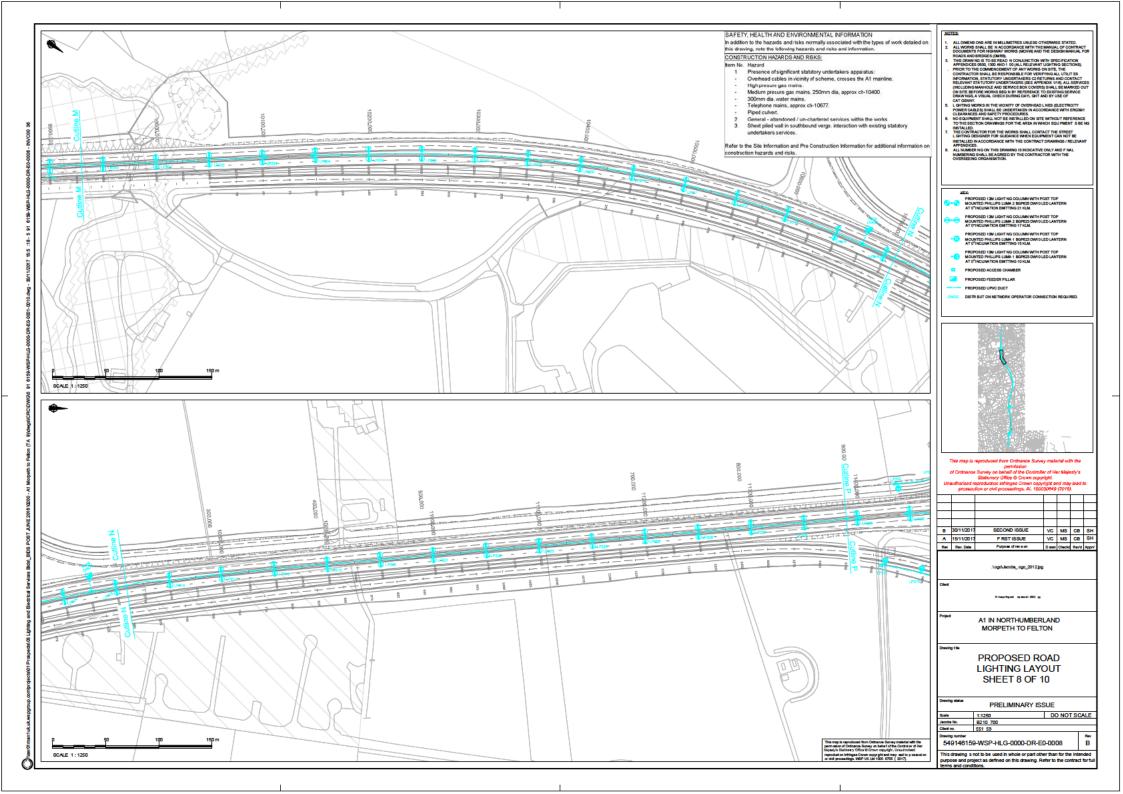


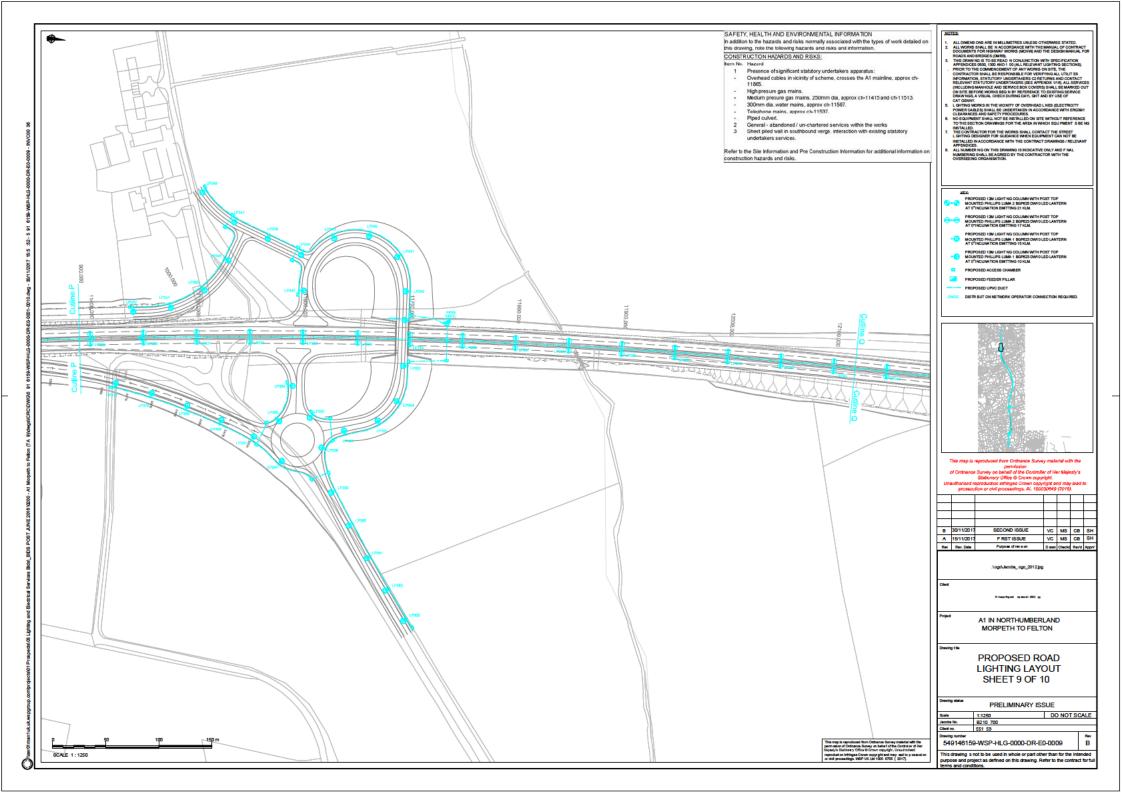


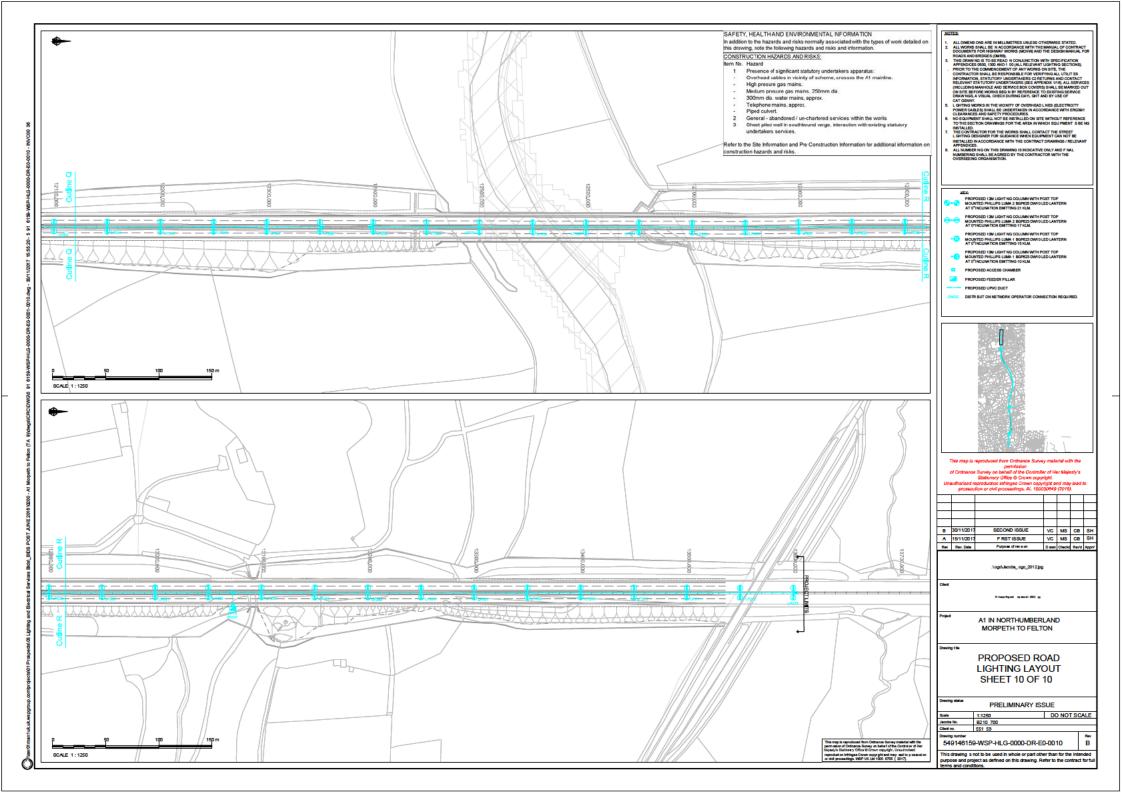












# Appendix E

**ROAD SAFETY ENGINEERS REPORT** 



## **A1 IN NORTHUMBERLAND**

#### MORPETH TO FELTON

Road Safety Engineers Briefing Report

CONFIDENTIAL

**NOVEMBER 2017** 

# A1 IN NORTHUMBERLAND MORPETH TO FELTON

**Highways England** 

## Road Safety Engineers Report Confidential

Project no: 70038006-D12 Date: NOVEMBER 2017

WSP 62-64 Hills Road Cambridge CB2 1LA

www.wsp.com



## QUALITY MANAGEMENT

ISSUE/REVISION	FIRST ISSUE	REVISION 1	REVISION 2	REVISION 3
Remarks				
Date	28/11/17			
Prepared by	Lyn Turner			
Signature				
Checked by	Neil Jones			
Signature				
Authorised by	Axel Kappeler			
Signature				
Project number	70038006-D12			
Report number	RSE - 01			
File reference	\\GBCMG100FIL01\cmp01shared\\TS Safety\Road Safety Reviews\North East RIP Schemes\A1iN M2F Road Safety Engineers Report Nov 17			

## PRODUCTION TEAM

#### CLIENT

Group Director, Lighting & Energy Solutions Stephen Halliday

#### WSP

Principal Consultant Lyn Turner

Senior Consultant Neil Jones

Associate Director Axel Kappeler

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## APPENDICES

APPENDIX A COLLISION DATA

APPENDIX A-1 COLLISION DATA

1

### **EXECUTIVE SUMMARY**

With the intention of the scheme to upgrade the A1 from single carriageway to dual carriageway taking the majority of the new construction off line, through rationalisation from IAN167/12 this may remove 58% of the current single carriageway collisions. The remaining collision amount to 23% which occurred during the hours of darkness with no street lighting

However for the short section of existing dual carriageway with in the scheme extents, the data analysis demonstrates that this section of the A1 is currently below the national averages for dark collision, no street lighting present by more than 50%.

TA49/07 assumes a collision saving of 10% on all purpose dual carriageway and motorway due to the addition of road lighting.

Using the calculation within the TA49/07 the total collision saving would be 0.196 collisions saved.

The dual carriageway section of the A1 is currently below the national averages for dark collision, no street lighting present by more than 50%.

In my opinion as a Road Safety Engineer qualified to HD19 Audit Team Leader, as the route is to be upgraded to a new dual carriageway which will be of a higher standard than the existing single carriageway, with many highway hazards such as at-grade junctions removed and looking at the evidence of the historic collisions, I do not believe that at this time street lighting is required and I conclude that on the mainline the numbers of dark collisions should not increase by more than the 10% as stated in TA49/07. However, the use of items listed below and regular maintenance of the route will also help in the reduction of collisions on the new route.

With regards to the new grade separated junctions, these could be more complex. It is widely known that compact junctions have a collision record due to the tight nature of the radii, leading to loss of control collisions, with the most vulnerable vehicle type powered two wheelers, however, other vehicles are susceptible also to loss of control type incidents.

By upgrading these junctions to grade separated junctions, from the historical collision data it can be seen that 21 collisions have been removed through rationalisation some of these collisions included junction and u-turning collision trends.

Ideally these junctions should be assessed on a junction by junction basis using the GD04 assessment or COBALT tool or the comparison of like for like STATS19 collision data to analyse against.

In the absence of the above measures, it cannot be categorically advised not provide street lighting on the junctions, however, there are other methods in which to highlight the junctions to the motorists during the hours of darkness or inclement weather. These can include the use of:

- 'intelligent' style road studs to pre-light the route
- Use of a white lining system that included the reflective beading
- Reflectors on the VRS or painting it black & white.

All the above measure are effective in reducing collisions during the hours of darkness in addition to their known benefits in daylight conditions.

The use of bike guard on the vehicle restraint system (VRS) will further improve safety for powered two wheelers.

## 2 PROJECT BACKGROUND

#### 2.1 BACKGROUND

WSP ITS Safety team have been approached to produce a Road Safety Engineers Report in accordance with DMRB TA49/07 Appraisal of new and replacement lighting on the strategic motorway and all-purpose trunk road network.

#### 2.2 OBJECTIVES

To ascertain if street lighting is required on the A1 which is being upgraded from single to dual carriageway including the construction of new grade-separated junctions.

#### 2.3 SITE DESCRIPTION

Morpeth to Felton is a 13km (8.0mile) rural single carriageway Section from town of Morpeth to the village of Felton, the existing A1 highway is a rural single carriageway trunk road, subject to the national speed limit. Section A has 20 at-grade major/minor road junctions, with many additional private and farm accesses. All at-grade junctions are accommodated with ghost island T-junctions with right turning provision.

Street lighting is not provided throughout this section of the A1 trunk road.

# 3 PERSONAL INJURY COLLISION (PIC) ANALYSIS

#### 3.1 BACKGROUND INFORMATION

STATS19 data has been used for two reports for this project

- A1 in Northumberland Morpeth to Felton (Section A) Alignment Options Technical Appraisal Report (TAR) – Version 4.2 dated September 2016
- A1 in Northumberland Section A and B Safety Plan April 2017 ref:B2104701\_245

Within the two reports the scheme extents and the data range are slightly different

- The TAR contains STATS19 data between 01/07/10 to 30/06/15 on the A1 between just south of the A192 at Northgate through to Newton on the Moor, however STATS19 data is only provided up to the B6345 overbridge at Felton
- The Safety Plan contains STATS19 data from 01/01/11 to 31/12/15 on the A1 between Morpeth and Felton, from the map supplied this appears to be from A192 at Northgate to the overbridge of the B6345 overbridge at Felton

The TAR STATS19 data collision plans covers some existing dual carriageway at both ends of the scheme.

The Safety Plan doesn't make it clear if the collisions on the dual carriageway around the section of the A1 from the A192 to the start of the single carriageway are included.

The Safety Plan has been compared to Road Casualties Great Britain 2013 using non-built up road for their comparisons, which for collisions occurring in the dark (assuming no street lighting) the national average was 26.7%, with the scheme extents being 20.7%.

Using the STATS19 data supplied in the TAR, the percentage for dark accidents, no street lighting for non-built up roads, speed limit 60mph from Road Casualties Great Britain 2015 is 21%, with our scheme extents showing a value of 23% (see analysis in table 3-4).

The Safety Plan supplied just the analysed data results and not the STATS19 collisions details, however as the TAR document supplied the complete STATS19 data this has been used to look at the collisions trends for the scheme extents to ascertain the change in risk the scheme brings with regards to street lighting.

#### 3.2 GENERAL ANALYSIS

Personal Injury Collision data for the Morpeth to Felton section of the A1 has been sourced from the A1 in Northumberland Morpeth to Felton (Section A) Alignment Options Technical Appraisal Report – Version 4.2 dated September 2016

The extents of the collision data extends from A192 Northwards to Newton-on-the Moor.

The report used collision data between 01/07/2010 and 30/06/2015 which was considered to be acceptable for the purposes of this report as the full STATS19 data reports were available for detailed analysis. The data has been used to produce the analysis in the following pages.

During this time period there were 66 collisions in total 2 Fatalities, 7 Serious and 57 slight collisions. This resulted in 115 casualties made up of 2 fatalities, 12 serious injury and 101 slight injury casualties.

Table 3-1 Number of collisions per calendar year

DATE RANGE	FATAL	SERIOUS	SLIGHT	TOTAL
01/07/10 to 31/12/10	0	0	12	12
01/01/11 to 31/12/11	1	1	10	12
01/01/12 to 31/12/12	1	1	14	16
01/01/13 to 31/12/13	0	3	7	10
01/01/14 to 31/12/14	0	2	8	10
01/01/15 to 30/06/15	0	0	6	6
Total	2	7	57	66

Note that 2010 and 2015 data are only 6 months each.

Table 3-2 Number of casualties per calendar year

DATE RANGE	FATAL	SERIOUS	SLIGHT	TOTAL
01/07/10 to 31/12/10	0	0	17	17
01/01/11 to 31/12/11	1	2	12	15
01/01/12 to 31/12/12	1	2	24	27
01/01/13 to 31/12/13	0	4	16	20
01/01/14 to 31/12/14	0	4	18	22
01/01/15 to 30/06/15	0	0	14	14
Total	2	12	101	115

Note that 2010 and 2015 data are only 6 months each.

Given that 2010 and 2015 only provide 6 months of data, we can look at the average number of collisions per month

Table 3-3 Total number of collisions per month

DATE RANGE	TOTAL	AVERAGE COLLISIONS PER MONTH
01/07/10 to 31/12/10	12	2.00
01/01/11 to 31/12/11	12	1.00
01/01/12 to 31/12/12	16	1.33
01/01/13 to 31/12/13	10	0.83
01/01/14 to 31/12/14	10	0.83
01/01/15 to 30/06/15	6	1.00
Total	66	

In table 3-4 the complete data set has been analysed against the national averages, whilst 15 collisions (23%) have occurred on dual carriageway, at this time all have been compared against the Road Casualties Great Britain 2015 (RCGB15) A roads with speeds of 60mph.

From this table it can been seen that this data set is slightly above the national average of 21% for Dark collisions where street lighting is not present.

Table 3-4 Comparison of complete data set to National Averages

	01/07/10	01/01/11	01/01/12	01/01/13	01/01/14	01/01/15	5 Year	National
	31/12/10	31/12/11	31/12/12	31/12/13	31/12/14	30/06/15	Total	Average
Severity Ratio	0%	17%	13%	30%	20%	0%	14%	22%
Collisions	5	5	8	1	1	1	21	
occurring on a wet road surface	42%	42%	50%	10%	10%	17%	32%	36%
Total	4	4	5	0	1	1	15	
Collisions during the hours of darkness	33%	33%	31%	0%	10%	17%	23%	26%
Dark	0	0	0	0	0		0	
Collisions: Street Lighting present	0%	0%	0%	0%	0%	0%	0%	4%
Dark	4	4	5	0	1	1	15	
Collisions: No Street Lighting Present	33%	33%	31%	0%	10%	17%	23%	21%

Within the data there is a mix of dual carriageway and single carriageway collisions, Table 3-5 shows the split of collisions

Table 3-5 Total number of collisions carriageway

DATE RANGE	DUAL CARRIAGEWAY	SINGLE CARRIAGEWAY
01/07/10 to 31/12/10	3	9
01/01/11 to 31/12/11	5	7
01/01/12 to 31/12/12	0	16
01/01/13 to 31/12/13	4	6
01/01/14 to 31/12/14	3	7
01/01/15 to 30/06/15	0	6
Total	15	51

Dual carriageway included slip roads

From the collision data set, the statistics can be compared to Road Casualties Great Britain 2015 (RCGB15) to see how the route is performing against national targets.

#### SINGLE CARRIAGEWAY ANALYSIS 3.3

Table 3-6 Comparison of Single carriageway collisions with RCGB15

	01/07/10 - 31/12/10	01/01/11 - 31/12/11	01/01/12 - 31/12/12	01/01/13 - 31/12/13	01/01/14 - 31/12/14	01/01/15 - 30/06/15	5 Year Tota
Fatal	0	1	1	0	0	0	2
Serious	0	0	1	1	2	0	4
Slight	9	6	14	5	5	6	45
Total	9	7	16	6	7	6	51

	01/07/10 - 31/12/10	01/01/11 - 31/12/11	01/01/12 - 31/12/12	01/01/13 - 31/12/13	01/01/14 - 31/12/14	01/01/15 - 30/06/15	5 Year Total	National Average
Severity Ratio	0%	14%	13%	17%	29%	0%	12%	22% <sup>1</sup>
Collisions occurring on a	4	2	4	0	0	1	11	36%²
wet road surface	44%	29%	25%	0%	0%	17%	22%	30 /6
Total Collisions	4	3	5	0	1	1	14	200/2
during the hours of darkness	44%	43%	31%	0%	14%	17%	27%	26%²
Dark	0	0	0	0	0		0	4%²
Collisions: - Street Lighting present	0%	0%	0%	0%	0%	0%	0%	4%-
Dark	4	3	5	0	1	1	14	040/2
Collisions: No Street Lighting Present	44%	43% 31% 0% 149	14%	14% 17% 27%		21%²		

<sup>&</sup>lt;sup>1</sup> Road Casualties Great Britain 2015 Table RAS10006 Non-built up roads <sup>2</sup> Road Casualties Great Britain 2015 Table RAS10007 Non-built up roads Speed Limit 60 mph A1iN M2F Road Safety Engineers Report

#### 3.4 DUAL CARRIAGEWAY ANALYSIS

Table 3-7 Comparison of Dual carriageway collisions with RCGB15

Dual	01/07/10 - 31/12/10	01/01/11 - 31/12/11	01/01/12 - 31/12/12	01/01/13 - 31/12/13	01/01/14 - 31/12/14	01/01/15 - 30/06/15	5 Year Total
Fatal	0	0	0	0	0	0	0
Serious	0	1	0	2	0	0	3
Slight	3	4	0	2	3	0	12
Total	3	5	0	4	3	0	15

	01/07/10 - 31/12/10	01/01/11 - 31/12/11	01/01/12 - 31/12/12	01/01/13 - 31/12/13	01/01/14 - 31/12/14	01/01/15 - 30/06/15	5 Year Total	National Average
Severity Ratio	0%	20%	0%	50%	0%	0%	20%	22%¹
Collisions occurring on a	0	2	0	1	1	0	4	70.00.Tichen-
wet road surface	0%	40%	0%	25%	33%	0%	27%	31%³
otal Collisions	0	1	0	0	0	0	1	777-19-2 (19-2)
during the hours of darkness	0%	20%	0%	0%	0%	0%	7%	30%³
Dark	0	0	0	0	0	0	0	
Collisions: - Street Lighting present	0%	0%	0%	0%	0%	0%	0%	13%³
Dark	0	1	0	0	0	0	7	
Collisions: No — Street Lighting Present	0%	20%	0%	0%	0%	0%	7%	15%³

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Project No 141-00000-00
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<sup>&</sup>lt;sup>3</sup> Road Casualties Great Britain 2015 Table RAS10007 Non-built up roads Speed Limit 70 mph A1iN M2F Road Safety Engineers Report

## 4 ASSUMPTIONS MADE

#### 4.1 RATIONALISATION OF COLLISION STATISTICS

Within the Interim Advice Note 167/12 Revision 1 Guidance for the Removal of Road Lighting the standard states that "The PIA's (Personal Injury Accidents) must be rationalised to exclude anywhere driver gross negligence (DGN) was a significant contributory factor. These include:-

- Intoxicated drivers. (drink or drugs)
- Suicides and attempted suicides.
- Excessive speeding (more than 50% over the speed limit)"

However, given that the scheme that is the subject of this report is upgrading a single carriageway to a dual carriageway, the author has further excluded any collisions that will be impossible within the new scheme, these include:

- All collision that have occurred at a T or staggered junction joining the mainline
- All collisions on the single carriageway that have resulted in head on collisions
- All collisions on the single carriage involving U turns
- · All collision occurring at the merge from dual to single or single to dual

## 5

## RATIONALISED COLLISION DATA

#### 5.1 SINGLE CARRIAGEWAY COLLISIONS

By rationalising the collisions using the method described above, 21 collisions have been removed, leaving 30 collisions to be analysed further.

Table 5-1 Number of collisions per calendar year after rationalisation

DATE RANGE	FATAL	SERIOUS	SLIGHT	TOTAL
01/07/10 to 31/12/10	0	0	6	6
01/01/11 to 31/12/11	0	0	3	3
01/01/12 to 31/12/12	0	1	10	11
01/01/13 to 31/12/13	0	0	2	2
01/01/14 to 31/12/14	0	1	4	5
01/01/15 to 30/06/15	0	0	3	3
Total	0	2	28	30

Note that 2010 and 2015 data are only 6 months each.

Of these 30 collisions 19 (63%) resulted in rear end shunt type collisions with 5 (16%) Lost control, 2 (7%) suffered mechanical failure, one collision involved a pedal cycle, one an animal in the road, one in road works and one involving ice falling off a lorry.

Table 5-2 Number of collisions per lighting conditions

DATE RANGE	DAYLIGHT	DARK NO LIGHTS	TOTAL
01/07/10 to 31/12/10	4	2	6
01/01/11 to 31/12/11	2	1	3
01/01/12 to 31/12/12	7	4	11
01/01/13 to 31/12/13	2		2
01/01/14 to 31/12/14	5		5
01/01/15 to 30/06/15	3		3
Total	23	7	30

Note that 2010 and 2015 data are only 6 months each.

The 7 collisions which occurred during the hours of darkness can be attributed to 3 loss of controls, 2 rear end shunts, 1 mechanical breakdown and one where ice fell off a lorry.

Of these 7 collisions, 3 occurred on a wet road surface, 2 occurred on a dry road surface and two occurred on ice/snow road conditions.

When comparing these to RCGB15 which as an average of 21% for Dark no lighting collisions, it can be seen that this area is slightly above average at 23%

#### 5.2 DUAL CARRIAGEWAY COLLISIONS

By rationalising the collisions using the method described above, none of the dual carriageway collisions have been removed, so they are analysed further below. Of these collisions 12 occurred on the dual carriageway to the south of the new scheme, whilst three occurred on the dual carriageway to north of the scheme.

Table 5-3 Number of collisions per calendar year after rationalisation

DATE RANGE	FATAL	SERIOUS	SLIGHT	TOTAL
01/07/10 to 31/12/10	0	0	3	3
01/01/11 to 31/12/11	0	1	4	5
01/01/12 to 31/12/12	0	0	0	0
01/01/13 to 31/12/13	0	2	2	4
01/01/14 to 31/12/14	0	0	3	3
01/01/15 to 30/06/15	0	0	0	0
Total	0	3	12	15

Note that 2010 and 2015 data are only 6 months each.

#### **SOUTHERN DUAL COLLISIONS**

6 collisions occurred to lane changing, 3 resulted in loss of control, 2 occurred due to rear ends shunts and 1 occurred in road works. None of these collisions occurred during the hours of darkness.

#### NORTHERN DUAL COLLISIONS

One collision occurred due to lane changing, one can be attributed to a rear end shunt incident and the final collision occurred in the hours of darkness due to losing control on an icy road surface.

Table 5-4 Number of collisions per lighting conditions

	DATE RANGE	DAYLIGHT	DARK NO LIGHTS	TOTAL
(	01/07/10 to 31/12/10	3		3
(	01/01/11 to 31/12/11	4	1	5
(	01/01/12 to 31/12/12	0		0
(	01/01/13 to 31/12/13	4		4
(	01/01/14 to 31/12/14	3		3
(	01/01/15 to 30/06/15	0		0
	Total	14	1	15

Note that 2010 and 2015 data are only 6 months each.

When comparing these to RCGB15 which as an average of 15% for Dark no lighting collisions, it can be seen that this area is below average at 6%

#### 5.3 COLLISIONS OCCURRING AT JUNCTIONS

#### **EXISTING SINGLE CARRIAGEWAY**

Looking at the at-grade junctions on the A1 that are currently present, from the proposed plans it can be seen that 7 of those junctions are being by-passed as the A1 scheme takes the new road construction off the line of the existing A1. There have been 14 collisions spread over these junctions, with two in the dark which occurred due to rear end shunt type collisions.

Junctions that remain but are changing to grade separated are:

#### LOW ESPLEY/ HIGHLAND JUNCTION

Nine collisions have occurred at this location in the 5 year period of this study, two of which were in the dark. Following the rationalisation four collisions can be removed. The remaining 5 collisions occurred due to 4 rear end shunts, 1 in the dark and a motorist that lost control for unknown reasons in the dark.

#### FELTON ROAD/ WEST MOOR JUNCTION

Two collisions have occurred at this location in the 5 year period of this study, neither of which were in the dark. Following the rationalisation one collisions can be removed and the remaining collisions can be attributed to a rear end shunt incident.

#### 5.4 COLLISIONS OCCURRING IN SECTIONS (CHAINAGES)

Breaking the scheme extents into the following sections can demonstrate the existing collisions trends on the A1

Table 5-5 Sections and chainages on the A1

Section	Α	В	С	D
Chainage	500-2200	2200-5000	5000-11600	11600-13600 (scheme limits)
Section Length	1700	2800	6600	2000

#### SECTION A - CHAINAGE 500-2200

Within this section of the existing A1 there is a section of dual carriageway that leads into the single carriageway. This section of the existing A1 had 6 collisions which were coded as STATS19 dual carriageway and 3 coded as single carriageway

#### **DUAL CARRIAGEWAY COLLISIONS**

Table 5-6 Number of dual carriageway collisions in section A

Collision Ref. No	Severity	Lighting Conditions	Road Surface	Weather	Outcome
108	Slight	Daylight	Dry	Fine	Rear End Shunt
60	Slight	Daylight	Dry	Fine	Lane change
34	Serious	Daylight	Dry	Fine	Lane change
79	Slight	Daylight	Wet	Rain	Lost Control
139	Slight	Daylight	Wet	Fine	Lane change
66	Serious	Daylight	Dry	Fine	Rear End Shunt

None of the collisions on this section of the dual carriageway occurred during the hours of darkness.

#### SINGLE CARRIAGEWAY COLLISIONS

Table 5-7 Number of single carriageway collisions in section A

Collision Ref. No	Severity	Lighting Conditions	Road Surface	Weather	Outcome
104	Slight	Day	Dry	Fine	Rear End Shunt
93	Slight	Day	Dry	Fine	Animal in carriageway
92	Serious	Day	Dry	Fine	Mechanical

None of the collisions on this section of the single carriageway occurred during the hours of darkness.

#### SECTION B - CHAINAGE 2200 - 5000

Through this section of the A1 the new A1 travels off the line of the original A1 at around chainage 3700. This existing section of the A1 is single carriageway.

Table 5-8 Number collisions in section B

	Collision Ref. No	Severity	Lighting Conditions	Road Surface	Weather	Outcome
A1 le of g A1 00- 0)	117	Slight	Day	Dry	Fine	Rear End Shunt
New A On-line Existing (2200- 3700)	43	Slight	Day	not given	Fine	Rear End Shunt
S C Sist	*95	Slight	Day	Flood	Rain	Lost Control
	151	Slight	Day	Dry	Fine	Rear End Shunt
) )	36	Serious	Dark	Wet	Fine	Lost Control
not -500	102	Slight	Day	Dry	Fine	Rear End Shunt
Existing A1 but not part of new A1 (3700-500)	159	Slight	Day	not given	Fine	Rear End Shunt
141 (3)	11	Slight	Day	Dry	Fine	Rear End Shunt
sting w A	77	Slight	Day	not given	Fine	Rear End Shunt
	119	Slight	Day	Dry	Fine	Rear End Shunt
ō	116	Slight	Day	Dry	Fine	Rear End Shunt

<sup>\*</sup>coded as dual but location suggests single carriageway

One collision occurred between these chainages, on the section of A1 which is becoming redundant in terms of trunk Road.

#### SECTION C - CHAINAGE 5000 - 11600

Part of this section of the A1 will become redundant in terms of trunk Road as the A1 continues offline until chainage 9800 where it then returns to follow the original route.

Table 5-9 Number collisions in section C

	Collision Ref. No	Severity	Lighting Conditions	Road Surface	Weather	Outcome
-	174	Slight	Day	Wet	Rain	Rear End Shunt
<b>∀</b>	91	Slight	Day	Dry	Fine	Rear End Shunt
fne	14	Slight	Dark	Dry	Fine	Mechanical
On Existing A1 but not part of new A1	113	Slight	Day	Dry	Fine	Rear End Shunt
t b	8	Slight	Dark	Ice	Fine	Lost Control
t r	41	Slight	Day	not given	Rain	Rear End Shunt
1d bi	16	Slight	Day	not given	Fine	Mechanical
A gr	85	Slight	Day	not given	Fine	Rear End Shunt
kistii	3	Slight	Day	Ice	Rain	Lost Control
ω	156	Slight	Dark	Wet	Rain	Rear End Shunt
0	176	Slight	Dark	Wet	Fine	Ice fell off lorry
New A1 On-line of Existing A1	2	Slight	Day	Ice	Fine	Lost Control

Four of these collisions occurred during the hours of darkness, however, one occurred when ice fell off a lorry, one mechanical incident with the remaining two rear end shunt type collisions.

#### SECTION D - CHAINAGE 11600 - 13600

Within this section of the existing A1 there is a section of dual carriageway that the single carriageway leads into. This section of the existing A1 had 3 collisions which were coded as STATS19 dual carriageway and 3 coded as single carriageway

#### **DUAL CARRIAGEWAY COLLISIONS**

Table 5-10 Number of dual carriageway collisions in section D

Collision Ref. No	Severity	Lighting Conditions	Road Surface	Weather	Outcome
124	Slight	Day	Dry	Fine	Rear End Shunt
122	Slight	Day	Dry	Fine	Lane Change
6	Serious	Dark	Ice	Rain	Lost Control

#### SINGLE CARRIAGEWAY COLLISIONS

Table 5-11 Number of single carriageway collisions in section D

Collision Ref. No	Severity	Lighting Conditions	Road Surface	Weather	Outcome
26	Slight	Dark	Snow	Snow	Lost Control
48	Slight	Day	Wet	Fine	Rear End Shunt
75	Slight	Day	Dry	Fine	Rear End Shunt

Two of these collisions occurred in the hours of darkness, one on the dual carriageway and one on the single carriageway

#### **SUMMARY**

Section A - No dark collisions

Section B – 1 dark collision occurring where no street lights are present and situated on the existing A1 which will become redundant trunk road

Section C – 4 dark collisions occurring where no street lights are present and situated on the existing A1 which will become redundant trunk road

Section D-2 dark collisions, one on the dual carriageway and one on the single carriageway, street lighting not present in either collision

# 6

## PREDICTED PIC SAVINGS

Design Manual for Roads and Bridges TA49/07 gives a formula for predicting collision savings. The standard talks about the proportion of darkness collisions on all types of strategic roads is on average 28% of the total collisions occurring during the hours of daylight and darkness, however, this figure was sought from Road Casualties Great Britain 2004. Looking at Road Casualties Great Britain 2015, this figure has decreased to 27%.

Within TA49/07 section 4, table 1 gives a generalised indication of the darkness PIA saving due to road lighting on links, suitable for appraisal.

For an all-purpose Dual carriageway the figure of 10% is noted.

Part of the scheme within this document is going to be on new links as the route deviates from the existing alignment. Other parts of the route are on the existing alignment but are replacing a single carriageway with a dual carriageway. All of the scheme extent is currently unlit.

The standard makes reference darkness savings on a new link which refers to Volume 13, COBA which has since been redrawn. The standard also makes reference to darkness savings on an existing unlit link. Both refer to the calculation of the number of opening year darkness collisions multiplied by the 10% figure which will give the predicted collision saving.

00001011	S	е	C	t	İ	0	ľ	1
----------	---	---	---	---	---	---	---	---

	Α	В	С	D	Total
Total Number of Rationalised collisions (5 Years)	9	11	12	6	38
Total During Darkness (5 Years)	0	1	4	2	7
Collisions in darkness per annum (actual)	0	0.2	0.8	0.4	1.4
Predicted Collision saving = no. of opening year darkness collisions x 10%	0	0.004	0.064	0.016	0.196

7

### CONCLUSION

TA49/07 assumes a collision saving of 10% on all purpose dual carriageway and motorway due to the addition of road lighting.

Using the calculation within the TA49/07 the total collision saving would be 0.196 collisions saved.

The dual carriageway section of the A1 is currently below the national averages for dark collision, no street lighting present by more than 50%.

In my opinion as a Road Safety Engineer qualified to HD19 Audit Team Leader, as the route is to be upgraded to a new dual carriageway which will be of a higher standard than the existing single carriageway, with many highway hazards such as at-grade junctions removed and looking at the evidence of the historic collisions, I do not believe that at this time street lighting is required and I conclude that on the mainline the numbers of dark collisions should not increase by more than the 10% as stated in TA49/07. However, the use of items listed below and regular maintenance of the route will also help in the reduction of collisions on the new route.

With regards to the new grade separated junctions, these could be more complex. It is widely known that compact junctions, have a collision record due to the tight nature of the radii, leading to loss of control collisions, with the most vulnerable vehicle type powered two wheelers, however other vehicles are susceptible too, to loss of control type incidents. However, by upgrading these junctions to grade separated junctions, from the data it can be seen that 21 collisions have been removed through rationalisation and these made up collisions types such as junction and u-turning trends.

Ideally these junctions should be assessed on a junction by junction basis using the GD04 assessment or COBALT tool or the comparison of like for like STATS19 collision data to analyse against.

In the absence of these items, it cannot be categorically advised not provide street lighting on the junctions, however there are other methods in which to highlight the junctions to the motorists during the hours of darkness or inclement weather. These can include the use of:

- 'intelligent' style road studs to pre-light the route
- · Use of a white lining system that included the reflective beading
- Reflectors on the VRS or painting it black & white.

All the above measure are effective in reducing collisions during the hours of darkness in addition to their known benefits in daylight conditions.

The use of bike guard on the vehicle restraint system (VRS) will further improve safety for powered two wheelers.

# Appendix A

**COLLISION DATA** 

## **APPENDIX A-1**

## **COLLISION DATA**

No. Area L/A		Reference	Seve	rity Day	Date	Time	Grid	Coords	Lin	c/Node S	treet		
112		0485111	Sligh		y 20/08/201			/587600					
Location: A192	5		5/10/10/07		ay Garage 100							22/10/20	8
Speed C'Way SOMPH Single		Jct Det/Ctrl Other Give	Light Dayl:		Weather Fine	Rd Surf	None	Ruman	- Phy E	ac Speci None	al	Hazaro None	d
eh Vehicle type	Towing	g Manoeuvre	Dir	Veh loc	Junct. loc	Skidding	Hit obj	in Lef	t cway	Hit obj d	off Sex	. Age	B/9
1 Car	No	Going ahead	i N S	On main	Junt appr	Yes	None			None	Mal	e 44	-v
2 Car	No	Wt turn rt	N W	On main	Junt appr	No	None			None		ale 24	-v
	Cas Clas Drv/Rid		Age le 24			d Direction t ped	Ped Mov		Ped loca Not ped		chool P	upil	
							THE STATE OF						
Description: V2 See That VZ Had													
Jeer Information	ij.				Contributory	Pactors: 4	05V001A 4	06V001A					
80		0354911	Sligh	t Monday	20/06/201	18:40	418140	/587660					
Location: Fairm					oad Morpeth 1								
Speed C'Way 30MDH Single		Jct Det/Ctrl Slip-R Cive	Light		Weather Fine	Rd Surf	PedX -	Human	- Phy F	ac Specia None	al	Hazard	1
Veh Vehicle type			Dir	Veh loc	Junct. loc	Skidding	Hit obj	in Left		Hit obj o	ff Sex		B/1
1 Car	No	Lt hand be	nd NW S	E On main	Junt appr	No	None			None	Male	<b>a</b> 18	N/(
2 Pedal Cycle	No	Rt hand be	nd SE N		Leav main	No	None			None	Male		N/I
as No Veh ref	Cas Cla Dry/Rid		Agre 5	2 8 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	No No	1 Direction t ped	Not pe		Ped loca Not ped		chool Po	mpil	
Description: V2													
the Al Infront	of It.	The state of the s											
User Information	#I				Contributory	Factors: 3	02V001A 4	05V001A	602V0017	L 605V001B	£		
05		0455814	Slight		y 19/07/2014		418208/	/587769					
Location: Al J/W													
peed C'Way OMPH Dual c'		Jot Det/Ctrl Slip-R Give	Light	2000	Weather Fine	Rd Surf Wet	PedX -	Human	- Phy Fe	Special None	ml	Hazard None	1
eh Vehicle type				Veh loc	Junct. loc		Hit obj i	in Left		Hit obj o	ff Sex		B/9
1 Car	No	Going ahead			Junt appr	No	None		ži.	None	Male	33	-00
2 Car	No	Going ahead			Junt appr	No	None			None	Fema	ale 21	-00
3 Car	No	Waiting	N S	On main	Junt appr	No	None			None	Male	49	-00
	Cas Clas		Age 1e 21						Ped loca		chool P	mp11	
	Drv/Rid Passeng					t ped t ped	Not peo		Not ped Not ped		ther ther		
Description: Veh	s Trav.	5 on Al App		A19Z Through	Ongoing Road	iworks, Lan	ies Reduce	d to One		V3 5lows	Due to		
Traffic Ahead, ' Jser Information'		s to Slow, C	0111d1	ng with Rear	of V3, V1 Co Contributory				308V002B	308V001E			7745
120		0520111	Sligh	t Wadnasa	lay 07/09/2011	ALC: HOSTING	418190/						
Location: Al		0520111	orign		oor Morpeth <b>1</b> :			001150					
Speed C'Way	9	Jot Det/Ctrl	Light		Weather	Rd Surf		Human	- Phy Fa	c Specia	al	Hazard	1
70 MPH Dual c	and the same	Slip-R Give	Day1		Fine	Dry	None		None	None		None	
Veh Vehicle type				Veh loc	Junct. loc		Hit obj i	in Left	cway	Hit obj o			B/I
1 Car 1 Van/Coods <	No.	Chg rt land Coing ahead			Junt appr Junt appr	No No	None None			None Cent bas	Male		-1/6
	Cas Cla		Agre		Car Pass Pe			ement	Ped loca		chool Pu		
	Drv/Rid		11.CTG			t ped	Not peo		Not ped		ther	****	
	Drv/Rid			Slight		t ped	Not peo		Not ped		ther		
Description: VI a Veh 2 which H													
VI Also Collide									ASISTE				
User Information	3				Contributory	Factors: 4	03V001A 60	02V001A	404V001B	405V001B	£		
133		0569714	Sligh	t Wednesd	lay 09/07/2014	11:35	418196/	587846					
Location: Al Nr	Fairmod												
Speed C Way		Jct Det/Ctrl	Light	ing	Weather	Rd Surf				c Specia		Hazard	
50 MPH Dual c		NotJCT	Dayl:		Fine	Dry	None		None	Rdwork		None	p /-
Veh Vehicle type					Junct. loc			n Left	cway	Hit obj of			
1 Car 2 Goods > 7.5t		eChg lt lane Going ahead			Not at	No	None None			None None	Male Male		N/C
					Car Dass Dec			ement	Ped loca		hool Pu		
as No Veh ref	Drv/Rid					t ped	Not ped				her	2000000	
as No Vehref 1 2	DIVINIO	ier Male	40	Slight	No No	o pea	Not ped		Not ped	O.	Mer		
1 2				a Alfandrek									
	ns Trav.	N on Al, Vi	in 0/	S Lane, V2 i	n N/S Lane, V	1 Dassing	V2 Driver	of V1 N	lisjudge	Distance	es and		

No. Area L/A	Reference	Severi	ity Day	Date	Time	Grid Coords	Link	/Node	Street	
125		Slight	Friday	23/09/2011	07:54	418200/588040				
ocation: Al 1/4 Mile	South A697, Mo	rpeth 1	Lot Rd: Al	2nd Rd:						
peed C'Way 'OMPH Dual c'way	Jot Bet/Ctrl NotJCT	Lightin Dayligh		Weather Fine	Rd Surf	PedX - Human None	- Phy Fac	Speci		lasard lone
Weh Vehicle type Towin			Veh loc	Junet. loc	1.27	Hit obj in Lef				Age B/T
1 Car No	Lt hand bend	SN	On main	Not at	No	None		Tree	Fenale	29 -ve
as No Veh ref Cas Cla 1 1 Drv/Ri		Age e 29	Severity Slight	No Not	Direction t ped	Not ped	Not ped		School Pup: Other	11
Description: V1 Trav N Nearside Kerb Enters User Information:				ee		Vl Has Lost Co		ikes th	•	
173 F5	0774510	Slight	Tuesday	y 30/11/2010	0 10:00	419210/589110	)			
Location: A1400m S of					20.00	410110/50011	,			
Speed C'Way		Lighti	ng	Weather	Rd Surf	PedX - Human	- Phy Fa			Hazard
70 MPH Dual c'way	NotJGT	Daylig		Fine	Snow	None	None	Non		None
Veh Vehicle type Towi			Veh loc	Junet. loc					off Sex	Age B
1 Car No 2 Goods 3.5 - 7. No	Going ahead Going ahead		On main	Not at	Over	None Ne	arside	None None	Male Male	29 N
as No Veh ref Cas Cl	58	Agra		Car Dass Dec			Ped loca		School Du	
1 1 Dry/Ri		29	Slight		t ped	Not ped	Not ped		Other	
Description: V1 Trav S	outh or Al Ch	nges T	ane to Dar	s V2. Lane 2 n	Covered Wit	hthick Ice and	Snow VI	Pulle		
Alongeide V2 but then User Information:				side and Overt	urns . Veh		de			
108	0461414	Slight	Saturd	lay 09/08/201	4 11:40	418202/58821	0			
Location: Al J/W A697		1: Al 2:								
Speed C'Way 60 MPH Dual c'way	Jct Det/Ctrl Slip-R Give	Lighti Dayliq		Weather Fine	Rd Surf	PedX - Human None	- Phy Fa	ac Spe	ecial ie	Hazard None
Veh Vehicle type Towi	ng Manoeuvre	Dir	Veh loc	Junct. loc	Skidding	Hit obj in Le	ft cway	Hit ob	off Sex	Age E
1 Car No	Stop	s N	On main	Junt appr	No	None		None	Male	50 -
		SN			***	None		The second second	Tomo	le 60 -
2 Car No	Waiting		On main	Junt appr	No			None		
2 Car No 3 Car C'va	n Waiting	s N	On main	Junt appr	No	None		None	Male	60 -
Z Car No 3 Car C'va Cas No Veh ref Cas Cl	n Waiting	S N Age	On main Severity	Junt appr Car Pass Pe	No d Direction	None Ped Movement	Ped loos	None stion	Male School Pr	60 -
2 Car No 3 Car C'va	n Waiting ass Sex ger Femel	S N Age	On main	Junt appr Car Pass Pe Front No	No	None	Ped loos Not ped	None stion	Male	60 -
2 Car No 3 Car C've Cae No Veh ref Cae Cl 1 1 Passer 2 2 Passer Description: Vehs Trav	n Waiting  ass Sex  ger Femal  ger Male  7. N on Al App.	SN Age e 40 36 J/WA	On main Severity Slight Slight 697, V3 To	Junt appr Car Pass Per Front No Rear No wing Caravan 1	No d Direction of ped of ped Brakes Due	None  Ped Movement  Not ped  Not ped to Traffic aher	Not ped Not ped ad and Sto	None ation ps, V2	Male School Pr Other Other Slows	60 -
2 Car No 3 Car C've cae No Veh ref Cae Cl 1 1 Passer 2 2 Passer Description: Vehs Iran and Stops Behind V3,	n Waiting  ass Sex  ger Femal  ger Male  7. N on Al App.	SN Age e 40 36 J/WA	On main Severity Slight Slight 697, V3 To	Junt appr Car Pass Per Front No Rear No wing Caravan S iding with Res	No d Direction of ped of ped Brakes Due ar of V2, F	None  Ped Movement  Not ped  Not ped to Traffic aher  pushing V2 into	Not ped Not ped ad and Sto Rear of V	None ation ps, V2	Male School Pr Other Other Slows	60 -
2 Car No 3 Car C'va as No Veh ref Cac Cl 1 1 Passer 2 2 Passer Description: Vehs Tratand Stops Behind V3. User Information:	n Waiting  ass Sex  ger Femal  ger Male  7. N on Al App.	SN Age e 40 36 J/WA	On main Severity Slight Slight 697, V3 To	Junt appr Car Pass Per Front No Rear No wing Caravan liding with Res Contributory	No d Direction of ped of ped Brakes Due ar of V2, F Factors: 3	None  Ped Movement  Not ped  Not ped to Traffic aher	Not ped Not ped ad and Sto Rear of V	None ation ps, V2	Male School Pr Other Other Slows	60 -
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2 Car No 3 Car C'va  2 No Veh ref Cae Cl 1 1 Passer 2 2 Passer  Description: Vehs Trav and Stops Sehind V3.  User Information: 60  Location: Al J/W A697	n Waiting  ass Sex  ger Femal  ger Male  . N on Al App.  VI Fails to SI  0305313  Onslip Morpet	S N Age 40 36 J/W A ow in Slight	On main Severity Slight Slight 697, V3 To Time, Coll Monday td: Al 2nd	Junt appr Car Pass Per Front No Rear No wing Caravan i iding with Rei Contributory 7 10/06/201 Rd: A697	No d Direction of ped of ped brakes Due ar of V2. F Factors: 3	None Ped Movement Not ped Not ped to Traffic ahe wshing V2 into 2000018 4080001 418233/58831	Not ped Not ped ad and Sto Rear of V B	None ation ps, V2	Male School Pr Other Other Slows	) 60 -
2 Car No 3 Car C'va 2ac No Vch ref Cac Cl 1 1 Fasser 2 2 Passer Description: Vehs Irax and Stops Sehind V3. User Information:	n Waiting  ass Sex  uger Femal  uger Male  r. N on Al App.  V1 Fails to S1	S N Age 40 36 J/W A OW in	On main Severity Slight Slight 697, V3 To Time, Coll Monday kd: Al 2nd :	Junt appr  Car Page Per Front No Rear No wing Caravan i iding with Res  Contributory  1 10/06/201	No d Direction of ped of ped Brakes Due ar of V2, F Factors: 3	None  Ped Movement  Not ped  Not ped to Traffic aher byshing V2 into 08V001B 409V001	Not ped Not ped ad and Sto Rear of V B	None ation ps, V2	Male School Pr Other Other Slows	60 -
2 Car No 3 Car C'va cae No Veh ref Cae Cl 1 1 Fasser 2 2 Passer Description: Vehs Iran and Stops Behind V3, User Information: 60 Location: Al J/W A697 Speed C'Way	nn Waiting  ass Sex  gger Femmal  gger Male  . N on Al App.  V1 Fails to S1  0305313  Onslip Morpet  Jot Det/Ctrl  Slip-R Give	S N Age 40 36 J/W A .ow in Slight	On main Severity Slight Slight 697, V3 To Time, Coll Monday kd: Al 2nd :	Junt appr  Car Pass Per Front No Rear No wing Caravan liding with Rev  Contributory  7 10/06/201  Rd: A697  Weather	No d Direction of ped ped Brakes Due ar of V2. F Pactors: 3 3 12:15 Rd Surf Dry	None Ped Movement Not ped Not ped to Traffic ahe Pushing V2 into 08V001B 408V001 418233/58831 PedX - Human	Not ped Not ped ad and Sto Rear of V B	None ps, V2 3	Male School Pr Other Other Slows	Hazard
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2 Car No 3 Car C'va  2 No Veh ref Cae Cl 1 1 Fasser 2 2 Passer  Description: Vehs Trav and Stops Sehind V3., User Information: 60 Location: Al J/W A697  Speed C'Way 70MPH Dual c'way Veh Vehicle type Towi 1 Goods 3.5 - 7.No 2 Van/Goods < 3.No	n Waiting  as Sex  ger Femal  ger Male  . N on Al App.  VI Fails to SI	S N Age 40 36 J/W A ow in Slight h let R Lighti Dayl: N S N S	On main Severity Slight Slight 697, V3 To Time, Coll  Monday dd: Al 2nd 1 ing ont Veh loc On main On main	Junt appr Car Pass Per Front No Rear No wing Caravan i iding with Res Contributory 7 10/06/201 Rd: A697 Weather Fine Junct. loc Junt appr Junt appr	No d Direction DE ped DE ped Brakes Due ar of V2. F Pactors: 3  12:15  Rd Surf Dry Skidding No No	None Ped Movement Not ped Not ped to Traffic ahe. Washing V2.into 2000018 408V001 418233/58831 PedX - Human None Hit obj in L None	Not ped Not ped ad and Sto Rear of V B	None stion ps, V2 3 ac Sp Non Hit ob	Male School Pr Other Other Slows ecial ne j off Sex Male	Hazard None Age 1
2 Car No 3 Car C'va to No Veh ref Cae Cl 1 1 Passer 2 2 Passer Description: Vehs Trav and Stops Behind V3, User Information: 60 Location: Al J/W A697 Speed C'Way 70MPH Dual c'way Veh Vehicle type Towi 1 Goods 3.5 - 7.No 2 Van/Goods 4 3.No 3 Car No	n Waiting  ass Sex  ger Femal  ger Male  . N on Al App  VI Fails to SI  0305313  Onslip Morpet  Jot Det/Ctrl  Slip-R Give  chg lt lane  Stop  Going shead	S N Age 40 36 J/W A ow in Slight h lot R Lighti Dayl: Dir N S N S N S	On main Severity Slight Slight Slight 697, V3 To Time, Coll  Monday kd: Al 2nd 1 ing ght Veh loc On main On main	Junt appr Car Pass Per Front No Rear No wing Caravan No iding with Res Contributory 7 10/06/201 Rd: A697 Weather Fine Junct loc Junc appr Junc appr Junc appr	No d Direction Dt ped out ped Brakes Due ar of V2. F Factors: 3: 3 12:15 Rd Surf Dry Skidding No No	None  Ped Movement Not ped Not ped to Traffic ahe ushing V2 into 08V001B 408V001  418233/58831  PedX - Human None Hit obj in L None None	Not ped Not ped ad and Sto Rear of V B	None stion  ps, V2  ac Spo Non  Hit ob None None None	Male School Pr Other Other Slows ecial ne j off Sex Male Fem.	Hazard None: Age 1 e 28 see 28 see 28 see 25
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2 Car No 3 Car C'va as No Veh ref Cac Cl 1 1 Passer 2 2 Passer Bescription: Vehs Tratand Stops Sehind V3. User Information: 60 Location: Al J/W A697 Speed C'Way 70MPH Dual c'way Veh Vehicle type Towi 1 Goods 3.5 - 7.No 2 Van/Goods < 3.No 2 Van/Goods < 3.No 4 Car No 5 Car No	n Waiting  ass Sex  ger Femal  ger Male  7. N on Al App.  VI Fails to 81  0305313  Onslip Morpet  Jot Det/Ctrl  Slip-R Give  chg lt lane  Stop  Going shead  Stop  Chg rt lane	S N Age 40 36 J/W A OW in Slight Lighti Dayl: N S N S N S P P NE S	On main Severity Slight Slight Slight 697, V3 To Time, Coll  Monday td: Al 2nd : ing ght Veh loc On main On main On main On main On main	Junt appr Car Page Pe Front N Rear N Rear N wing Caravan I iding with Rey Contributory 7 10/06/201 Rd: A697 Weather Fine Junct loc Junt appr Junt appr Junt appr Enter main	No d Direction DE ped DE ped DE ped Brakes Due AT of V2. 1 Pactors: 3  12:15  Rd Surf Dry Skidding No No No No No	None Ped Movement Not ped Not ped to Traffic she ushing V2.into 08V001B 408V001  418233/58831  PedX - Human None Hit obj in L None None None None None	Not ped Not ped ad and Sto Bear of V B	None abion  ps, V2 3  Bit ob None None None None None None	Male School Pr Other Other Slows ecial ne j off Sex Mal Fem Unt	Hazard None Sine 28 1 2 5 1 2
2 Car No 3 Car C'va as No Veh ref Cac Cl 1 1 Passer 2 2 Passer Bescription: Vehs Tratand Stops Sehind V3. User Information: 60 Location: Al J/W A697 Speed C'Way 70MPH Dual c'way Veh Vehicle type Towi 1 Goods 3.5 - 7.No 2 Van/Goods < 3.No 2 Van/Goods < 3.No 4 Car No 5 Car No	n Waiting  ass Sex ger Femal ger Male N on Al App VI Fails to SI  0305313  Onslip Morpet Jot Det/Ctrl Slip-R Give Ing Manoeuvre Chg lt lane Stop Going shead Stop Chg rt lane ass Sex der Male	S N Age 40 36 J/W A OW in Slight Dayli Dayli Dir N S N S N S D P NE S Age	On main  Severity Slight Slight 697, V3 To  Time, Coll  Monday Rd: Al 2nd : ing ght Veh loc On main On main On main On main On main Severity Slight	Junt appr Car Pass Per Front No Rear No Rear No Wing Caravan I iding with Res Contributory 7 10/06/201 Rd: A697 Weather Fine Junct loc Junt appr Car Pass Pe	No d Direction Dt ped of ped Brakes Due ar of V2. F Pactors: 30 3 12:15 Rd Surf Dry Skidding No	None Ped Movement Not ped Not ped to Traffic ahe wshing V2 into 38V001B 408V001  418233/58831  PedX - Humar None Hit obj in L None None None None None None None None	Not ped Not ped ad and Sto Rear of V B	None ac Spo, V2 3 ac Spo, None None None None None	Male School Pr Other Other Slows ecial ne j off Sex Mal Fem. Unt:	Hazard None Sine 28 1 2 5 1 2
2 Car No 3 Car C'va as No Veh ref Cac Cl 1 1 Passer 2 2 Passer Bescription: Vehs Tratand Stops Sehind V3. User Information: 60 Location: Al J/W A697 Speed C'Way 70MPH Dual c'way Veh Vehicle type Towi 1 Goods 3.5 - 7.No 2 Van/Goods 3.No 2 Van/Goods 3.No 4 Car No 5 Car No cas No Veh ref Cas Cl 1 2 Dru/R; 2 2 Passes	n Waiting  ass Sex  ger Femal  ger Male  7. N on Al App.  VI Fails to SI  0305313  Onslip Morpet  Jot Det/Ctrl  Slip-R Give  ung Manoeuvre  Chg lb lane  Stop  Going shead  Stop  Chg rt lane  ass Sex  tider Male  ger Male	S N Age 40 36 J/W A OW in Slight h let R Lighti Dayl: Dir N S N S N S P P NE S Age 20	On main Severity Slight Slight 697, V3 To Time, Coll  Monday dd: Al 2nd : ing ght Veh loc On main On main On main On main On main Severity Slight Slight	Junt appr Car Page Pe Front Ni Rear Ni Rear Ni Wing Caravan I iding with Ree Contributory 7 10/06/201 Rd: A697 Weather Fine Junct loc June appr Junt appr Junt appr Junt appr Enter main Car Pass Pe No Ni No Ni	No d Direction DE ped No No No No No No No No DE ped DE pe	None Ped Movement Not ped Not ped to Traffic she ushing V2.into. 08V001B 408V001  418233/58831  PedX - Human None None None None None None None Non	Not ped Not ped ad and Sto Bear of V B 1 - Phy F None eft cway	None stion  ps, V2 3  ac Spon None None None None None	School Protein Stows  coial me   j off Sex   Mal- Mal- Fem   Unt   School P   Other   Other	Hazard None Sine 28 1 2 5 1 2
2 Car No 3 Car C'va 2 Cae No Veh ref Cae Cl 1 1 Passer 2 2 Passer 2 2 Passer Description: Vehs Tratand, Stops 3ehind V3, User Information:  60 Location: Al J/W A697 Speed C'Way 70MPH Dual c'way Veh Vehicle type Town 1 Goods 3.5 - 7.No 2 Van/Goods < 3.No 3 Car No 4 Car No 5 Car No Cas No Veh ref Cas Cl 1 2 Drv/R; 2 2 Passer Description: Vehs 1,2	n Waiting  ass Sex  ger Femal  ger Male  7. N on Al App  VI Fails to SI  0305313  Onslip Morpet  Jot Det/Ctrl  Slip-R Give  ing Manoeuvre  Chg lt lane  Stop  Going ahead  Stop  Chg rt lane  ass Sex  ider Male  ger Male  gas 184 Frav. 5 o	S N Age 40 36 J/W A OW in Slight h lot R Lighti Dayl: Dayl: N S N S N S P P NE S Age 26 20 n Al J/	On main  Severity Slight Slight Slight 697, V3 To  Time, Coll  Monday dd: Al 2nd l ing oht  Veh loc On main On main On main On main Severity Slight Slight W A697 Ons	Junt appr Car Pass Pe Front N Rear N Rear N Wing Caravan I iding with Rei Contributory / 10/06/201 Rd: A697 Weather Fine Junct loc Junt appr Senter main Car Pass Pe No No No No Slip, V5 Irav.	No d Direction DE ped Dat ped Dat ped Brakes Due Brakes	None  Ped Movement Not ped Not ped to Traffic ahe wshing V2 into 38V001B 408V001  418233/58831  PedX - Human None Hit obj in L None None None None None None None None	Not ped Not ped ad and Sto Rear of V  B  1  - Phy F None eft cway  Ped loc. Not ped Not ped 464 slow 2	None ac Spo, V2 3 Bit ob None None None None ation	Male School Pr Other Other Slows  ecial ne j off Sex Male Fem Unt: Unt: School P Other Other	Hazard None Sine 28 1 2 5 1 2
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2 Car No 3 Car C'va  2 No Veh ref Cae Cl 1 1 Passer 2 2 Passer Bescription: Vehs Trav and Stops Sehind V3, User Information:  60 Location: Al J/W A697 Speed C'Way 70MPH Dual c'way Veh Vehicle type Town 1 Goods 3.5 - 7.No 2 Van/Goods < 3.No 3 Car No 4 Car No 5 Car No Cas No Veh ref Cas Cl 1 2 Drv/R; 2 2 Passer Description: Vehs 1,2	n Waiting  ass Sex  ger Femal  ger Male  . N on Al App.  VI Fails to SI	S N Age 40 36 J/W A OM in: Slight h lot R Lighti Dayl: N S N S P P NE S Age 26 20 n Al J/to O/S	On main  Severity Slight Slight Slight 697, V3 To  Time, Coll  Monday dd: Al 2nd : ing oht  Veh loc On main On main On main On main On main Severity Slight Slight Slight Slane, Coll Lane, Coll	Junt appr Car Pass Per Front No. Rear No. Rear No. Wing Caravan No. Wing Caravan No. Wing Caravan No. Wing Caravan No. Weather Fine Junt Appr	No d Direction Dt ped obt ped Brakes Due ar of V2, F Factors: 3  12:15  Rd Surf Dry Skidding No No No No No No No To	None  Ped Movement Not ped Not ped to Traffic ahe.  wshing V2 into  08V001B 408V001  418233/58831  PedX - Human None Hit obj in L None None None None None None None None	Not ped Not ped ad and Sto Rear of V  B  - Phy F None eft cway  Ped loc Not ped Not ped 464 Slow i Collides w	None ation  ps, V2 3  ac Spe Bit ob None None None None in N/S pith O/	Male School Pr Other Other Slows  ecial me j off Sex Male Fem Unt: Unt: School Pr Other Other Lane, V1	Hazard None : Age 1 e 28 - sle 25 - ra1 1
2 Car No 3 Car C'va 2 No Veh ref Cae Cl 1 1 Passer 2 2 Passer Bescription: Vehs Tratand, Stops Sehind V3, User Information:  60 Location: Al J/W A697 Speed C'Way 70MPH Dual c'way Veh Vehicle type Town 1 Goods 3.5 - 7.No 2 Van/Goods < 3.No 3 Car No 4 Car No 5 Car No Cas No Veh ref Cas Cl 1 2 Drv/R: 2 2 Passer Description: Vehs 1, Z Slows in N/S Lane, Cl VS Enters Al Tray S User Information:	n Waiting  ass Sex  ger Femal  ger Male  . N on Al App.  VI Fails to SI	S N Age 40 36 J/W A OW in Slighth h lot R Lighti Dayl: Dayl: N S N S N S P P NE S Age 26 20 n Al J/ to O/S	On main  Severity Slight Slight Slight 697, V3 To  Time, Coll  Monday dd: Al 2nd 1 ing oht  Veh loc On main On main On main On main Severity Slight Slight W A697 Ons Lane, Coll	Junt appr Car Pass Per Front No. Rear No. Rear No. Wing Caravan No. Wing Caravan No. Wing Caravan No. Wing Caravan No. Weather Fine Junt Appr	No d Direction Dt ped of ped Dry Skidding No No No No No To Stidding No	None Ped Movement Not ped Not ped to Traffic ahe wshing V2 into 38V001B 408V001  418233/58831  PedX - Human None Hit obj in L None None None None None None None Sone Sone None None None None None None None N	Not ped Not ped ad and Sto Eear of V  None Ped loc Not ped Not ped 444 Slow i Collides w	None ation  ps, V2 3  ac Spe Bit ob None None None None in N/S pith O/	Male School Pr Other Other Slows  ecial me j off Sex Male Fem Unt: Unt: School Pr Other Other Lane, V1	Hazard None : Age 1 e 28 - sle 25 - ra1 1
2 Car No 3 Car C'va  2 No Veh ref Cae Cl 1 1 Fasser 2 2 Passer  Bescription: Vehs Trav and Stops Sehind V3, User Information:  60  Location: Al J/W A697  Speed C'Way 70MPH Dual c'way  Veh Vehicle type Tow: 1 Geods 3.5 - 7.No 2 Van/Goods < 3.No 3 Car No 4 Car No 5 Car No Cas No Veh ref Cas Cl 1 2 Dru/R: 2 2 Passer  Slows in N/S Lane, Cl VS Enters Al Trav. S. User Information: 66	nn Waiting  ass Sex  gger Femal gger Male  Non Al App. VI Fails to SI  0305313  Onslip Morpet Jot Det/Ctrl Slip-R Give Ing Manoeuvre Chg lt lane Stop Going ahead Stop Chg rt lane ass Sex ider Male gger Male gger Male gger Male gger Tale 0324013	S N Age 40 86 J/W A OW in Slight h lot R Lighti Dayl: Dir N S N S P P NE S Age 25 25 26 27 to 0/S	On main  Severity Slight Slight Slight 697, V3 To  Time, Coll  Monday dd: Al 2nd 1 ing ght Veh loc On main On main On main On main Severity Slight Sl	Junt appr Car Pass Per Front No Rear No Rear No wing Caravan i iding with Rei Contributory 7 10/06/201 Rd: A697 Weather Fine Junct loc Junt appr	No d Direction Dt ped of ped Dry Skidding No No No No No To Stidding No	None Ped Movement Not ped Not ped to Traffic ahe wshing V2 into 38V001B 408V001  418233/58831  PedX - Human None Hit obj in L None None None None None None None Sone Sone None None None None None None None N	Not ped Not ped ad and Sto Eear of V  None Ped loc Not ped Not ped 444 Slow i Collides w	None ation  ps, V2 3  ac Spe Bit ob None None None None in N/S pith O/	Male School Pr Other Other Slows  ecial me j off Sex Male Fem Unt: Unt: School Pr Other Other Lane, V1	Hazard None : Age 1 e 28 - sle 25 - ra1 1
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		Reference	Severi	ty Day	Date	Time	Grid Co	ords	Lii	nk/Node	Street		
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Location: Morp	eth by Pas	s 100M N of	J/W A69	97, Morpet	h 1st Rd: A	1 2nd Rd:							
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Speed C'Way 60MPH One W	ay St Si	t Det/Ctrl	Lightin Daylig	ht	Weather Rain	Rd Surf Wet	PedX - H		- Phy None	011	cial or diesel		
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as No Veh ref	Cas Class	Sex .	Age	Severity	Car Pass	Ped Direction		ent	Ped lo		School Pu		
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69			Slight		y 16/06/20		418226/58	8664					
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	e c'way No		<b>Lightin</b> Dayligh	nt	Weather Rain	Rd Surf Wet	PedX - H		- Phy E None	None		Hazard None	22
Veh Vehicle typ		Manoeuvre U turn		Weh loc On main	Junct. lo	c Skidding	Hit obj in None	Left	cway	Hit obj	off Sex Male	Age 77	
2 Car		Going ahead		On main	Not at	No	None			None	Male	65	
Cas No Veh ref	Cas Class Drv/Ride:	r Male	Age 65	Severity Slight	No	Ped Direction Not ped	Ped Movem Not ped		Ped loc	1	School Pur	il	
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9.2		0405814	Serious	Saturda	y 12/07/2	014 12:05	418230/5	8705					
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S <b>peed C'Way</b> 60MPH Single	Jc c'way No	t Det/Ctrl	<b>Lightin</b> Dayligh		Weather Fine	Rd Surf	PedX - H None	uman	- Phy I	Fac Spe Non	cial e	Hazard None	
Veh Vehicle typ	e Towing	Manoeuvre	Dir V	/eh loc	Junct. lo	c Skidding	Hit obj in	Left	cway	Hit obj	off Sex	Age	B/T
1 M/cycle > 5	ODC No	Stop		On main On main	Not at	Yes	None			None	Male Male		-ve
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2 Car 3 Car as No Veh ref 1 1 2 1 Description: Ve	No Cas Class Drv/Ride: Passenge: hs Trav	Parked Sex Male Femal S on Al, V3	PP ( Agre 60 e 58 Suffers	On main  Severity  Serious  Serious  a Blow Ou	Not at Car Pass No No No t, Coming	No Ped Direction Not ped Not ped to a Stop in	None  Ped Movem  Not ped  Not ped  Carriageway	, V2		cation d d ehind B3	School Pu Other Other	pil	
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2 Car 3 Car as No Veh ref 1 1 1 2 1 Description: Ve Fails to Stop Jeer Informatio	No Cas Class Drv/Ride: Passenge: hs Trav : in Time, (	Parked Sex r Male r Femal S on Al, V3 Colliding wi	PP ( Age 60 e 58 Suffers th Rear	On main Severity Serious Serious a Blow Ou of V2 Cau	Not at Car Pass No No t, Coming sing Rider Contributo	No Ped Direction Not ped Not ped to a Stop in & Pillion to ry Factors: 30	None  Ped Movem  Not ped  Not ped  Carriageway  Fall from	7, V2 : V1 7001A	Not pe Not pe Stops B	cation d d ehind B3	School Pu Other Other V1	pil	
2 Car 3 Car as No Veh ref 1 1 2 2 1 Description: Ve Fails to Stop User Informatio 133 Location: Al 1 Speed C'Way	No Cas Class Drv/Ride: Passenger hs Trav : in Time, ( n:	Parked Sex r Male r Femal S on Al, V3 Colliding wi  0581713 J/W C130, H b Det/Ctrl	PP ( Age 60 e 58 Suffers th Rear Slight ebron 1 Lightin	On main Severity Serious Serious a Blow Ou of V2 Cau  Sunday st Rd: Al :	Not at Car Pass No No t, Coning sing Rider Contributo 13/10/20 2nd Rd: Weather	No Ped Direction Not ped Not ped to a Stop in & Pillion to ry Factors: 30 D13 11:20 Rd Surf	None Ped Movem Not ped Not ped Carriageway Fall from 80001A 406	7. V2 : V1 7001A	Not pe Not pe Stops B 408V003	eation d d ehind B3 A	School Pu Other Other V1	pil Hazard	
2 Car 3 Car as No Veh ref 1 1 1 2 1 Description: Ve Fails to Stop User Informatio 139 Location: Al 1 Speed C'Way 70MDH Deal c	No Cas Class Drv/Rider Passenger hs Trav : in Time, C n. Mile S of Jot	Parked Sex r Male r Femal S on Al, V3 Colliding wi  0561713 J/N C130, H t Det/Ctrl	Age 60 e 58 Suffers th Rear Slight ebron 1 Lightin Dayligh	On main Severity Serious Serious Serious a Blow Ou of V2 Cau  Sunday st Rd: Al;	Not at Car Pass No No t, Coming sing Rider Contributo 13/10/20 2nd Rd: Weather Fine Win	No Ped Direction Not ped Not ped to a Stop in & Pillion to ry Factors: 30 D13 11:20 Rd Surf d Wet	None Ped Movem Not ped Not ped Carriagewa; Fall from 8V001A 406*  418215/50  PedX - B	r, V2   V1 7001A  8800	Not pe Not pe Stops B 	eation d d ehind B3 A	School Pu Other Other V1	pil Hazard None	0.000
2 Car 3 Car as No Veh ref 1 1 1 2 1 Description: Ve Fails to Stop User Informatio 139 Location: Al 1 Speed C'Way YOMDH Deal c	No Cas Class Drv/Rides Drsv.Rides Drssenger has Trav. in Time, (in Time, (in Time, (in Time, (in Time, in Time,	Parked Sex r Male r Femal S on Al, V3 Colliding wi  0561713 J/N C130, H t Det/Ctrl	Age 60 e 58 Suffers th Rear Slight ebron 1 Lightin Dayligh Dir V	On main Severity Serious Serious Serious A Blow Ou of V2 Cau  Sunday st Rd: Al; grait	Not at Car Pass No No t, Coning sing Rider Contributo 13/10/20 2nd Rd: Weather	No Ped Direction Not ped Not ped to a Stop in & Pillion to ry Factors: 30 D13 11:20 Rd Surf d Wet	None Ped Movem Not ped Not ped Carriageway Fall from 80001A 406	r, V2   V1 7001A  8800	Not pe Not pe Stops B 	eation d d ehind B3 A	School Pu Other Other V1	Bazard None Age	В/Т
2 Car 3 Car as No Veh ref 1 1 1 2 1 Description: Ve Fails to Stop User Informatio  139 Location: Al 1 Speed C'Way 70MDH Deal c	No Cas Class Drv/Rider Passenger his Trav : in Time, (  n:  Mile S of Jot 'way No e Towing No (	Parked  Sex r Male r Femal S on Al, V3 Colliding wi  0581713  J/W C130, H t Det/Ctrl tJCT  Manoeuvre	Age 60 e 58 Suffers th Rear Slight ebron 1 Lightin Dayligh Dir V	On main Severity Serious Serious Serious A Blow Ou of V2 Can  Sunday st Rd: Al;  g t Veh loc On main	Not at Car Pass No No tt, Coming sing Rider Contributo 13/10/20 2nd Rd: Weather Fine Win Junct. lo	No Ped Direction Not ped Not ped to a Stop in & Pillion to ry Factors: 30 D13 11:20 Rd Surf d Wet c Skidding	None Ped Movem Not ped Not ped Carriageway Fall from 8V001A 406*  PedX - H None Hit obj in	r, V2   V1 7001A  8800	Not pe Not pe Stops B 	Pac Spe Non None	School Pu Other Other . V1	Hazard None Age 26	B/T
2 Car 3 Car as No Veh ref 1 1 2 1 Bescription: Ve Fails to Step User Informatio 133 Location: Al 1 Speed C'Way 70MDH Dual c Veh Vehicle typ 1 Car 2 Car as No Veh ref	No Cas Class Drv/Rider Passenger his Trav in Time, C n  Mile S of 'way No e Towing No ( No ( Cas Class	Parked Sex Male Femal S on Al, V3 Colliding wi  0581713 J/W C130, H t-JCT Manoeuvre Chg rt lane Soing shead Sex	PP ( Age 60 e 58 Suffers th Rear  Slight ebron 1 Lightin Dayligh Dir V SW NE C Age	On main Severity Serious Serious Serious a Blow Ou of V2 Can Sunday st Rd: Al ; g /eh loc On main On main Severity	Not at Car Pass No No No To Coming Rider Contributo 13/10/20 2nd Rd: Weather Fine Win Junct. lo Not at Not at Car Pass	No Ped Direction Not ped Not ped Not ped to a Stop in a Pillion to ry Factors: 30  Rd Surf d Wat c Skidding No No Ped Direction	None Ped Movem Not ped Not ped Carriageway Fall from 8V001A 4060 418215/56 PedX - H None Hit obj in None Ped Movem	r, V2 : V1 7001A 88800 Wman Left	Not pe Not pe Stops B - Mone - Phy I None - cway	Pac Spee Non Hit obj	School Pu Other Other V1 Colal colal coff Sex Male parr Fema School Pu	Hazard None Age 26	B/T
2 Car 3 Car as No Veh ref 1 1 2 1 Description: Ve Fails to Stop User Informatio  139 Location: Al 1 Speed C'Way 70MDH Cual c Veh Vehicle typ 1 Car 2 Car as No Veh ref 1 1	No Cas Class Drv/Rider Passenger his Trav : in Time, (  n:  Mile S of Jot 'way No e Towing No ( No (	Parked  Sex  Male  Femal  S on Al, V3  Colliding wi  0581713  J/W C130, H  t Det/Ctrl  TJCT  Manoeuvre  Coing shead  Sex  Male	Age 60 65 65 85 85 85 85 86 86 86 86 86 86 86 86 86 86 86 86 86	On main Severity Serious Serious Serious A Blow Ou of V2 Can  Sunday st Rd: Al :  g t  Veh loc On main On main	Not at Car Pass No No t, Coming sing Rider Contributo 13/10/20 2nd Rd: Weather Fine Win Junct lo Not at Car Pass No	No Ped Direction Not ped Not ped to a Stop in & Pillion to ry Factors: 30  Rd Surf d Wet c Skidding No No	None Ped Movem Not ped Not ped Carriageway Fall from 8V001A 4067  418215/50  PedX - H None Hit obj in None	r, V2 : V1 7001A 88800 Wman Left	Not pe Not pe Stops B 408V003	Paction d d d d d d d d d d d d d d d d d d d	School Pu Other Other V1 cial e off Sex Male	Hazard None Age 26	B/T
2 Car 3 Car as No Veh ref 1 1 2 1 Description: Ve Fails to Stop User Informatio  139 Location: Al 1 Speed C'Way 70 MDH Dual c Veh Vehicle typ 1 Car 2 Car as No Veh ref 1 1	No Cas Class Drv/Rider Passenger hs Trav in Time, C n: Mile S of Vay No e Towing No ( Cas Class Drv/Rider Drv/Rider Dresenger hs Trav No	Parked  Sex  Male Femal S on Al, V3 Colliding wi  D581713  J/W C130, H t Det/Ctrl tror Manoeuvre Ching shead Sex Male Femal Male V/E on Al, V3	PP ( Age 6 58 Suffers th Rear Slight ebron 1 Lightin Dayligh Dir V SW NE C Age 26 4 4 2 in N/	Severity Serious Serious Serious A Blow Ou of V2 Cau  Sunday st Rd: Al; g te Veh loc On main Severity Slight Slight Slight S Lane, V1	Not at Car Pass No No t, Coming sing Rider Contributo  13/10/20 2nd Rd: Weather Fine Win Junct lo Not at Car Pass No No Front in O/S Lai	No Ped Direction Not ped to a Stop in & Pillion to ry Factors: 30 Dis 11:20  Rd Surf d Wat o Skidding No No Ped Direction Not ped Not ped ne, V2 Pulls	None Ped Movem Not ped Not ped Not ped Carriageway Fall from 8V001A 406'  418215/56'  PedX - B None Hit obj in None None Ped Movem Not ped Not ped Not ped out into 0/	V V2 SV1 V2	Not pe Not pe Stops B 	Fac Spee Non Hit obj None Cent 1 cation d d d Fath of Fath of Fath of	School Pu Other Other V1 Cotal Coff Sex Male Carr Fema School Pu Other Other Other V1, V1	Hazard None Age 26 le 74	B/T -ve -ve

40	111264		Referen	Section 1	rity Day	Date	Time	Grid Co	ords	Link/N	oge sur	eet		
	E06000		0151814	Serio				418231/58	8805		3999			
						st Rd: Al 2n								
Speed 60 MPH	C'Way Single	c'way	Jot Det/Ctr NotJCT		ting /no lights	Weather Fine	Rd Surf	PedX - Ho None	man - P Nor		Special None		Hazar None	1
Veh Veh	icle type	Towin	g Manoeuvr	e Dir	Veh loc	Junet. 1	oc Skidding	Hit obj in	Left ow	ay Hi	t obj of	E Sex	λge	B/1
1 Car		No	Going ahe	ead S N	On main	Not at	Yes	None	Offside	I	itch	Fema	le 22	N/1
2 Car		No	Coing ah		On main	Not at	No	None			one	Male		-1/4
3 Car		No Cl	Going ah		On main	Not at	No D I Di	None			lone	Male		-70
las No V	on rer	Cas Cla Drv/Ric		male 2		No No	Not ped	Not ped		locati ped	on Sch Otl	ool Du	pii	
2	0	Passenç		male 4		Front	Not ped	Not ped	Not	ped	Oth			
			ON A1, V2	263 TRAV			Not ped TO BE ESTABL	Not ped ISHED V162 C		ped EAD ON	Oti , PASSEN			
	formation						ory Factors: 4	10V001A 503V	001A 6023	7001A 6	06V001A		10000000	
9.3			0424513	Slight	Sunday	11/08/2	013 18:10	418238/588	960					
Location	n: Al 1/2	Mile S	outh J/W H	ebron 1s	t Rd: Al 2nd	i Rd:								
Speed 60 MPH	C'Way Single		ct Det/Ctrl	Light Dayl:		Weather Fine	Rd Surf Dry	PedX - Hur None	nan - Ph None	y Fac	Special None		Hazard Animal	
	16	7.	Manoeuvre	100	Veh loc	Junct. lo		Hit obj in			obj off		Age	
1 Car	17/253	No	Coing ahe		On main	Not at	Yes	None		390	ne	Male	200.10	-ve
2 Car		No	Stop	500.50	On main	Not at	No	None		No	ne	Male		-ve
3 Car		No	Stop		On main	Not at	No	None	000		ne	Male	60	-ve
as No Ve		Cas Clas		-	-	Car Dass No	Not ped	Not ped	nt Ped Not	locatio med	n Scho	ol Pup	11	
	2 1	rv/Rid	er Ma.	le 43			Not ped	Not ped	Not		Oth			
		rv/Rid					Not ped	Not ped	Not		Othe	er		
							void Animal i							
	ormation:						ry Factors: 30							
141			0589911	Fatal	Sunday	09/10/2	011 17:28	419370/589	1670					
No.	n: Al 200	M South	Hebron 1s		TOTAL CONTRACTOR	4.72.44	***	37+54X74X4X	(X.9.					
Speed	C'Way		Jct Det/Ctr	1 Light	ting	Weather	Rd Surf	PedX - Hu	nan - Pi	y Fac	Special		Hazard	
60 MPH	Single			Day1		Fine	Dry	None	None		None		None	
	icle type		g Manoeuvre		Veh loc	Junct. lo		Hit obj in	Left cwa		obj off		Age	
1 Car 2 Good	is > 7.5t	No A++	Going ahe Going ahe			Not at	No Yes	None None			ne ne	Male Male		N/R -ve
		7.77.5												
	eh ref	Cas Cla	ss Se	x Age	Severity	Car Pass	Ped Direction		nt Ped		n Scho	ol Pup	il	
1	1	Cas Clas Drv/Rid	ler Ma	le 33	Fatal	No	Ped Direction Not ped	Ped Moveme Not ped	Not	locatio ped	Oth		il	
1 2	2	Drv/Rid Drv/Rid	ler Ma ler Ma	le 33 1e 31	Fatal Slight	No No	Not ped Not ped	Ped Moveme Not ped Not ped	Not Not	locatio ped ped	Othe Othe	er er	il	
1 2 Descrip	1 2 tion: V1	Drv/Rid Drv/Rid Trav Sc	er Ma ler Ma uth West o	le 33 1e 31 n Al Jus	Fatal Slight t Passed He	No No bron Juncti	Not ped Not ped on when for F	Ped Moveme Not ped Not ped Seasons Yet t	Not Not to Be Est	locatio ped ped sblishe	Othe Othe d V1 Has	er er		
1 2 Descrip Veered	1 2 tion: V1	Drv/Rid Drv/Rid Trav Sc Opp Ca	er Ma ler Ma uth West o	le 33 1e 31 n Al Jus	Fatal Slight t Passed He	No No bron Juncti with V2 Tr	Not ped Not ped	Ped Moveme Not ped Not ped Reasons Yet t	Not Not to Be Est	locatio ped ped sblishe	Othe Othe d V1 Has	er er		****
1 2 Descrip Veered Voer In:	1 2 tion: VI into the formation	Drv/Rid Drv/Rid Trav Sc Opp Ca	er Ma ler Ma uuth West o rriagway a	ie 33 le 31 n Al Jus nd Colli	B Fatal I Slight It Passed He ded Head on	No No bron Juncti with V2 Tr Contributo	Not ped Not ped on when for P av North East ry Pactors: 40	Ped Moveme Not ped Not pad Reasons Yet t	Not Not to Be Est	locatio ped ped sblishe	Othe Othe d V1 Has	er er		****
1 2 Descrip Veered	1 2 tion: V1 into the formation	Drv/Rid Drv/Rid Trav Sc Opp Ca	er Ma ler Ma uth West o	le 33 1e 31 n Al Jus	B Fatal I Slight t Passed He ded Head on	No No bren Juncti with V2 Tr. Contributo	Not ped Not ped on when for P av North East ry Pactors: 40	Ped Moveme Not ped Not ped Reasons Yet t	Not Not to Be Est	locatio ped ped sblishe	Othe Othe d V1 Has	er er		
1 2 Descrip Veered User In: 123 F5 Locatio Speed	1 2 tion: V1 into the formation n: A1 C'Way	Drv/Rid Drv/Rid Trav Sc Opp Ca	er Ma er Gest Gest Gest Gest Gest Gest Gest Gest	le 30 le 31 n Al Jus nd Colli	B Fatal I Slight I Passed He ded Head on It Tuesda J/W Hebr ting	No No Dron Juncti with V2 Tr Contributo  y 31/08/2 on Junction Weather	Not ped Not ped on when for F av North East ry Pactors: 40 010 21:18 nebron 1st Rd: Rd Surf	Ped Movement Not ped Not ped Not ped Reasons Yet t 1 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	Not Not to Be Est 9780 C130 man - Pl	locatio ped ped ablishe	Oths Oths d V1 Has	er		
1 2 Descrip Veered User In: 123 F5 Locatio Speed 60 MPH	1 2 tion: VI into the formation n: Al C'Way Single	Drv/Rid Drv/Rid Trav Sc Opp Ca :	er Ma ler	le 33 le 31 n Al Jus nd Colli  Sligh  Lighte Dark	B Fatal Slight Tassed He ded Head on  Tuesds J/W Hebr ting /no lights	No No Dron Juncti with V2 Tr Contributo  y 31/08/2 on Junction Weather Fine	Not ped Not ped Not ped on when for F ay North East ry Factors: 40 010 21:18 nebron 1st Rd: Rd Surr Dry	Ped Movemen Not ped Not ped Reasons Yet to 1000001B 418400/58 Al 2nd Rd: PedX - Hu None	Not Not 0 Be Est 9780 C130 man - Pl	locatio ped ped ablishe	Othe Othe d V1 Hes Special None	er er	Hazard None	
1 2 Descrip Veered User In: 123 F5 Locatio Speed 60 MPH Veh Veh	1 2 tion: VI into the formation n: Al C'Way Single	Drv/Rid Drv/Rid Trav Sc Opp Ca : c'way	er Ma ler Ma ler Ma ler Ma ler Ma ler Mest o rriagway a  0540110  lot Det/Ctr T/Stag Giv g Manoeuvre	le 30 le 31 n Al Jus nd Colli  Sligh  Light  Bark	Fatal Slight Fassed He ded Head on  Theeds J/W Hebr ting /no lights Veh loc	No ho bron Juncti with V2 Tr. Contributo  y 31/08/2 on Junctionh Weather Fine Junct. 16	Not ped Not ped Not ped on when for F ay North East ry Factors: 40 010 21:18 mebron 1st Rd: Rd Surr Dry oc Skidding	Ped Moveme Not ped Not ped Not ped Seasons Yet t  03V001B  418400/58 Al 2nd Rd: PedX - Hu None Hit obj in	Not Not 0 Be Est 9780 C130 man - Pl	locatio ped ped ablishe my Fac e	Othe Othe d V1 Hes Special None t obj off	er er Sex	Hazard None Age	в/т
1 2 Descrip Veered User In: 123 F5 Locatio Speed 60 MPH Veh Veh	1 2 tion: VI into the formation n: Al C'Way Single	Drv/Rid Drv/Rid Trav Sc Opp Ca : c'way Towin	er Ma ler Ma ler Ma uth West o rriagway a  0540110  Lot Det/Ctr I/Stag Giv g Manoeuvr Going ahe	le 33 le 31 n Al Jus nd Colli  Sligh  Ligh re Dark e Dir	Fatal Slight Slight t Passed Ee ded Head on  Theedi J/W Hebr ting /no lights Veh loc W On main	No No boron Juncti with V2 Tr. Contributo y \$1/08/2 on Junction Weather Fine Junct. 1c Junt apps	Not ped Not ped Not ped on when for F ay North East ry Pactors: 40 010 21:18 mebron 1st Rd: Rd Surf Dry oc Skidding r No	Ped Movemen Not ped  - Hu None Hit obj in None	Not Not 0 Be Est 9780 C130 man - Pl	location ped	Othe Othe d V1 Hes Special None t obj off	er er Sex Male	Hazard None Age	B/T
1 2 Descrip Veered User In: 123 F5 Locatio Speed 60 MPH Veh Veh I Car 2 Car	1 2 tion: VI into the formation n: Al C'Way Single	Drv/Rid Drv/Rid Trav Sc Opp Ca : c'way Towin No	er Ma ler Ma ler Ma ler Ma ler Ma ler Mest o rriagway a  0540110  lot Det/Ctr T/Stag Giv g Manoeuvre	le 30 le 31 n Al Jus nd Colli  Sligh  Ligh re Dark e Dir ead NE S	Fatal Slight Fassed He ded Head on  Theeds J/W Hebr ting /no lights Veh loc	No ho bron Juncti with V2 Tr. Contributo  y 31/08/2 on Junctionh Weather Fine Junct. 16	Not ped Not ped Not ped on when for F av North East ry Factors: 40 010 21:18 nebron 1st Rd: Rd Surf Dry oc Skidding r No	Ped Moveme Not ped Not ped Not ped Seasons Yet t  03V001B  418400/58 Al 2nd Rd: PedX - Hu None Hit obj in	Not Not 0 Be Est 9780 C130 man - Pl	location ped	Othe Othe d V1 Hes Special None t obj off	er er Sex	Hazard None Age 17	B/T
1 2 Descrip Veered User In: 123 F5 Locatio Speed 60 MPH Veh Veh I Car 2 Car 3 Other Speed Car 2 Car 3 Other Speed Car 3	1 2 tion: VI into the formation n: Al C'Way Single sicle type	Drv/Rid Drv/Rid Trav Sc Opp Ca :  c'way Towin No vNo	ler Ma ler Ma ler Ma ler Ma ler Ma ler Ma ler Maler ler	le 30 le 31 le 31 a Al Jus nd Colli  Sligh  Ligh re Dark e Dir sad NE S NE S	Fatal Slight t Fassed Ee ded Head on  Theedi J/W Hebr ting /no lights Veh loc Won main On main	No bron Juncti with V2 Tr. Contributo  y 31/08/2 on Junction Weather Fine Junct 1c Junt app; Junt app; Junt app; Junt app; Junt app;	Not ped Not ped Not ped on when for F av North East ry Factors: 40 010 21:18 nebron 1st Rd: Rd Surf Dry oc Skidding r No	Ped Moveme Not ped Not ped leasons Yet to 200001B 418400/58 Al 2nd Rd: PedX - Hu None Hit obj in None None	Not Not So Be Est 9780 C130 man - Pl Non Left cwa	location ped	Othe Othe d V1 Hes Special None t obj off one one	Sex Male Femal	Hazard None Age 17 e 48 -1	B/T -ve
Descrip Veered User In: 123 F5 Locatio Speed 60 MPH Veh Veh 1 Car 2 Car 3 Othe Cas No V	1 2 tition: VI Anto the formation n: Al C'Way Single side type er: Motor	Drv/Rid Drv/Rid Drv/Rid Trav Sc Opp.Ca  c'way Towin Ho No vNo Cas Cla Drv/Rid	ler Ma e	le 30 le 31 le 31 le 31 le 31 le 31 le 31 Sligh  Sligh  I Ligh  I Ligh  E Dark  E Dir  E D Dark  E D D D D D D D D D D D D D D D D D D	Fatal Slight t Fassed Es ded Head on  Theedi J/W Hebr ting /no lights Veh loc W On main W On main On main Security Security Security	No N	Not ped Not ped Not ped on when for F av North East ry Pactors: 40 010 21:18 nebron 1st Rd: Rd Surr Dry oc Skidding r No r No Ro No Ped Direction	Ped Moveme Not ped Not ped leasons Yet t  200001B  418400/58 Al 2nd Rd: PedX - Hu None None None None None	Not Not Not 20 Be Ist.  9740  C130  man - Pi Non Non Left Cwa	location ped ped ablished by Fac e N N N N N N N N N N N N N N N N N N	Othe Othe Othe Othe Special None tobjoff one one one othe Othe	Sex Male Femal Male bool Dun	Hazard None Age 17 e 48 -1	B/T -ve
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se No Vah ref Cas Class	2 Van/Goods	< 3.No	Stop	S N	On main	Not at	No	None	N	None Male	27 -
1 1 Dev/Ridder Male 47 Slight Mo Not ped Not ped Not ped Other 2 2 Dev/Ridder Male 48 Slight Mo Not ped Not ped Not ped Other 3 3 Dev/Ridder Male 48 Slight Mo Not ped Not ped Not ped Other 1011sting with Rear of V2, Fushing V2 Forward into Rear of V3. 1011sting with Rear of V2, Fushing V2 Forward into Rear of V3. 1011sting with Rear of V2, Fushing V2 Forward into Rear of V3. 1011sting with Rear of V2, Fushing V2 Forward into Rear of V3. 1011sting with Rear of V2, Fushing V2 Forward into Rear of V3. 1011sting with Rear of V2, Fushing V2 Forward into Rear of V3. 1011sting with Rear of V2, Fushing V2 Forward into Rear of V3. 1011sting with Rear of V2, Fushing V2 Forward into Rear of V3. 1011sting with Rear of V2, Fushing V2 Forward into Rear of V3. 1011sting with Rear of V2, Fushing V2 Forward into Rear of V3. 1011sting with Rear of V2, Fushing V2 Forward into Rear of V3. 1011sting with Rear of V2, Fushing V2 Forward into Rear of V3. 1011sting with Rear of V2 Frav. No not Rear of V2 Forward into Rear of V2 Frav. No Going ahead S N On main Micjunction Fes Kert No None Male 22 - No Going ahead S N On main Micjunction Fes Kert No None Male 22 - No Note of Carcing with Rear of V2 Frav. No not Note Forward Note Ped Note Ped Other 1011sting with Rear of Carcing with Rear of V2 Frav. No not Note Ped Note Ped Note Ped Other 1011sting with Rear of Carcing with Rear of V3. 1011sting with Rear of V3 Frav. No not No Hills with Rear of V3 Frav. No None None None None None None Penale S No Web Vehicle type Towing Management Dir Vehicle Town No None None None None None None None	3 Car	No	Stop	s N	On main	Not at	No	None	N	one Male	48 -
Dry/Rider Male 27 Slight No Not ped Not ped Not ped Other 3 3 Dry/Rider Male 48 Slight No Not ped Not ped Not ped Other 48 Slight No Not ped Not ped Not ped Other 48 Slight No Not ped Not ped Not ped Other 48 Slight No Not ped Not ped Not ped Other 48 Slight No Not ped Not ped Not ped Other 48 Slight No Not ped Not ped Not ped Other 48 Slight No Not ped Not ped Not ped Other 48 Slight Not ped Not ped Not ped Not ped Not ped Other 48 Slight Not ped Other 48 Slight Not ped Other Not Not ped Not ped Not ped Not ped Not ped Not ped Other Not ped No				474 D							11
3 3 Drv/Rider Male 48 Slight No Not ped Not ped Not ped Other Description: What Tran No nal, Traffic Infront Begins to Slow to a Stop, V263 Slow, V1 Fails to Slow in Time, Colliding with Rest of V2, Pushing V7. Forward into Rear of V3.  Seer Information: Contributory Factors: 308V001A 408V001A 408V001B  157 0682313 Slight Wednesday 27/11/2013 14:30 418430/8698885  Location: Al J/W Layby Habron 1st Rd: Al 2nd Rd: Al	E			8 887	12 000000000000000000000000000000000000		APT 000		The state of the s		
Description: Vehs Trav. N on Al, Traffic Infront Begins to Slow to a Stop, V283 Slow, V1 Fails to Slow in Time, Colliding with Rear of V2. Pushing V2 Forward into Rear of V3.  Seer Information:  Contributory Factors: 308V001A 408V001A 408V001B  157											
Contributory Factors: 308V001A 405V001B 405V001B  To be contion: Al J/W Layby Nebron ist Rd: Al 2nd	o 3										
Location: Al J/W Layby Hebron Ist Rd: Al Ind Rd: Al Speed C'Way Jot Det/Ctrl Lighting	Description:	Vehs Trav				ns to Slow	to a Stop, 1	7263 Slow, V1 Fa	ils to Slow	in Time,	
Speed C'Way	Description: Colliding wit	Vehs Trav th Rear o				ns to Slow ear of V3	to a Stop, 1	7263 Slow, V1 Fa	ils to Slow	in Time,	
December 1 J/W Layby Hebron 1st Rd: 11 2nd Rd: 11  Speed C'Way	Description: Colliding wit	Vehs Trav th Rear o				ns to Slow ear of V3	to a Stop, 1	7263 Slow, V1 Fa	ils to Slow	in Time,	
South Single c'way Other Give Daylight Fine Dry None Mone None None None None None None None N	Description: Colliding wit User Informati	Vehs Trav th Rear o	f V2, Pushin	g V2 Fo:	rward into R	ns to Slow ear of V3 Contributor	to a Stop, 1	7263 Slow, V1 Fa	ils to Slow	in Time,	./2-12-2-
The Vehicle type Towing Manoeuvre Dir Veh loc Junct. loc Skidding Hit obj in Left cway Hit obj off Sex Age B I car No U turn S S Leav lay-by Enter main No Kerb None Female 85 N None Male 22 - No Going ahead S N On main Mid junction Yes Kerb None Male 22 - No Going ahead S N On main Mid junction Yes Kerb None Male 22 - No Going ahead S N On main Mid junction Yes Kerb None Male 22 - No Going ahead S N On main Mid junction Ped Movement Ped location School Pupil Other None Not pad Not pad Not pad Other None None Yes Nool Pupil Other None None None None None None None None	Description: Toolliding wit User Informati	Vehs Trav th Rear o Lon:	f V2, Pushin	g V2 Fo	rward into R t Wednesd	ns to Slow ear of V3 Contributor	to a Stop, 1	7263 Slow, V1 Fa	ils to Slow	in Time,	
1 Car No U turn S S Leav lay-by Enter main No Rerb None Female 85 N 2 Car No Going shead S N On main Mid junction Yes Kerb None Male 22 - 85 No Veh ref Cas Class Sex Age Severity Car Pass Ped Direction Ped Movement Ped Location School Pupil 1 Drv/Didar Female 85 Slight No Not ped Not ped Not ped Other Other 1 Drv/Didar Female 85 Slight No Not ped Not ped Not ped Other Not ped Not ped Not ped Other Not ped Other None None None None None None None None	Description: 1 Colliding wit User Informati 157 Location: Al	Vehs Trav th Rear o ton:	f V2. Pushin 0602913 • Habron <b>1st</b>	g V2 For Slight Rd: Al 2	rward into R t Wednesd 2nd Rd: Al	ns to Slow ear of V3 Contributor ay 27/11/201	y Factors: 3	7263 Slow, V1 Fa	ils to Slow	in Time,	0.000.000.0
2 Car No Going shead S N On main Mid junction Yes Kerb None Male 22 - 2 Sas No Veh ref Cas Class Sex Age Severity Car Pass Ped Direction Ped Movement Ped location School Pupil 1 Drv/Pidsr Female 85 Slight No Not pad Not ped Not ped Other  Decomption: V2 Trav. N on A1, VI Stationary in Layby on Northbound Carriagevay, VI Fails to Sec V2 Trav. N, VI  Pulls out into Carriagevay, Carries out U-Turm, Front of V2 Colliding with R/C/S of VI  Ber Information:    Contributory Factors 403V0018 405V0018 405V00018 405V0018 405V0018 405V00018 405V00018 405V0018 405V0018 405V00018 405V0	Description: Toolliding with User Information 157 Location: Al Speed C'Way	Vehs Trav th Rear o ton:  J/W Layby	f V2, Pushin 0602913 Hebron let Jct Det/Ctrl	g V2 For Slight Rd: Al 2 Light	rward into R  t Wednesd  and Rd: 11	ns to Slow ear of V3 Contributor ay 27/11/201	y Factors: 3	7263 Slow, V1 Fa 08VC01R 406V001R 418430/589885 PedX - Human	ils to Slow	in Time,	azard
See No Veh ref Cas Class Sex Age Severity Car Pass Ped Direction Ped Movement Ped Location School Pupil  1 Drv/Pider Female 65 Slight No Not ped Not ped Not ped Other  Description: V2 Trav. N on A1, V1 Stationary in Layby on Northbound Carriageway, V1 Fails to See V2 Trav. N, V1  Dulls out into Carriageway, Carries out U-Turn, Front of V2 Colliding with R/O/S of V1  Dulls out into Carriageway, Carries out U-Turn, Front of V2 Colliding with R/O/S of V1  Dulls out into Carriageway, Carries out U-Turn, Front of V2 Colliding with R/O/S of V1  Dulls out into Carriageway, Carries out U-Turn, Front of V2 Colliding with R/O/S of V1  Dulls out into Carriageway, Carries out U-Turn, Front of V2 Colliding with R/O/S of V1  Dulls out into Carriageway, Carries out U-Turn, Front of V2 Colliding with R/O/S of V1  Dulls out into Carriageway, Carries out U-Turn, Front of V2 Colliding with R/O/S of V1  Dulls out into Carriageway, Carries out U-Turn, Front of V2 Colliding with R/O/S of V1  Dulls out into Carriageway, Carries out U-Turn, Front of V2 Colliding with R/O/S of V1  Dulls out into Carriageway, Carries out U-Turn, Front Not at Rolliding With R/O/S of V1  Dulls out into Carriageway, Carries out U-Turn, Front Not ped Not ped Not ped Other  Durn Roll out into Carriageway, Carries out U-Turn, Front Not ped Not ped Not ped Other  Durn Roll out into Carriageway, Carries out U-Turn, Front Not ped Not ped Not ped Other  Durn Roll out into Carriageway, Carries out U-Turn, Front Not ped Not ped Not ped Other  Durn Roll out into Carriageway, Carries out U-Turn, Front Not ped Not ped Not ped Other  Durn Roll out into Carriageway, Carries out U-Turn, Front Not ped Not ped Not ped Other  Durn Roll out into Carriageway, Carries out U-Turn, Front Not ped Not ped Not ped Other  Durn Roll out into Carriageway, Carries out U-Turn Roll out Roll out Passenger Female 15 Slight Front Not ped Not ped Not ped Other  Durn Roll out into Carriageway, Carries out U-Turn Roll out	Description: Colliding wit User Informati 157 Location: Al Speed C'Way 60 MPH Sing	Vehs Trav th Rear o Lon: J/W Layby V le c'vay	f V2, Pushin  0602913 Hebron 1st  Jot Det/Ctrl Other Give	g V2 Fo: Slight Rd: Al 2 Light Dayli	t Wednesd  Red Rd: 11  Ling  ght	ns to Slow ear of V3 Contributor ay 27/11/201 Weather Fine	y Factors: 3  3 14:30  Rd Surf  Dry	7263 Slow, V1 Fa 08V001A 406V001A 418430/589885 PedX - Human None	ils to Slow . 405V001B - Phy Fac	in Time, Special H	azard
Description: V2 Frav. N on A1, V1 Stationary in Layby on Northbound Carriageway, V1 Fails to Sea V2 Trav. N, V1  Dulls out into Carriageway, Carries out U-Turn, Front of V2 Colliding with R/O/S of V1  Ber Information:    Contributory Eactors: 403V0018 405V0018 406V0018	Description: Colliding wit User Informati 157 Location: Al Speed C'Way 60 MPH Sing Weh Vehicle to	Vehs Trav th Rear o ton:  J/W Layby V te c'vay V pe Towin	f V2, Pushin  0602913 Hebron 1st Jot Det/Ctrl Other Give	g V2 Fo: Slight Rd: Al 2 Light Dayli Dir	ward into R  Wednesd and Rd: Al  ing ght Veh loc	ns to Slow ear of V3 Contributor ay 27/11/201 Weather Fine Junct. loc	y Factors: 3  3 14:30  Rd Surf  Dry  Skidding	7263 Slow, V1 Fa 08V001A 406V001A 418430/589885 PedX - Human None Hit obj in Lef	ils to Slow . 405V001B - Phy Pac None ft cway Hi	in Time,  Special B None N t obj off Sex	lazard lone Age B/
Description: V2 Trav. N on A1, V1 Stationary in Layby on Northbound Carriageway, V1 Fails to See V2 Trav. N, V1  Dulls out into Carriageway, Carries out U-Turn, Front of V2 Colliding with R/C/S of V1  See Information:    Contributory Factors: 4032/001R 4052/001R 405	Description: Colliding wit User Informati 157 Location: Al Speed C'Way 60 MPH Sing Veh Vehicle to 1 Car 2 Car	Vehs Trav th Rear o ton:  J/W Layby y le c'vay yype Towin No	f V2, Pushin  0682913 r Hebron 1st  Jot Det/Ctrl Other Give ng Manoeuvre U turn Going ahea	Slight Rd: Al 2 Light Dayli Dir s s	ward into R  Wednesd and Rd: Al  ing .ght Veh loc Leav lay-b	ns to Slow ear of V3. Contributor ay 27/11/201 Weather Fine Junct. loc / Enter main Mid juncti	y Factors: 3  3 14:30  Rd Surf Dry Skidding No on Yes	7263 Slow, V1 Fa 08V001R 406V001R 418430/569885  PedX - Human None Hit obj in Lei Kerb	- Phy Fac None  tt cway Hi  N	Special B None Note tobj off Sex one Female one Male	azard one Age B/ 23 n/
Contributory Factors: 403/0018 406/0018    See Information	Description: Colliding wit User Informati 157 Location: Al Speed C'Way 60 MPH Sing Weh Vehicle to 1 Car 2 Car as No Veh ref	Wehs Trav th Rear o ton:  J/W Layby Y le c'way ype Town No Cas Cla	f V2. Pushin  0682513 r Habron 1st  Jot Det/Ctrl Other Give ng Manoeuvre U turn Going ahea ass Sex	Slight Rd: Al 2 Light Dayli Dir s s d S N Age	werd into R  Wednesd  End Rd: 11  ing  ght  Veh loc  Leav lay-b;  On main  Severity	ns to Slow ear of V3 Conbributor ay 27/11/201 Weather Fine Junct. loc / Enter main Mid juncti Car Pass P	y Factors: 3  14:30  Rd Surf Dry Skidding No con Yes and Direction	7263 Slow, V1 Fa 08V001A 406V001A 418430/569885 PedX - Human None Hit obj in Lef Kerb Ped Movement	- Phy Pac None t cway Hi	Special B None None Female one Male on School Pupi	azard one Age B/ 23 N/
Ser Information:  Entributory Factors: 403/0018 405/0018 405/0018  E06000048 0212014 Slight Friday 18/04/2014 15:01 418445/589922 9399  Cocation: Al 100M N OF HEBRON JUNCTION, MORPEHH 1st Rd: Al 2nd Rd:  peed C'Way Jot Det/Ctrl Lighting Weather Rd Surf PedK - Human - Phy Fac Special Hazard Nome None None None None None None None Non	Description: Colliding wit User Informati 157 Location: Al Speed C'Way 60 MPH Sing Weh Vehicle to 1 Car 2 Car as No Veh ref	Wehs Trav th Rear o ton:  J/W Layby Y le c'way ype Town No Cas Cla	f V2. Pushin  0682513 r Habron 1st  Jot Det/Ctrl Other Give ng Manoeuvre U turn Going ahea ass Sex	Slight Rd: Al 2 Light Dayli Dir s s d S N Age	werd into R  Wednesd  End Rd: 11  ing  ght  Veh loc  Leav lay-b;  On main  Severity	ns to Slow ear of V3 Conbributor ay 27/11/201 Weather Fine Junct. loc / Enter main Mid juncti Car Pass P	y Factors: 3  14:30  Rd Surf Dry Skidding No con Yes and Direction	7263 Slow, V1 Fa 08V001A 406V001A 418430/569885 PedX - Human None Hit obj in Lef Kerb Ped Movement	- Phy Pac None t cway Hi	Special B None None Female one Male on School Pupi	azard one Age B/ 23 N/
E06000048 0212014 Slight Friday 18/04/2014 15:01 418445/889922 9395  Docation: Al 100M N OF HEBRON JUNCION, MORFEIH 1st Rd: Al Znd Rd:  peed C'Way	Description: Colliding wit User Informati 157 Location: Al Speed C'Way 60 MPH Sing Veh Vehicle by 1 Car 2 Car as No Veh ref 1 Description:	Wehs Trav  The Rear of the Control  J/W Layby  Very  Town  No  Cas Cl:  Dru/Di  V2 Trav.	5 602513 Hebron 1st Jot Det/Ctrl Other Give Other Give U turn Going ahea ass Sex dor Fem N on Al, VI	Slight Rd: Al 2 Light Dayli Dir S S d S N Age ale SS	t Wednesd and Rd: Al ing When loc Leav lay-by Com main Severity slight any in Layby	ns to Slow ear of V3. Contributor ay 27/11/201 Weather Fine Junct. loc / Enter main Mid juncti Car Pass P No Northbot	y Factors: 3  14:30  Rd Surf Dry Skidding No con Yes ad Direction lot ped	7263 Slow, V1 Fa  08V001A 406V001A  418430/589885  PedX - Human None  Hit obj in Lef Kerb  Ped Movement Not ped	- Phy Fac None tt cway Hi N Ped locati Not ped	Special B None None Female one Male Other	azard one Age B/ 23 N/ 22 -1
Cocation: Al 100M N OF HEBRON JUNCTION, MORFEIH 1st Rd: Al Znd Rd:    peed C'Way	Description: Colliding wit User Informati 157 Location: Al Speed C'Way 60 MPH Sing Weh Vehicle to 1 Car 2 Car as No Veh ref 1 1 Description: Dulls out in	Wehs Trav th Rear o toon:  J/W Layby y le c'way ype Town No Cas Cle Dru/Di V2 Trav. to Carria	5 602513 Hebron 1st Jot Det/Ctrl Other Give Other Give U turn Going ahea ass Sex dor Fem N on Al, VI	Slight Rd: Al 2 Light Dayli Dir S S d S N Age ale SS	t Wednesd and Rd: Al ing When loc Leav lay-by Com main Severity slight any in Layby	ns to Slow ear of V3 Contributor ay 27/11/201 Weather Fine Junct. loc Enter main Mid juncti Car Pass P No Northbot tof V2 (ol)	y Factors: 3  14:30  Rd Surf Dry Skidding No on Yes ad Direction lot ped and Carriage iding with	7263 Slow, VI Fa 08V001A 406V001A 418430/589885 PedX - Human None Hit obj in Lef Kerb Ped Movement Not ped away, VI Fails to R/C/S of VI	- Phy Fac None ft cway Hi N Ped locati Not ped	Special B None None Female one Male Other	azard one Age B/ 23 N/ 22 -1
Deed C'Way Jot Det/Ctrl Lighting Daylight Fine Rd Surf None None None None None None None None	Description: Colliding wit User Informati 157 Location: Al Speed C'Way 60 MPH Sing Weh Vehicle to 1 Car 2 Car as No Veh ref 1 1 Description: Dulls out in	Wehs Trav th Rear o toon:  J/W Layby y le c'way ype Town No Cas Cle Dru/Di V2 Trav. to Carria	5 602513 Hebron 1st Jot Det/Ctrl Other Give Other Give U turn Going ahea ass Sex dor Fem N on Al, VI	Slight Rd: Al 2 Light Dayli Dir S S d S N Age ale SS	t Wednesd and Rd: Al ing When loc Leav lay-by Com main Severity slight any in Layby	ns to Slow ear of V3 Contributor ay 27/11/201 Weather Fine Junct. loc Enter main Mid juncti Car Pass P No Northbot tof V2 (ol)	y Factors: 3  14:30  Rd Surf Dry Skidding No on Yes ad Direction lot ped and Carriage iding with	7263 Slow, VI Fa 08V001A 406V001A 418430/589885 PedX - Human None Hit obj in Lef Kerb Ped Movement Not ped away, VI Fails to R/C/S of VI	- Phy Fac None ft cway Hi N Ped locati Not ped	Special B None None Female one Male Other	azard one Age B/ 85 N/ 22 -1
OMPH Single c'way NotJCT Daylight Fine None None None None None None None No	Description: Colliding wit User Informati 157 Location: Al Speed C'Way 60 MPH Sing Veh Vehicle to 1 Car 2 Car cas No Veh ref 1 1 Description: Dulls out int	Wehs Trav th Rear o to t	p682513 Hebron 1st Jot Det/Ctrl Other Give ng Manoeuvre U turn Going ahea ass Sex dor Fem N on Al, V1 geway, Carri	Slight Rd: Al 2 Light Dayli Dir S S d S N Age Station	t Wednesd and Rd: Al ing	ns to Slow ear of V3 Conbributor  ay 27/11/201  Weather Fine Junct. loc / Enter main Mid juncti Car Pass P No N on Northbot t of V2 Coll Contributor	y Factors: 3  14:30  Rd Surf Dry Skidding No on Yes and Direction lot ped and Carriage iding with y Factors 4	7263 Slow, V1 Fa 08V001A 406V001A 418430/569885 PedX - Human None Hit obj in Lef Kerb Ped Movement Not ped way, V1 Fails to R/O/S of V1	- Phy Fac None ft cway Hi N Ped locati Not ped	Special H None N tobj off Sex one Female one Male on School Pupi Other	azard one Age B/ 85 N/ 22 -1
ch Vehicle type Towing Manoeuvre Dir Veh loc Junct. loc Skidding Hit obj in Left cway Hit obj off Sex Age B/ 1 Car No Going ahead SW NE On main Not at No None None Female 51 -v 2 Car No Stop SW NE On main Not at No None None Male 58 -v 3 Car No Stop SW NE On main Not at No None None Female 26 -v 4 Car No Stop SW NE On main Not at No None None Female 26 -v 4 Car No Stop SW NE On main Not at No None None Male 68 -v 4 Car No Stop SW NE On main Not at No None None Male 68 -v 4 Car Ro Stop Sw NE On main Not at No None None Male 68 -v 4 Car Ro Stop Sw NE On main Not at No None None Male 68 -v 4 Car Ro Stop Sw NE On main Not at No None None Male 68 -v 4 Car Ro Stop Sw NE On main Not at No None None Male 68 -v 4 Car Ro Not Ped Movement Ped location School Pupil 5 O Drv/Rider Female 51 Slight No Not ped Not ped Not ped Cther 6 O Drssenger Male 68 Slight Front Not ped Not ped Not ped Cther 6 O Passenger Female 52 Slight Front Not ped Not ped Not ped Cther 6 O Passenger Female 51 Slight Rear Not ped Not ped Not ped Cther 6 O Passenger Female 19 Slight Rear Not ped Not ped Not ped Cther 6 O Passenger Female 19 Slight Rear Not ped Not ped Not ped Cther 6 O Passenger Female 19 Slight Rear Not ped Not ped Not ped Cther 6 O Passenger Female 19 Slight Rear Not ped Not ped Not ped Cther	Description: Colliding wit User Informati 157 Location: Al Speed C'Way 60 MPH Sing Weh Vehicle by 1 Car 2 Car as No Veh ref 1 1 Description: Dulls out in User Informati 43 E06	Wehs Trav th Rear o toon:  J/W Layby y te c'vay y te c'vay No Cas Cla Dru/Ri Dru/Ri co Carria con Carria	5 V2. Pushin  1602513  Hebron 1st  Jot Det/Ctrl Other Give  Manoeuvre U turn Going ahea  Sex der Fem N on Al, V1 geway, Carri	Slight Rd: Al 2 Light Dayl: Dir SS d SN Age SStation: SS out I	werd into R  Wednesd and Rd: Al  ing .ght  Veh loc Leav lay-by Con main Severity Slight ary in Layby J-Turn, Fron  Friday	ns to Slow ear of V3 Contributor  ay 27/11/201  Weather Fine Junct. loc / Enter main Mid juncti Car Pass P No No No Northbot of V2 Coll Contributor 18/04/201	y Factors: 3  14:30  Rd Surf Dry Skidding No con Yes ad Direction lot ped and Carriage idding with r Factors: 4  15:01	7263 Slow, V1 Fa 08V001A 406V001A 418430/569885 PedX - Human None Hit obj in Lef Kerb Ped Movement Not ped way, V1 Fails to R/O/S of V1	- Phy Fac None ft cway Hi N Ped locati Not ped	Special H None N tobj off Sex one Female one Male on School Pupi Other	azard one Age B/ 85 N/ 22 -1
1 Car No Going ahead SW NE On main Not at No None None Female 51 -v 2 Car No Stop SW NE On main Not at No None None Male 58 -v 3 Car No Stop SW NE On main Not at No None None Female 26 -v 4 Car No Stop SW NE On main Not at No None None None Female 26 -v 8 No Stop SW NE On main Not at No None None None None None None None N	Description: Colliding wit User Informati 157 Location: Al Speed C'Way 60 MPH Sing Weh Vehicle to 1 Car 2 Car as No Veh ref 1 1 Description: Dulls out in: User Informati 43 E06 Location: Al	Wehs Trav.  J/W Laybj  y  le c'vay  No  Cas Cli  D' Trav.  Co Carria  1000048	D682913 Hebron 1st Jot Det/Ctrl Other Give ng Manoeuvre U Durn Going ahea ass Sex dor Fem N on Al, Val geway, Carri  0212014 HEBRON JUNG Jot Det/Ctrl	Slight Rd: Al 2 Light Dayli Dir S S d S N Age ale SS Station Slight TION, MT Light	t Wednesd the Rd: 11 sing ght Veh loc Leav lay-b; On main Severity slight ary in Layby J-Tarn, Fron Friday ORFEIH 1st Re	ns to Slow ear of V3 Contributor ay 27/11/201 Weather Fine Junct loc Enter main Mid juncti Car Pass P No N on Northboot of V2 Coll Enter Main Mid juncti Car Pass P No N In Northboot of V2 Coll Enter Main 18/04/201 it al 2nd Rd:	y Factors: 3  14:30  Rd Surf Dry Skidding No con Yes ad Direction lot ped and Carriage iding with y Factors: 4  15:01	7263 Slow, V1 Fa 08V001R 406V001R 418430/569885  PedX - Human None Hit obj in Lei Kerb Kerb Ped Movement Not ped away, V1 Fails to R/O/S of V1 13V001R 405V001R 418445/589922  PedX - Human	- Phy Pac Note pad Note pad See V2 Tr.	Special B None None Special B None None Female one Male one School Pupi Other None Female None None None None None None None Non	azard fone Age B/ 22 -1
2 Car No Stop SW NE On main Not at No None None Male 58 -y 3 Car No Stop SW NE On main Not at No None None Female 26 -y 4 Car No Stop SW NE On main Not at No None None None Name Name 68 -y 4 Car No Stop SW NE On main Not at No None None None Name Name 68 -y 4 Car No Stop SW NE On main Not at No None None None Name Name 68 -y 4 Car No Stop SW NE On main Not at No None None None None None None None N	Description: Colliding wit User Informati 157 Location: Al Speed C'Way 60 MPH Sing Weh Vehicle ty 1 Car 2 Car as No Veh ref 1 1 Description: Description: Thornati 43 E066 Location: Al	Wehs Trav th Rear o ton:  J/W Laye; y le c'way wpe Towin No Cas Cl: Dru/Di W2 Trau. to Carria ton: 000048 1000M N OF	D682913 Hebron 1st Jct Det/Ctrl Other Give ng Manoeuvre U Turn Going ahea ass Sex dor Fem N on Al, VI gaway, Carri  0212014 HEBRON JUNC Jct Det/Ctrl NotJCT	Slight Rd: Al 2 Light Dayli Dir SS d SN Age ale 85 Station. Slight IION, MC Light Dayli	t Wednesd the Rd: 11 ing .qht Veh loc Leav lay-b; On main Severity slight ary in Layby J-Turn, Fron Friday ORFEIH 1st Re	ns to Slow ear of V3 Contributor  ay 27/11/201  Weather Fine Junct loc / Enter main Mid juncti Car Pass P No N On Northboot of V2 Coll Contributor  18/04/201  18 1 2nd Rd: Weather Fine	y Factors: 3  14:30  Rd Surf Dry Skidding No on Yes ad Direction out pad and Carriage iding with y Factors: 4  4 15:01  Rd Surf	7263 Slow, V1 Fa 08V001R 406V001R 418430/569885  PedX - Human None Hit obj in Lef Kerb Fed Movement Not ped away, V1 Fails to R/O/S of V1 18445/589922  PedX - Human None	- Phy Fac None  - Phy Pac Not pad  See V2 Tr	Special B None None Female on School Pupi Other av. N, V1	azard one Age B/ 22 -1
3 Car No Stop SW NE On main Not at No None None Female 26 -v 4 Car No Stop SW NE On main Not at No None None None None Name 68 -v 4 Car No Stop SW NE On main Not at No None None None Name 68 -v 4 SNO Veh ref Cas Class Sex Age Severity Car Pass Ped Direction Ped Movement Ped location School Pupil 5 O Drv/Rider Female 51 Slight No Not ped Not ped Not ped Other 6 O Drv/Rider Male 66 Slight No Not ped Not ped Not ped Cther 7 O Drssenger Male 8 Slight Front Not ped Not ped Not ped Other 8 O Passenger Female 52 Slight Front Not ped Not ped Not ped Other 8 O Passenger Female 52 Slight Front Not ped Not ped Not ped Cther 8 O Passenger Female 52 Slight Front Not ped Not ped Not ped Other 8 O Passenger Female 52 Slight Front Not ped Not ped Not ped Cther 8 O Passenger Female 52 Slight Roundary Raffic AHEAD, VI FAILS TO STOP IN	Description: Colliding wit User Informati 157 Location: Al Speed C'Way Weh Vehicle ty 1 Car as No Veh ref 1 1 Description: Could continue 158 EVEN Towns 158	Wehs Trav th Rear o to no  J/W Layey y le c'way wpe Towin No Cas Cl: Dru/Di W2 Trav to Carria 10000 100000048 11000M N OF (1e c'way	p682513 r Hebron 1st Jot Det/Ctrl Other Give ng Manoeuvre U turn Going ahea ass Sex dor Fem N on Al, V1 geway, Carri  0212014 HEBRON JUNG Jot Det/Ctrl NetJCT ng Manoeuvre	Slight Rd: Al 2 Light Dayli Dir SS d S N Age ale 85 Station SS out I Slight Light Dayli Dir	twerd into R  twednesd and Rd: 11  ing	ns to Slow ear of V3.  Contributor  ay 27/11/201  Weather Fine  Junct. loc  Enter main  Mid juncti  Car Pass P No N  on Northbot  of V2 Coll)  Is Al 2nd Rd:  Weather  Fine  Junct. loc	y Factors: 3  14:30  Rd Surf Dry Skidding No on Yes and Carriage idding with y Factors: 4  15:01  Rd Surf Skidding	7263 Slow, VI Fa 08V001R 406V001R 418430/569885  PedX - Human None Hit obj in Lef Kerb Ped Movement Mot ped away, VI Fails to R/O/S of VI 08V001R 408V001R 418445/589922  PedX - Human None Hit obj in Lef	- Phy Fac None - Phy Pac None - Phy	Special B None None Female one Male on School Pupi Other av. B, VI	azard one Age B/ 22 -1 1
4 Car No Stop SW NE On main Not at No Mone None Name Name 68 -v  18 No Veh ref Cas Class Sex Age Severity Car Pass Ped Direction Ped Movement Ped location School Pupil  10 Drv/Rider Female 51 Slight No Not ped Not ped Not ped Other  10 Drv/Rider Male 68 Slight No Not ped Not ped Not ped Cther  10 Drv/Rider Male 68 Slight No Not ped Not ped Not ped Other  10 Drssenger Male 8 Slight Front Not ped Not ped Not ped Other  10 Drssenger Female 52 Slight Front Not ped Not ped Not ped Other  10 Passenger Female 52 Slight Front Not ped Not ped Not ped Other  10 Passenger Female 52 Slight Rear Not ped Not ped Not ped Cther  10 Passenger Female 15 Slight Rear Not ped Not ped Not ped Cther  10 Passenger Female 15 Slight Rear Not ped Not ped Not ped Cther  10 Passenger Female 15 Slight Rear Not ped Not ped Not ped Cther  10 Passenger Female 15 Slight Rear Not ped	Description: Colliding wit User Informati 157 Location: Al Speed C'Way 60 MPH Sing Weh Vehicle to 1 Car 2 Car as No Veh ref 1 1 Description: 1 Dulls out in: User Informati 43 E06 Location: Al Comped C'Way 60 MPH Sing Weh Vehicle ty 1 Car	Wehs Trav th Rear o to the County  J/W Layky y the c'vay wype Town No Cas Ch Dru/Ri V2 Trav to Carria ton 000048 to c'way ype Town No	p682513 r Hebron 1st Jot Det/Ctrl Other Give ng Manoeuvre U turn Going ahea dar Fem N on Al, V1 geway, Carri 0212014 HEBRON JUNC Jot Det/Ctrl NobJCT ng Manoeuvre Going ahea	Slight Rd: Al 2 Light Dayli Dir S d S N Age ale 85 Station es out I Slight TION, MC Light Dayli Dir	werd into R  Wednesd and Rd: Al  ing	ns to Slow ear of V3. Conbributor  ay 27/11/201  Weather Fine Junct. loc / Enter main Mid juncti Car Pass P No N on Northbon tof V2 Coll Contributor 18/04/201 to al 2nd Rd: Weather Junct. loc Not at	y Factors: 3  14:30  Rd Surf Dry Skidding No con Yes and Direction lot ped and Carriage iding with y Factors 4  15:01  Rd Surf Skidding No	7263 Slow, V1 Fa 08V001A 406V001A 418430/569885 PedX - Human None Hit obj in Lef Kerb Ped Movement Not ped away, V1 Fails to R/O/S of V1 13V001A 40AV001A 418445/589922 PedX - Human None Hit obj in Lef None	- Phy Pac None  - Phy Pac Hit Cway Hit Not pad  See V2 Tr.  - Phy Pac None	Special He None Notes one Female on School Pupi Other av. H, V1	azard one Age B/ 22 -1 1 azard one Age B/ 51 -v
Age Severity Car Pass Ped Direction Ped Movement Ped location School Pupil  O Drv/Rider Female 51 Slight No Not ped Not ped Not ped Other  O Drv/Rider Female 26 Slight No Not ped Not ped Not ped Other  O Drv/Rider Male 68 Slight No Not ped Not ped Not ped Other  O Direcenger Male 8 Slight Front Not ped Not ped Not ped Other  O Passenger Female 52 Slight Front Not ped Not ped Not ped Other  O Passenger Female 52 Slight Front Not ped Not ped Not ped Other  O Passenger Female 52 Slight Rear Not ped Not ped Not ped Other  O Passenger Female 19 Slight Rear Not ped Not ped Not ped Other  O Passenger Female 19 Slight Rear Not ped Not ped Not ped Other  Description: VEHS TRAV. N ON Al IN HEAVY TRAFFIC, V4,362 STOP DUE TO STATIONARY TRAFFIC AHEAD, VI FAILS TO STOP IN	Description: Colliding wit User Informati 157 Location: Al Expeed C'Way 60 MPH Sing Weh Vehicle by 1 Car 2 Car as No Veh ref 1 1 Description: 1 Dulls out in: User Informati 43 E060 Location: Al	Wehs Trav th Rear o toon:  J/W Layby y le c'way y pe Towi No Cas Cla Drv/Ri V2 Trav to Carria toon 000048 100M N OF	f V2. Pushin  0602913 Habron 1st Jot Det/Ctrl Other Give ng Manoeuvre U turn Going ahea ass Sex der Fem N on Al, V1 geway, Carri  0212014 HEBRON JUNC Jot Det/Ctrl NotJCT NotJCT Going ahea Stop	Slight Rd: Al 2 Light Dayli Dir S d S N Age ale SS Station es out I Slight TION, MC Light Dayli Dir SW NE	twerd into R  twednesd  and Rd: 11  ing  ght  Veh loc  Leav lay-by  Severity  Slight  any in Layby  J-Turn, Fron  Friday  ORFEIH 1st Re  ing ght  Veh loc  Con main  Con main	ns to Slow ear of V3 Contributor  ay 27/11/201  Weather Fine Junct. loe  /Enter main Mid juncti Car Pass P No on Northbot of V2 Coll Contributor 18/04/201 1 al 2nd Rd: Weather Fine Junct. loe Not at Not at	y Factors: 3  14:30  Rd Surf Dry Skidding No On Yes and Direction lot ped and Carriage iding with y Factors: 4  15:01  Rd Surf Skidding No No	7263 Slow, V1 Fa 08V001A 406V001A 418430/S89885  PedX - Human None Hit obj in Lef Kerb Ped Movement Not ped away, V1 Fails to R/O/S of V1 1AAV001A 405V001A 418445/S89922  PedX - Human None Hit obj in Lef None	- Phy Fac None toway Hit Not ped locati Not ped Sac V2 Tr Phy Fac None toway Hit No.	Special B None None Female one Male on School Pupi Other av. N, V1	azard lone Age B, e 85 N, 22 -1 1
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No. Area L/A	Re	ference	Sever	ity Day	Date	T	ime Grid	Coords	Lin	k/Node	Street	83	
117 F5		02210	Slight	Thurs	day 19/08/	2010 07:	53 418460/	/590070					
Location: Alhebr	on 1st Rd:	Al 2nd Rd	Ŀ										
Speed C'Way 60MPH Single	Jet D	et/Ctrl C7	Light: Dayli	5.70 TO 1	Weather Fine	Rd Su Dry	rf PedX - None	Human	- Phy H	Pac Spe		Hazar None	d
Veh Vehicle type	Towing Ma	noeuvre	Dir	Veh loc	Junct.	loc Skidd	ing Hit obj i	in Lef	t cway	Hit ob	j off S	ex Age	e B/
1 Car		ng ahead			Not at	No	None			None			-v
2 Taxi		ing ahead			Not at	No	None			None			-v
3 Car		ng ahead			Not at	No nos noscos	None ion Ped Mov	and the same of th	D. d 1	None	School		-v
Cas No Veh ref	Drv/Rider	Sex Male	<b>Age</b> 34	Severity Slight	No No	Not ped	Not pec		Not per		Other	Popii	
Description: V1 to Stop and Col.			owed to				Fails Tostop	Collid	ing wit	h V1, V	3 Fails		
User Information		filotoppe	STEELSCI		Contribu 408V000A	tory Factors	: 406V000A 40	06V000A	4057000	A 405V0	00A 403	V000B	535
9.5	0.42	26611	Slight	Wednes	day 20/07/	2011 10:	50 418510/	590490					
Location: Al 2 M	iles North	of A192 1	Morpeth	1st Rd: A	1 2nd Rd:								
Speed C'Way 70 MPH Dual c'i		et/Ctrl	Light: Dayli		Weather Rain	Rd Su Flood		Human	- Phy F None	Pac Spe Nor	ocial ne	Hagar None	đ
Weh Vehicle type	Towing Man	noeuvre	Dir	Veh loc	Junct.	oc Skidd	ing Hit obj 1	n Lef	t cway	Hit ob	off S	ex Age	B/1
1 Car	No Rt	hand bend	1 S N	On main	Not at	Yes	None			Cent	barr Ma	ale 27	-v
as No Vehref C	Cas Class Orv/Rider	Sex Male	Age 27	Severity Slight	Car Pass	Ped Direct	ion Ped Mov		Ped loc		School Other	Pupi1	
Description: V1	rav North	on Al Has	Lost	Control or	n the right	Hand Bend	Vl Has Tri	ed to A	void St	anding	Water 1	2	
the Carriageway	and Skidded	d Collidi	ng wit	h the Cent						245.7.0.500			
User Information:					Contribut	tory Factors	: 708V001A 70	7V001A					
90	038	4612	Slight	Sunday	08/07/	2012 12:	44 418528/	591392					
Location: Al 1 Mi	le North o			on, Morpet									
peed C'Way		et/Ctrl	Lighti Daylig		Weather Fine	Rd Sur	rf PedX -	Human	- Phy F	ac Spe		Hazar None	đ
eh Vehicle type	Towing Man	oeuvre	Dir	Veh loc	Junct. 1	oc Skidd	ing Hit obj i	n Left	t cway	Hit ob	j off S	ex Age	B/1
1 Car	No Goi:	ng ahead	s N	On main	Not at	OT	None			Ditch	Ma	ale 44	-ve
2 Car	No Coi	ng ahead	NE	On main	Not at	No	None			None	Ma	kle 70	-114
	as Class	Sex	Age	Severity		Ped Direct			Ped loc		School	Pupil	
	rv/Rider rv/Rider	Male Male	70	Slight Slight	No No	Not ped Not ped	Not ped Not ped		Not peo		Other		
Description: V1 I									The state of the s				
Colliding with V User Information:	2, Vl Leave	s Carria	geway	to N/S, Co			509V001A 50						
	1924	02001 0	age to the second			emilion continue							
151 F5 Location: Alpries	**************************************		Slight 2nd Rd:	Friday	15/10/	2010 14:	8 418542/	591542					
Speed C'Way	Jct De	et/Ctrl	<b>Lighti</b> Daylig		Weather Fine	Rd Sur	f PedX -	Human	- Phy Fa	ac Spe	cial =	Hazard None	1
Veh Vehicle type	Towing Man	oeuvre	Dir	Veh loc	Junct. 1	oc Skiddi	ng Hit obj i	n Left	t cway	Hit obj	off S	ex Agre	B/T
1 Car	No Goir	ng ahead	SN	On main	Not at	No	None			None	Ma	le 54	-ve
2 Car	No Goir	ng ahead	s N	On main	Not at	Yes	None	Nea	rside	None	Ma	le 19	-ve
	as Class	Sex	Age				ion Ped Move		Fed loca		School	Pupil	
	rv/Rider assenger	Male Femal	e 18	Slight Slight	No Front	Not ped Not ped	Not ped Not ped		Not ped Not ped		Other		
	assenger		e 22	Slight	Rear	Not ped	Not ped		Not ped		Other		
	assenger	Male		Slight	Rear	Not ped	Not ped		Not ped		Other		
Description: V1 I													2250
User Information:						ory Factors:							
3.6	015	1212 5	Serious	Wednes	day 07/03/2	2012 04:2	8 418542/	591544					
Location: Al 50M									2000100	11 <u>2</u> 79-1		W(21) (34.2	
Speed C'Way 60MPH Single o	Jct De	t/Ctrl		n <b>g</b> o lights	Weather Fine	Rd Sur Wet	f PedX -	Human	- Phy Fa	ac Spe Non	cial •	Hazard None	8
	Security of the Paris			Veh loc	Junct. 1		ng Hit obj ir	n Left	cway	BOX DE CONTROL DE	off Se		B/T
Veh Vehicle type			25 N	On main	Not at	No	None			Tree	Ma	1e 43	-ve
CONTRACTOR	No Rt h	iana pena	0.000										
1 Car as No Veh ref C	No Rth as Class rv/Rider	Sex Male	Age 43		Car Pass	Ped Direct: Not ped	on Ped Move Not ped		Ped loos Not ped		School Other	Pupil	

No. Area L/A	2	Reference	Sever	ity Day	Date		Time Gr:	id Coords	Lin	k/Node	Street		
102 F5	0	450910	Slight	Sunday	25/07/	and the second	THE RESERVE	54/591586					
Location: Alpr Speed C'Way		Morpeth 1: Det/Ctrl	st Rd: . Lighti		Weather	Rd S	rf Pedi	- Human	- Phy I	ac Spe	cial	Hazar	d
60 MPH Singl	e c'way Not	JCI	Dayli	ght	Fine	Dry	None	2	None	Non	ie	None	
Veh Vehicle typ	Ti I	amoeuvre sing ahead		Veh loc	Junct. 1	oc Skid	iing Hit ob	jin Le:	t cway	None	off Sex	83	B/1
2 Car		aiting		On main	Not at	No	None			None	Mal	5 60	-04
Cas No Veh ref	Cas Class Fassenger	Sex Male	Age 21	Severity Slight	Car Pass Rear	Ped Direc	tion Fed Not	Novement ped	Ped loc		School P	upil	
Description: V													
User Informatio			10054000				s: 406V000A						
159 E060	00048 0	692314	Slight	Monday	17/11/	2014 13:	20 4105	17/691812	il.	99	99		
Location: Al D				0001777000000	10000000	7.550 N.S.T.		.//					
Speed C'Way 60MPH Singl	Jot e c'way Not	Det/Ctrl JCI	Light: Dayli		Weather Fine	Rd Su	rf PedX	- Human	- Phy F None	ac Spec		Hazard None	Ĺ
Veh Vehicle ty	E6			Veh loc	Junct. 1		ling Hit ob	jin Lei	t cway				B/T
1 Car 2 Car		cop cing ahead		On main	Not at Not at	No No	None None			None	Male Fema	le 72	-ve
3 Car		oing ahead			Not at	200	None			None		1e 22	
as No Veh ref	Cas Class	Sex	Age	Severity			ion Ped M		Ped loc		School Pu	<b>p1</b> 1	
1 0 2	Drv/Rider Drv/Rider	Femal Femal		Slight Slight	No No	Not ped Not ped	Not p		Not peo		Other		
3 0  Description: V			DRIVER					D AND BRI			Other 2 TRAV.		
BEHIND STOPS User Information		nas entuci	10 31	OF. IN. 1105,			K.05.92 K: 6027001A			A TOTAL		3005-771	
11	1	0031413	Slight	Thursda	ky 17/01/	2013 12	00 41878	6/592097	(É				
Location: Al										959 <b>32</b> 5 46	4 4		
Speed C'Way 60 MPH 51ng.	y Jet le c'way Ot?	Det/Ctrl ner Give	Light:		Weather Fine	Rd St Dry	nrf PedX None	- Human	- Phy P	ac Spec		Hagard None	
Veh Vehicle ty				Veh loc	Junct. 1	oc Skide	ding Hit ob	j in Lef	t cway	Hit obj	off Sex	Agre	
1 Car		top		Con main	Junt cle	ared No	None None			None	Male Male		-ve
Cas No Veh ref	37551	tart Sex	Age No	Severity		Ped Birec		lovement	Ped loca		School Pu		-02
1 2	Drv/Rider		59	Acceptance of the second	No	Not ped	Not p		Not ped		Other	pia	
2 2	Passenger		60		Rear	Not ped	Not p		Not ped		Other		
Description: V	Passenger V2 Trav. N o			Slight left Layby	Front . V1 Trav.	Not ped N on Al.	Not p Driver Fail		Not ped ige Speed		Other		
Colliding wit	h Rear of V												
User Informati	.on:				Contribut	ory Factor:	s: 602V001A						_
			Slight	The second of the second was a second with the second of t	22/06/1			5/592264		99	99		
Location: Al A Speed C'Way		Det/Ctrl	Lighti	CONTRACTOR SCHOOL	Weather			- Human	- Phy F	ac Spec	cial	Hazard	ı
	e c'way Not		Dayli		Fine Junct. 1	-	None		None	None	off Sex	None	
Veh Vehicle ty 1 Car		ing ahead	Dir S N	Veh loc On main	Not at	oc Skide Yes	ling Hit obj	jin Lar	t cway	None	Fem:	1996	B/T
2 Car		-op	s N	On main	Not at	No	None			None	Male		
3 Car	No Wa	aiting	SN	On main	Not at	No	None			None	Fema	le 56	-ve
Cas No Veh ref	Cas Class Passenger	Sex Femal	Age e 68	Severity Slight	Car Pass Front	Ped Direct Not ped	tion Ped M	ovement ed	Ped loc Not peo		School Po	mpil	
Description: V	THS TRAU N	ON 21 V3	SLOW A	ND STOPS DE	IF TO STAT	TONARY TRA	FFIC AHEAD	V2 SLOWS	VI FA	ILS TO S	T <sub>1</sub> OW		
COLLIDING WIT	e dead of v2			WARD INTO P	EAR OF 73								
User Information	on:				Contribut	ory Factors	1:						
119			Slight					0/592290	)(				
Location: Al 2										12	572	£ 1	3
Speed C'Way 60MPH Singl	e c'way Not	Det/Ctrl JCI	Daylig		Weather Fine Wi		None	- Human	None	None		Hazard None	
Veh Vehicle typ	pe Towing M	anceuvre	Dir	Veh loc	Junct. 1	oc Skide	ling Hit ob	jin bef	t cway	Hit obj	off Sex	Age	B/T
1 Car				On main		Yes	None			None	Male		TVE
2 Car 3 Car	C'van St No St	5855		On main			None			None		48	
4 Car	No St			On main			None			None		42	
Cas No Veh ref				Severity								mpil	
1 2	Drv/Rider	Male	4.6	Slight	No	Not ped	Not p	ed	Not peo		Other		
Description: V	ehs Trav. N	on Al, V2	Brakes	Due to Ire	ffic Ahea	d. Vl Brak	es, Skids a	nd Collid	ies vith	Rear of	Caravan		
Towed by V2, N		ind vz Bra	kes he	avily, ve E			th Rear of :: 308V001A						
THE PROPERTY OF					JOHNE IDAG	Lactors	- COUNTR	-020001B	3001004	100000			

		Reference	Severit	y Day	Date	Tine	Grid Coords	Link/Node	Street	88		
15 E0600	00048	0035115	Slight	Wedneso	day 21/01/2	2015 17:30	418806/59233	2	9999			
Location: Al J	W TRITLE	NGTON JUNCTI	ON TRIE	LINGTON is	t Rd: Al 2n	d Rd: C129						
Speed C'Way		Jct Det/Ctrl	Lighti		Weather	Rd Surf	PedX - Human				azard	l.
DMPH Single					Fine		None	None	None	-	one	
Weh Vehicle typ		g Kanoeuvre		Veh loo	Junot. 1	oo Skidding	Hit obj in Le	ft oway H	t obj off		Age	
1 Car	No	Stop		On main	Junt app		None		lone	Male		-v
2 Car	Ио	Waiting	55555	On main	Junt app		None		lone	Female		-4
as No Vehref	Cas Clas		Age	Severity		Ped Direction				ool Dupi	1	
1 0	Dry/Rid	er rema	le 29	Slight	No	Not ped	Not ped	Not ped	Oth	er		
							RAFFIC AHEAD, V					
		. V2										• • • •
User Information	n:				Contribut	ory Factors: 40	35V001A					
116		0500012	Slight	Friday	14/09/2	2012 14:45	418821/59246	2				
Location: Al 1	00M Nort											
Speed C'Way		Jct Det/Ctrl			Weather		PedX - Human	- Phy Pac	Special.	Ha	azard	
60 MPH Singl	e c'way		Dayli	ght	Fine Wi		None	None	None		one	
Veh Vehicle typ	pe Towin	ng Manoeuvre	Dir	Veh loc	Junct. 1	oc Skidding	Hit obj in Le	ft cway Hi	t obj off	Sex	Agre	B/T
1 Car	No	Going ahea	d S N	On main	Not at	No	None	2	lone	Female	26	-ve
2 Car	No	Stop	S N	On main	Not at	No	None	3	lone	Male	52	-ve
Cas No Veh ref	MINISTER STATE	W7	Age	Severity		Ped Direction		Ped locati		ool Pupi	1	
1 1	Drv/Ric	der Fema	le 26	Slight	No	Not ped	Not ped	Not ped	Oth	er		
Description: V	ehs Trav	. N on Al, V	2 Slovs	Due to Tra	ffic Ahead,	, VI Fails to	Slow in Time, C	olliding wi	th Rear o	f V2		
User Informatio	on:				Contribut	ory Factors: 30	07V001B 308V001	B 406V001A				
174 F5		0777810	Slight	Wadras	day 24/11/	2010 10:03	418880/59319	n				
Location: Alap	prox 400											
	50 Tell (5000)											
Speed C'Watt		Tot Det/Ctrl	Light	ino	Westher		DadY - Himan	- Dhu Fac	Special		lavard	1
Speed C'Way 60 MPH Singl		Jct Det/Ctrl NotJCT	Light: Dayli		Weather Rain		PedX - Human None	- Phy Fac	Special None		lazard Ione	i
	e c.msA	NotJCT	Day11		***************************************	Rd Surf Wet		None		2	lone	
60 MPH Singl	e c.msA	NotJCT	Dayl1 Dir	ght	Rain	Rd Surf Wet	None	None eft cway H	None	2	ione Agre	В/1
60 MPH Singl Veh Vehicle typ	e c'way pe Towin	NotJCT g Manoeuvre	Dayli Dir d N S	ght Veh loc	Rain Junct. 1	Rd Surf Wet oc Skidding	Mone Hit objin Le	None eft cway H	None it obj of:	t Sex	ione Age	B/1
60 MPH Singl Veh Vehicle typ 1 Car	e c'way pe Towin No	NotJCT ig Manoeuvre Going abea	Dayli Dir d N S	ght Veh loc On main	Rain Junct. 1 Not at	Rd Surf Wet oc Skidding Yes	None Hit objin Le None	None eft cway H	None it obj of: None	f Sex Male	ione Age 27	B/:
60 MPH Singl Veh Vehicle typ i Car i Car	e c'way pe Towin No No	MotJCT  og Manoeuvre  Going ahea  Waiting	Deyli Dir d N S N S N S	Weh loc On main On main	Rain Junct. 1 Not at Not at	Rd Surf Wet oc Skidding Yes	None Hit obj in Le None None	None eft cway H	None it obj of: None None	f Sex Male Untra	Age 27 -1	B/1
60 MPH Singl Veh Vehicle typ 1 Car 2 Car 3 Car 4 Car	e c'way pe Towin No No No	MotJCT  og Manoeuvre  Going ahea  Waiting  Waiting  Waiting  Waiting	Deyli Dir d N S N S N S N S	yeh loc On main On main On main On main	Rain Junct. 1 Not at Not at Not at Not at	Rd Surf Wet oc Skidding Yes No No	None Hit obj in Le None None None	None eft cway H	None It obj of: None None None	f Sex Male Untra. Female	Age 27 -1 + 45	B/1
60 MPH Singl Veh Vehicle typ 1 Car 2 Car 3 Car 4 Car	e c'way pe Towin No No No	MontJOT  og Manoeuvre  Going ahea  Waiting  Waiting  Waiting  Waiting  Sex	Dayli Dir d N S N S N S N S N S	yeh loc On main On main On main On main	Rain Junct. 1 Not at Not at Not at Not at	Rd Surf Wet oc Skidding Yes No No	None Hit obj in Le None None None None	None eft cway H	None It obj of: None None None	f Sex  Male  Untra  Female  Male	Age 27 -1 + 45	B/1
60 MPH Singl Veh Vehicle typ 1 Car 2 Car 3 Car 4 Car Cas No Veh ref 1 4	e c'way pe Towin No No No No Dry/Ric	MotJCT  og Manoeuvre  Going ahea  Waiting  Waiting  Waiting  Waiting  Sox  ier Nale	Dayli Dir d N S N S N S N S N S S	Yeh loc On main On main On main On main Severity Slight	Rain Junct. 1 Not at	Rd Surf Wet OC Skidding Yes No No No Ded Direction Not ped	None Hit Obj in La None None Mone None Ded Movement Not ped	None eft cway H  Ped locat Not ped	None it obj off None None None None Oth	f Sex  Male  Untra  Female  Male  Male  accol Dupi	Age 27 -1 + 45	B/1
60 MPH Singl Veh Vehicle typ 1 Car 2 Car 3 Car 4 Car Cas No Veh ref 1 4 Description: V.	e c'way pe Towin No No No No Cas Cla Drv/Ric	NotJCT  gg Manoeuvre  Going ahea  Waiting  Waiting  Waiting  Sox  ier Male  4 All Statics	Dayli Dir d N S N S N S N S N S S Age 6 58	yeh loc On main On main On mein On mein On mein Severity Slight Eing South	Rain Junct. 1 Not at Not at Not at Not at Not at Car Dass No on Al. VI	Rd Surf Wet  OC Skidding Yes No No No Ped Direction Not ped Tray Southapp:	None Hit obj in Le None None None None Pod Movement Not ped Coaches but is	None eft cway H  Ped locat Not ped Unable to S	None it obj off None None None None Oth	T Sex Male Untra Female Male Mool Pupi	None Agre 27 1 - 45 58	B/7 -V4 N/0 N/0
60 MPH Singl Veh Vehicle typ 1 Car 2 Car 3 Car 4 Car Cas No Veh ref 1 4 Description: V.	e c'way pe Towin No No No No Cas Cla Drv/Ric 2 3 and d V2 and	NotJCT  gg Manoeuvre  Going ahea  Waiting  Waiting  Waiting  Sox  ier Male  4 All Statics	Dayli Dir d N S N S N S N S N S S Age 6 58	yeh loc On main On main On mein On mein On mein Severity Slight Eing South	Rain Junct. 1 Not at Not at Not at Not at Car Dass No on Al. VI	Rd Surf Wet  OC Skidding Yes No No No Ped Direction Not ped Tray Southapp:	None Hit obj in Le None None None Hone Ded Movement Not ped reaches but is	None eft cway H  Ped locat Not ped Unable to S	None it obj off None None None None Oth	T Sex Male Untra Female Male Mool Pupi	None Agre 27 1 - 45 58	B/7 -V4 N/0 N/0
60 MPH Singl Veh Vehicle ty 1 Car 2 Car 3 Car 4 Car Cas No Veh ref 1 4 Description: Veh Arour User Informatic	e c'way pe Towin No No No No Cas Cla Drv/Ric 2 3 and d V2 and	MotJCT  g Manoeuvre Going ahea Waiting Waiting Waiting So Sox ier Male 4 All Statics 6 V2 and Coll	Dayli Dir d N S N S N S N S N S Age 58 hary Fac	yeh loc On main On main On mein On mein Severity Slight ring South th 74	Rain Junct. 1 Not at Not at Not at Not at Not at Not at Our Page No on Al. VI	Rd Surf Wet  OC Skidding Tes No No No No Ped Direction Not ped Tray Southapp:	None Hit obj in La None None None Wone Wone Ped Movement Not ped roaches but is	None eft cway H  Ped locat Not ped Unable to S	None it obj off None None None None Oth	T Sex Male Untra Female Male Mool Pupi	None Agre 27 1 - 45 58	B/7 -V4 N/0 N/0
60 MPH Singl Veh Vehicle ty 1 Car 2 Car 3 Car 4 Car Cas No Veh ref 1 4 Description: W. Spun Veh Aronr User Informatic	pe C'way  No No No No No Cas Cla Drv/Ric 2 3 and 4 d V2 and	NotJCT  g Manoeuvre Going abea Waiting	Dayli Dir d N S N S N S N S N S Age 5 58 nary Fac	ght Veh loc On main On main On mein On mein On mein Severity Slight ring South th 74 Saturd	Rain Junct. 1 Not at Not at Not at Not at Not at Car Page No on Al. VI Contribut ay 28/07/2	Rd Surf Wet Not No No No No Ped Direction Not ped Tray Southapps  ory Factors: 60 2012 11:15	None Hit obj in Le None None None Hone Ded Movement Not ped reaches but is	None eft cway H  Ped locat Not ped Unable to S	None it obj off None None None None Oth	T Sex Male Untra Female Male Mool Pupi	None Agre 27 1 - 45 58	B/7 -V4 N/0 N/0
60 MPH Singl Veh Vehicle ty 1 Car 2 Car 3 Car 4 Car Cas No Veh xef 1 4 Description: W. Spun Veh Arour User Informatic 51 Location: Al 2	e c'way  e c'way  No  No  No  No  Cas Cla  Dry/Ric  2 3 and 4 22 and  who:	NotJCT  g Manoeuvre Going ahea Waiting Waiting Waiting Waiting Waiting For Male 4 All Statics 4 V2 and Coll  0404912  Earsdon Jun	Dayli Dir d N S N S N S N S N S S S S S S S S S S S	ght Veh loc On main On main On main On main On main Severity Slight ring South th 74  Saturd forpeth 1st	Rain Junct. 1 Not at Not at Not at Not at Car Page No on Al. V1 Contribut ay 28/07/2 Rd: 31 2nd	Rd Surf Wet  Occ Skidding Yes No No No Ped Direction Not ped Tray Southapp: Cory Factors: 6: 2012 11:15 Rd:	None Hit obj in Le None None None None Ped Movement Not ped reaches but is	None eft oway H  Ped locat Not ped Unable to S	None it obj of: None None None None ion Otl	r Sex Male Untra Female Male Mool Dupi	70ne Agre 271 - 45 58	- 14 N/0 N/0 - 14
60 MPH Singl Veh Vehicle typ 1 Car 2 Car 3 Car 4 Car Cas No Veh ref 1 4 Description: V. Spun Veh Arour User Informatic 51 Location: Al 2 Speed C'Way	e c'way  e c'way  No  No  No  No  Cas Cla  Dry/Ric  2 3 and 4 22 and  who:	MotJCT  g Manoeuvre Going ahea Waiting Waiting Waiting Waiting Waiting Waiting Waiting Waiting ON Male  1 All Statics UN and Coll  0404912 Earsdon Jun Jct Det/Ctrl	Dayli Dir d N S N S N S N S Age S SSlight ction, 1 Lights	ght Weh loc On main On main On mein On mein Severity Slight ring South th 74  Saturd forpeth 1st ing	Rain Junct. 1 Not at Not at Not at Not at Not at Car Page No on Al. VI Contribut ay 28/07/2	Rd Surf Wet  Occ Skidding Yes No No No Ped Direction Not ped Tray Southapp: Cory Factors: 6: 2012 11:15 Rd:	None Hit obj in La None None None Wone Wone Ped Movement Not ped roaches but is	None eft oway H  Ped locat Not ped Unable to S	None it obj of: None None None None ion Otl	r Sex Male Untra Female Male Male Male Male Male Male Male M	None Agre 27 1 - 45 58	- 14 N/0 N/0 - 14
60 MPH Singl Veh Vehicle typ 1 Car 2 Car 3 Car 4 Car Cas No Veh ref 1 4 Description: V. Spun Veh Arour User Informatic 51 Location: Al 2 Speed C'Way 60 MPH Singl	e c'way  pe Towin  No  No  No  No  Cas Cla  Drv/Ric  2 3 and  d V2 and  solution  50M S of	MotJCT  g Manoeuvre Going ahea Waiting Waiting Waiting Waiting Waiting Waiting Waiting OA Sex ier Male 4 All Statics 4 V2 and Coll  0404912 Earsdon Jun Jct Det/Ctrl NotJCT	Dayli Dir d N S N S N S N S Age S SS nary Facided wi Slight ction, 1 Lights Dayli	yeh loc On main On main On mein On mein Severity Slight ring South th 74  Saturd Gorpeth 1st ing	Rain Junct. 1 Not at Not at Not at Not at Not at Car Dass No on Al. V1 Contribut ay 28/07/: Rd: Al 2nd Weather	Rd Surf Wet  OC Skidding Tes No No No Ded Direction Not ped Trav Southapp: Cory Factors: 6' 2012 11:15 i Rd: Rd Surf Dry	None Hit obj in Le None None None None Ded Movement Not ped coaches but is 02V000A  418902/59340	None eft cway B  Ped locat Not ped Unable to S  7  - Phy Pac None	None it obj offi None None None None None It obj offi None Scholar Oth Special None	r Sex Male Untra Female Male Male Male Male Male Male Male M	Age 27 -1: 45 58 il	B/1 - 94 N/0 - 94
60 MPH Singl Veh Vehicle typ 1 Car 2 Car 3 Car 4 Car Cas No Veh ref 1 4 Description: V. Spun Veh Arour User Informatic 51 Location: Al 2 Speed C'Way 60 MPH Singl Veh Vehicle typ	e c'way  pe Towin  No  No  No  No  Cas Cla  Drv/Ric  2 3 and  d V2 and  solution  50M S of	MotJCT  g Manoeuvre Going ahea Waiting Waiting Waiting Waiting Waiting Waiting Waiting United State  4 All Statics 4 V2 and Coll  0404912 Earsdon Jun Jct Det/Ctrl NotJCT  g Manoeuvre	Dayli Dir d N S N S N S N S Age 5 S8 hary Fac ided wi  Slight ction, 1 Lighti Dayli Dir	ght Weh loc On main On main On mein On mein Severity Slight ring South th 74  Saturd forpeth 1st ing	Rain Junct. 1 Not at Not at Not at Not at Car Pass No on Al. V1 Contribut ay 28/07/: Rd: %1 2nd Weather Fine Junct. L	Rd Surf Wet  OC Skidding Yes No No No Ped Direction Not ped  Trav Southapp: Cory Factors: 6  2012 11:15 i Rd: Rd Surf Dry OC Skidding	None Hit obj in Le None None None None Ded Movement Not ped roaches but is 02V000A 418902/59340	None eft cway B  Ped locat Not ped Unable to S  7  - Phy Pac None eft cway B	None it obj offi None None None None None Oth Low in Tr Special None it obj off	T Sex Male Untra Female Male accol Pupi ner me ,	Age 27 -1 -1 -1 -5 -5 -1 -1 -4 -5 -6 -6 -6 -6 -6 -6 -6 -6 -6 -6 -6 -6 -6	B/T
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Description: Ver in Time, Causin Upor Information 41 E0600 Location: Al AP	Drv/Ridens Trav.  In Rider	N on Al to Fall  0205315	ex A fale App. Ea from V1 Sli CAUSEY	ge 64 rsdo: , V2 ght PARK	Severity Serious M Junction Failed to Friday	Car Pass No n, V2 Slow s Stop Contribut 03/04/	Ped Direction Not ped s for Reason U ory Pactors: 40 2015 11:21 2nd Rd:	Ped Mov Not per Inknown, 1 18900012 3	d V1 Trav 08V001A /593865	Not p	ocatio ed d Unal	n Schooth Oth	ool Pup	il	
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Description: Vet in Time, Causin User Information  41 E0600 Location: Al AP Speed C'Way 60 MFH Single Veh Vehicle type 1 Car 2 Car 3 Car 4 Car las No Veh ref 1 0 2 0 3 0 4 0 5 0 Description: VE TAKING EVASIVE User Information  14 Location: Al So Speed C'Way 60 MPH Single Veh Vehicle type 1	Drv/Rid.  Drv/Rid.  S Trav.  Rider  D048  P. 1/2 M  C'way !  Towing  No  No  No  No  Cas Claid  Drv/Rid  Passeng  Passeng  Passeng  Passeng  Passeng  Passeng  Passeng  C'way !  OM N of  C'way  Towing  C'way  Towing   O205315  O205315  MILE S OF  Jot Det/Ct NotJCT  g Manoeuv  Soing al  Coing al  Stop	ex A fale  App. Ea from VI  CAUSEY  II Da  The Di  head S S  Sex I  Cale lemale  lemal	ge 64 rsdoo; , V2 ght pARK ghtin N C N C Ge 34 44 6 6 3 22 KKES Ght RL: N C N N N C N N C N N C N N C N N C N N C N N C N N N N	Severity Serious  Junctio Friday BRIDGE 1  Grant  Junctio Friday BRIDGE 1  Grant  Junctio Friday BRIDGE 1  Grant  Junctio Friday Friday BRIDGE 1  Grant  Junctio Friday Bridght Slight Slight Slight Slight Slight Slight BRAVILY D  ARR OF V2,  Grant  Junctio Friday  Red: Al Junctio Friday  Language  Language  Language  Junctio Friday  Language	Car Pass No n, V2 Slow 0 Stop Contribut 03/04/ st Rd: Al 2 Weather Rain Junct. 1 Not at Not at Not at Not at Not at Stop Rear Front Front Front Gausing V. Contribut 14/01/ 2nd Rd: Weather Fine	Ped Direction Not ped s for Reason U 2015 11:21 2018 Rd Surr OC Skidding No No No No Ped Direction Not ped Science Skidding No Ped Direction Not ped N	Ped More Not per Inknown, 1 18919  PedX - None Hit obj None None None None Not pe Not	d V1 [rav 08V001A /593865 - Human in Let d d d d d d d d d d d d d d d d d d d	Phy Not p No	Fac Hitt No Pac Hit No Pac Hitt No Pac Hit	n School Oth Note to Special None Special No	Sex Male Male Femal Male er er er er er er er	il  dazard None Age 34 41 51 61 61 61 61 61 61 61 61 61 61 61 61 61	B/T -ve -ve	
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Description: Ver in Time, Causin Time, Causin User Information  41 E0600 Location: Al IP Speed C'Way 60 MFH Single Web Vehicle type 1 Car 2 Car 3 Car 4 Car 2 Car 4 Car 6 0 6 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Drv/Rid  Drv/Rid  S Trav.  Rider  C'way I  Towing  No  No  No  Cas Class  Drv/Rid  Passeng  Passeng  Passeng  Passeng  Passeng  Passeng  C'way  C'way  C'way  C'way  C'way  C'way  C'way  C'way  Cas Class  Drv/Rid	Ser M N on Al to Fall  020531s ILE S OF Jot Det/Ct NotJCT g Manoeuv Going al Stop Stop Stop Stop Stop Stop Stop Stop	ex A fale  App. Ea from VI  CAUSEY  I Li Da  Tre Di  head S S  Sex I S  Fenale	ge 64 rsdoi	Severity Serious  Junctio Failed to  Friday SERIDGE 1  g  tr  /eh loc On main On main On main Severity Slight	Car Pass No  A, V2 Slow Stop  Contribut  03/04/ st Rd: Al :  Weather Rain  Junct 1 Not at Not at Not at Not at Front Front Front Front Car Pass No  Car Pass IVE TO TRAF CAUSING V. Contribut  14/01/ 2nd Rd: Weather Fine Junct 1 Not at Not at Car Pass No	Ped Direction Not ped s for Reason U 2015 11:21 2nd Rd: Rd Surf OC Skidding No No No No Ped Direction Not ped Size of ped Not ped Not ped Not ped Size of ped Not ped Not ped Size of ped Not ped Not ped Not ped Size of ped Not ped Not ped Not ped Size of ped Size of Size of Size Size of Size of Size Size of Size o	Ped Mon Not per Inknown, 1 18919 PedX - None Hit obj None None Not pe No	d VI Irav OSVOCIA /593865 - Human in Lef d d d d D LOSES OF V3. 68VOC2B /594010 - Fuman in Lef	Ped 1c Not por	Fac Hit No No No Peach No No No Peach No No No Peach No No Peach No No Peach No No No Peach No	n School Oth	stop  Sex Male Male Femali Male er er er er er er pr f Sex Male Male pool Pup.	il  dazard None Age 34 34 34 il  fone Age 30 azard None 57	B/T -ve -ve

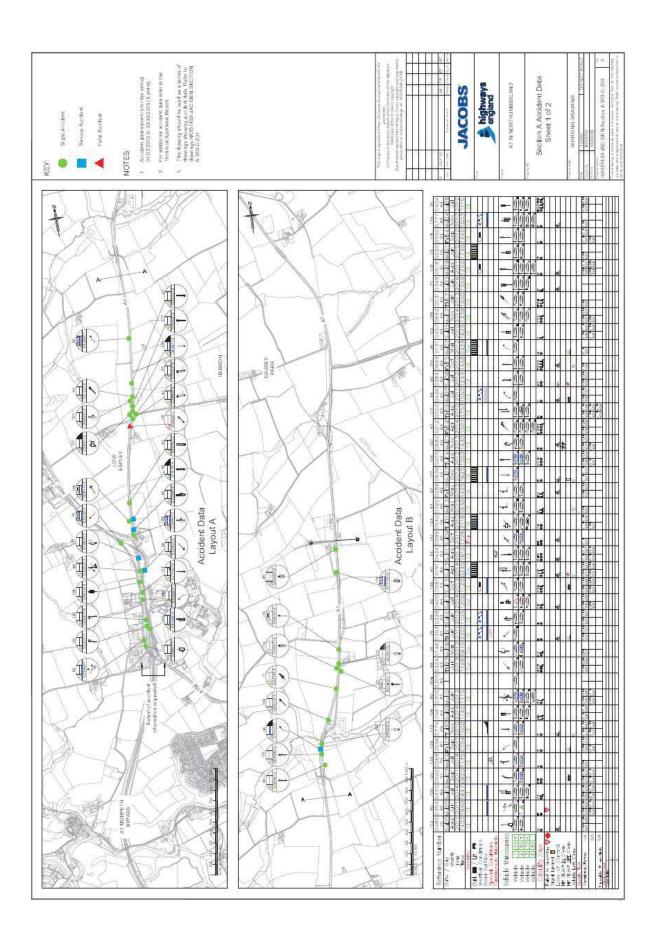
No. Area L/A	Reference	Severity	Day	Date	Time	Grid Coords	Link/Node	Street		
146	0613911	Slight	Sunday	23/10/2011		418940/594420				
Location: Al		J	/W Cause	y Park Bridge	Causey Par	rk 1st Rd: Al 2nd	Rd:			
Speed C'Way 60 MDH Single c'way	Jct Det/Ctrl T/Stag Give	Lighting Dark/no		Weather Fine	Rd Surf	PedX - Human None	- Phy Fac None	Special None	Hazar None	d
Veh Vehicle type Towi	ng Manoeuvre	Dir Ve	h loc	Junct. loc	Skidding	Hit obj in Lef	t cway Hit	obj off	Sex Ag	e B/
1 Car No	Right turn	N S Or	n main	Junt appr	No	None	No	ne	Female 2	4 -v
2 Car No	Going ahead	S N Or	n main	Junt appr	No	None	No	ne	Male 30	) -v
Cas No Veh ref Cas Cl 1 Z Drv/Ri			Severity 511ght		i Direction t ped	Ped Movement Not ped	Ped locatio	n Scho	ool Pupil er	
Description: V1 Trav S Trav North on Al.		s Tried t	o Turn r			eway and Has Turn		Path of	V2	
User Information:						03V001A 405V001A		51515111		
126 Location: Al J/W Chevi		Slight	Friday	12/10/2012 C115 2nd Rd: A		419055/595115				
Speed C'Way	Jct Det/Ctrl T/Stag Give	Lighting		Weather Fine	Rd Surf	PedX - Human None	- Phy Fac	Special None	Hazar None	d
Weh Vehicle type Town			h loc	Junct. loc		Hit obj in Lef				e B/1
1 Car No	Going ahead	EW On	main	Junt appr	No	None	No	ne	Male 26	6 N/(
2 Car No	Wt turn 1t		main	Junt appr	No	None		ne		9 N/
as No Veh ref Cas Cla 1 2 Passen	1931 1251	A STATE OF THE	Severity light	Car Pass Ped Front No	Direction t ped	Ped Movement Not ped	Ped locatio Not ped	n Scho	ol Pupil er	
Description: Vehs Trav	£ 170									
Colliding with Rear o	h.V.E			Contributory		57001A	***********			
149 E06000048 Location: A1 J/W CHEV	0641714 INGTON ROAD CA	Slight AUSET PARA	Sunday			419050/895127		9959		
Speed C'Way	Jct Det/Ctrl	Lighting		Weather	Rd Surf	PedX - Human	- Phy Fac	Special	Hazar	ed
		Dayligh		Fine		None	Refuge	None	None	
Veh Vehicle type Towi	ng Manoeuvre	Dir Ve	eh loc	Junct. loc	Skidding	Hit obj in Let	ft cway Hit	obj off		re B/
1 Car No	Right turn		n mein	Leav main	No	None		ne		2 -v
2 Car No	Going ahead		n main	Mid junctic		None		ne		0 -v
Cas No Veh ref Cas Cl 1 0 Drv/Ri			Severity Slight	No No	d Direction t ped	Ped Movement Not ped	Ped location	n Scho	ool Pupil er	
Description: V1 TRAV. OF V2, COLLISION OCCU			55 - CF 0 C - QN WO 1			TRAV. S ON A1,		HT INTO	PATH	
User Information:						05V001A 406V001B				e11910
162	0724011	Slight		ay 01/12/2011		419040/595140				
Location: Al Speed C'Way	Jct Det/Ctrl	Lighting		Meather	Rd Surf	let Rd: Al 2nd Rd PedX - Human		Special	Hazar	nd.
	T/Stag Give			Fine	Wet	None	None	None	None	Lue
Veh Vehicle type Towi	ng Manoeuvre	Dir Ve	eh loc	Junct. loc	Skidding	Hit obj in Le	Et cway Hit	obj off	Sex Ag	e B/
1 Car No	Going ahead		n main	Junt appr	No	None	No	ne		7 -v
2 Car No	Stop		n main	Junt appr	No	None		ne		8 -0
as No Veh ref Cas Cl 1 2 Drv/Ri	ass Sex der Male	1000			d Direction t ped	Ped Movement Not ped	Ped location	n Scho	457	
<b>Description</b> : Vehs Trav V2										
User Information:				Contributory	Factors: 6	02V001A 403V001A				*000
16 E06000048  Location: Al 30M SCUTE	0039515 J/W FIELDHEA	Slight D/CAUSEY	Sunday DADK JUN					9999		
Speed C'Way 40 MPH Single c'way	Jct Det/Ctrl			Weather Fine	Rd Surf	PedX - Human None	- Phy Fac None	Special Rdworks	Hazai None	
Veh Vehicle type Town	ng Manoeuvze	Dir Ve	h loc	Junot. loc	Skidding	Hit obj in Lei	t oway Hit	obj off	Sex Ag	ge B/
1 Car No	Start	S N Or	n main	Not at	No	None	No	ne	Male 7	
		A 35 A	main	Not at	No	None	No	ne	Male 5	0 -0
2 Car No	Waiting	S N UE	1 - 110-2-11							
as No Veh ref Cas Cla		Age S	Severity	Car Pass Pec		Ped Movement Not ped				

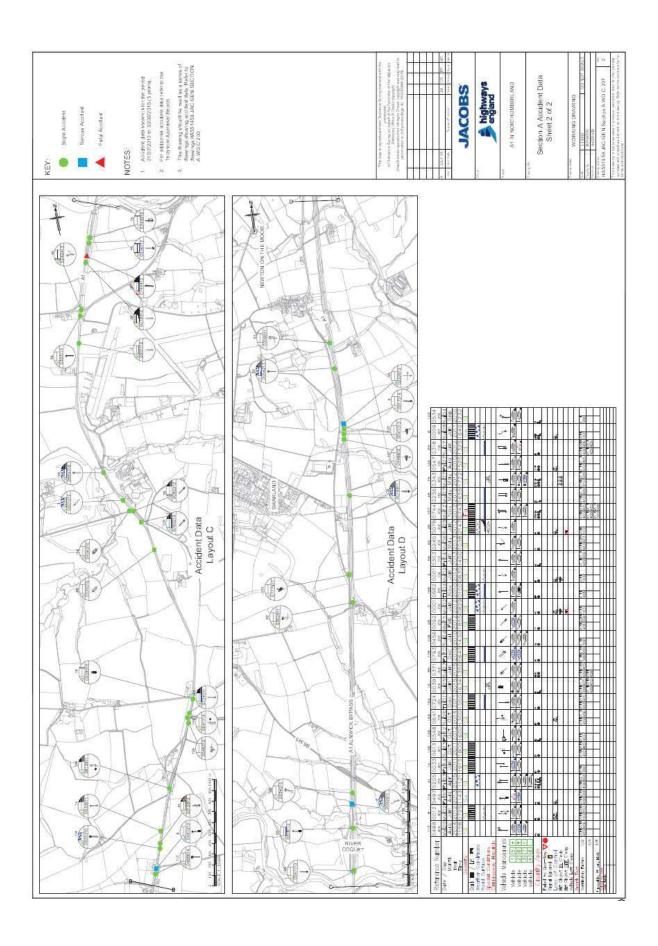
Description: Vehs Trav. S/E on Al in Slow Moving Traffic, Driver of V2 Fressed Brake Instead of Clutch, Coming to a Stop, V1 Failed to Stop in Time, Colliding with Reer of V2  User Information:  Contributory Factors: 408V001A 208V002A  3 0001212 Slight Monday 02/01/2012 08:25 418099/597049  Location: Al Burghan 1st Rd: Al 2nd Rd:  Speed C'Way Jot Det/Ctrl Lighting Weather Rd Surf PedX - Human - Phy Fac Special Bazard 60MPH Single c'way NotJCT Daylight Rain Ice None None None None None  Veh Vehicle type Towing Manoeuvre Dir Veh loc Junct. loc Skidding Hit obj in Left cway Hit obj off Sex Age B. 1 Car No Coing shead SE NW On main Not at Yes Kerb Other Male 60  Cas No Veh ref Cas Class Sex Age Severity Car Pass Ped Direction Ped Movement Ped location School Pupil  Drv/Rider Male 60 Slight No Not ped Not ped Other  Description: V1 Trav. N/W on Al, Driver Loses Control Due to Icy Conditions, V1 Skids, Leaving Carriageway to N/S,	85 E06000	3	Reference	Severity	Day	Date	Time	Grid Coords	Link/Nod	e Street		
Description: Time To Broad Program From Tonoccome to occome to Program From Tonoccome Tonoccome to Program From Tonoccome		0.048 (	3371015	Slight	Saturda	ay 27/06/20	015 13:50	418474/5966	28	9999		
	ocation: Al 1/4			63		26						
## Weblack type Towing Manocentre   Dat   Veb. 100   Must. 100   Minch   Mince   Mince	peed C'Way	Jct	Det/Ctrl	Lightin	g	Weather	Rd Surf	FedX - Huma	n - Phy Fac	Special	Hazar	1
Car	OMPH Single	c'way Not	JCT.	Dayligh	it.	Fine		None	None	None	None	
8 DN One No Web Art Can Class Sex Ape Severity Car Pass Ped Direction No None No	eh Vehicle type	Towing P	lanoeuvre	Dir V	eh loc	Junct. loc	c Skidding	Hit obj in I	eft cway H	it obj off	Sex Age	B/1
us No Yeb ref Cas Class Sex Ape Severity Car Pase Ped Direction Ped Movement Fed Location School Popul 1 0 Dru/Fider Fenale S Slight No No ped Nor ped Nor ped Other Decryption: VESS 1547, NY CAR 1, VE BANES [15] to SLOW DOTY PESS 1547, NY CAR 1, VE BANES [15] to SLOW DOTY PESS 1547, NY CAR 1, VE BANES [15] to SLOW DOTY PESS 1547, NY CAR 1, VE BANES [15] to SLOW DOTY PESS 1547, NY CAR 1, VE BANES [15] to SLOW DOTY PESS 1547, NY CAR 1, VE BANES [15] to SLOW DOTY PESS 1547, NY CAR 1, VE BANES [15] to SLOW DOTY PESS 1547, NY CAR 1, VE BANES [15] to SLOW DOTY PESS 1547, NY CAR 1, VE BANES [15] to SLOW DOTY PESS 1547, NY CAR 1, VE BANES [15] to SLOW DOTY IN TITLE, CONCLUSION OF THE STAR 1, VE BANES [15] to SLOW DOTY IN	1 Car	No G	oing ahead	SE NW O	n nain	Not at	No	None	1	fone	Male 63	-ve
1 O Devylider Male 21 flight Mc Mot ped Morped Morped Coher Control Of Particles From 1 2 flight No Mot ped Norped Ocher Deverying Control Of Particles From 1 1 flight No Mot ped Norped Ocher Devylider From 1 1 flight No Mot North Nor	2 Car	No W	aiting	SE NW C	n nain	Not at	No			ione	Female 32	-76
Description: Vig. 1982 18 19 19 19 19 19 19 19 19 19 19 19 19 19				- PASSON							Constitution of the consti	
Description: YESS TRAN, N.W. ON AL, YZ SPAKES UNG TO SLOW NOVING VERSION AND THE APPLIES SPAKES WAS CONTROL TO ALTON, N. M. ALTON, N. M. SHARLES TO STOLEN THE COLLIDIUS ANTE SERRO OF TYP.  JOHN Information:  Contributory Packors: 0587001A 4587001A 4587001	ā. 65:				355 E E E E E E E E E			177 - San Transaction	RESPONDED TO STANK			
The Fig. (1952) Slight Friday 10/12/13/13/15/15/15/15/15/15/15/15/15/15/15/15/15/	Description: VEH	HS TRAV. N	/W CN Al, V	V2 BRAKE	S DUE TO	SLOW MOVING	VEHICLE AHEA	D, DRIVER APPI	LIES BRAKES H	ARD COMING	G TO	
The Fe	A STOP, VI UNAB	LE TO STOP	IN TIME,	COLLIDI	IC WITH DE	AR OF V2						
Locotton: AlO.25 Miles S J/W Surpham Let, Burgham Let, Bd: All Tand Rd:  Speed C Way	Jser Information					Contributo	ry Factors: 40	06V001A 405V00	1A 408V001A			
One	176 F6	-	0793210	Elight	Friday	10/12/20	010 06:45	410310/5960	70			
#Work Nebuck by Par Towing Manoewere Dir Veh loc Junct. loc Skidding Hit chy in Left cway Hit chy for fif Sex Age B 1 Goods 7.5t Act Going sheed NW SE On main Not at No None None None Male 37 - 12 Goods 7.5t Act Going sheed NW SE On main Not at No None None None Male 37 - 12 Goods 7.5t Act Going sheed NW SE On main Not at No None None Male 37 - 12 Dry/Rider Nale 37 Slight No No Not ped None None Male 37 - 12 Dry/Rider Nale 37 Slight No No Not ped Not ped Not ped Other Time Not ped	Location: A10.2	S Miles S	J/W Eurgha	m Rd, Bu	rgham 1st	Rd: Al 2nd	Rd:					
Veh Vehicle type Towing Mancewree Dir Veh loc Jumot. loc Skidding Hit chy in Left cway Hit chy off Sex Age B 1 Goods > 7.5t Art Going ahead NN SE On main Not at No None None Untra1 Nn Not at No None Untra1 Nn Not ped Not ped Not ped Capture of the Vehicle type Invited the Vehicle type Invited In											8000000	1
1 Goods > 7.5s Art Going sheed NW SE On main Not at No None None Male 37 - 1 M None 1 2 Goods > 7.5s Art Going sheed NW SE On main Not at No None None Male 37 - 1 M None None Male 37 - 1 M None None None None Male 37 - 1 M None None None None None None None None												53232
2 Goods > 7.55 Art Going sheed NW SE Orn main Not at No Norse None Male 37 -  Cas No Veh ref Cas Class Sex Age Sewerity Car Pass Ped Direction Ped Novement Ped Location School Pupil 1 2 Dry/Rider Nale 37 Slight No Norsed Norsed Norsed Not ped Story Set 12 Dry/Rider Nale 37 Slight No Norsed Norsed Norsed Not ped Story Set 12 Dry/Rider Nale 37 Slight No Norsed Norse		and the same of					The state of the s	527	contrated the	X	125	
Cas No Veb ref Cas Class Set Age Severity Car Pass Ped Direction Ped Novement No ped Not ped N												
Description: VI Park No.   27   Slight No.   Not ped   Not ped   Other   Description: VI Park Scuth on Al When a Large Item of Ice Falls from Trailers VI, the Ice Hate Nindocreen of Identification   Identification: Identification   No.   No.   No.   No.   No.   No.   No.   Identification: Identification   No.												-ve
Description: VI. Hev Traw South on Al when a large Item of Ice Fails from Trailers VI. the Ice Hate Nindscreen of ICE Points, Disputch at Peach Heighton Internation:  Contributory Factors: 308V00CA 95YV00CA  Weer Information:  3 485210 Slight Saturday 24/07/2010 14:30 418190/58680  JOS JUN CISberghan Late Mct. Al Znd Rd: Cl37  Speed C Vay  Oth Det/Ctrl Lightung Weather Rd Surf PedX - Human - Phy Pao Special None Web Veb Vebicle type Towing Manneeurre Dir Veb Ice Junct. Loc Skidding Hit obj in Left cway Hit obj off Sex Age E 1 Car No Going sheed SE NN On main Junc cleared No None None None Hale 34 - 3 Car No Waiting SE NN On main Junc cleared No None None Hale 34 - 3 Car No Waiting SE NN On main Junc cleared No None None Hale 34 - 3 Car No Waiting SE NN On main Junc cleared No None None Hale 34 - 3 Car No Waiting SE NN On main Junc cleared No None None Hale 34 - 3 Car No Waiting SE NN On main Junc cleared No None None Hale 34 - 3 Car No Waiting SE NN On main Junc cleared No None None Hale 34 - 3 Car No Waiting SE NN On main Junc cleared No None None Hale 34 - 3 Car No Waiting SE NN On main Junc cleared No None None Hale 34 - 3 Car No Waiting None None None Hale 34 - 3 Car No Waiting None None None Hale 34 - 3 Car No Waiting None None None Hale 34 - 3 Car No Waiting None None None Hale 34 - 3 Car No Waiting None None None None Hale 34 - 3 Car No Waiting None None None None Hale 34 - 3 Car No Waiting None None None None None None None None												
Variable												
Second   S												
Docation: Al Jot Bet/Ctrl Slight Saturday 24/07/2010 14:30 418159/556560  Location: Al J/W ClSburghan late Mci Al Znd Mci Cl37  Speed C'Way Jot Bet/Ctrl Lighting Weather Rd Surf Peck - Human - Phy Pac Special Mone Work Sincle c'way If/Stad Give Daylight Fine Dry None None None None None Work Webicle type Towing Manceuvre Dir Veh loc Junct. loc Skidding Hit obj in Left cway Hit obj off Sex Age B 1 Car No Going ahead Si NW On main Junc cleared No None None Male 49 - 2 Car No Waiting Si NW On main Junc cleared No None None Male 49 - 3 Car No Waiting Si NW On main Junc cleared No None None Male 49 - 3 Car No Waiting Si NW On main Junc cleared No None None Male 61 - 2 Dry/Rader Nale 9 Siight No Nor ped None Mone None Male 61 - 2 Dry/Rader Nale 9 Siight No Nor ped Nor ped Not ped Orher  Description: VI VI V3 Trav Nv on Al. VI V3 Waiting it Traffic. VI Approached Andcollided with Rear of V2 Pushing it into V3 Location: Al 1/2 Mile N of Heim Junction, Bockenfield Lat Mci Al 2nd Mci Speed C'Way Jot Det/Cltl Lighting Weather Al 2nd Mci Speed C'Way Jot Det/Cltl Lighting Weather Rd Surf None None None None None None None None			Ties autor 1	AttackTW	no. 15 [h]							
Speed C'Way   Jot Det/Ctrl   Lighting   Weather Rd Surf   PedX - Human - Phy Fac Special   Basard COMPH Single c'way I/Stac Gave   Daylight   Fine   Dry   None	vser information	14:				CONCERDUO.	ry ractors. 30	08 00 00A 333 V 0 0	UA .			
Speed C'Way Jot Bet/Ctrl Lighting Weather Rd Surf None None None None None None None None	106 FS	- 1	0456210	Slight	Saturd	ay 24/07/20	010 14:30	418190/5969	60			
## Single c'way I/Stac Give Deviloth  Fine Dry None None None None None None Worker None None None None None None None None	Location: Al				J/W Cl5bu	rgham 1st Ro	d: Al 2nd Rd:	C137				
Veh Vehicle type Towing Manoeuvre Dir Veh loc Junct. loc Skidding Hit obj in Left oway Hit obj off Sex Age B 1 Car No Going shead SE NW Cn main Junt cleared No None None Male 49 - 2 Car No Waiting SE NW Cn main Junt cleared No None None Male 34 - 3 Car No Waiting SE NW Cn main Junt cleared No None None Male 34 - 2 None Male 34 Sex Age Severity Car Pass Ped Direction Ped Movement Ped location School Pupil Not ped Other None None Male 34 Slight No Not ped Not ped Other Not ped Other None None Male 34 Slight No Not ped Not ped Not ped Other None None None None None None None None											Hazar	d
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2 Car No Waiting SI NW Cn main Junt cleared No None None Hale 34 - 3 Car No Waiting SI NW Cn main Junt cleared No None None Hale 61 - 3a No Wen're Cas Class Sex Age Severity Car Pass Ped Direction Ped Movement Ped Location School Pupil 1 2 Drv/Rider Nale 24 Slight No Not ped Not ped Not ped Other  Description: V1 V2 V3 Trav Nw on Al. V2 V3 Waiting it Traffic. V1 Approached Andcollided with Rear of V2 Pushing it into N3 User Information:  Contributory Pactors: 308V000A  28	Veh Vehicle type	e Towing 1	danoeuvre	Dir V	Weh loc	Junct. lo	c Skidding	Hit obj in I	Left cway H	it obj off		
3 Car No Waiting SE NW On main Junt cleared No None None Male 61 - 2as No Veh ref Cas Class Sex Age Severity Car Pass Ped Direction Ped Movement Ped location School Pupil 1 2 Drv/Rider Male 34 Slight No Not ped Not ped Not ped Other  Description: V1 V2 V3 Trav Nv on Al. V2 V3 Waiting it Traffic. V1 Approached Andcollided with Rear of V2 Pushing it into V3  User Information: Contributory Pactors: 308V000A  28 O09212 Slight Wednesday 15/02/2012 18:55 418214/596963  Location: Al 1/2 Mile N of Helm Junction, Bockenfield Ist Mci Al 2nd Rci  Speed C'Way Jot Det/Ctrl Lighting Weather Rd Surf PedX - Human - Phy Fac Special Hazard 60 MPH Single c'way Noc2C1 Dark/no lights Fine Dry None None None None None None None School Pupil 1 Goods > 7.5t Art Going shead NW SE On main Not at No None None Male 58 - 2 Car No Going shead NW SE On main Not at No None None Male 27 - 2 Car No Going shead NW SE On main Not at No None None Male 58 - 2 Car No Going shead NW SE On main Not at No None None Male 58 - 2 Car No Going shead NW SE On main Not at No None None Male 58 - 2 Car No Going shead NW SE On Main Not at No None None Male 58 - 2 Car No Going shead NW SE On Main Not at No None None Male 58 - 2 Car No Going shead NW SE On Main Not at No None None Male 58 - 2 Car No Going shead NW SE On Main Not at No None None Male 58 - 2 Car No Going shead NW SE On Main Not at No None None Male 58 - 2 Car No Going shead NW SE On Main Not at No None None Male 59 - 2 Car No Going shead No Severity Car Fass Ped Direction Ped Movement Ped location School Pupil 1 2 Dev/Rider Nate 27 Slight Monday 02/01/2012 08:29 418039/597049  Jocation: Al Burghan Ist Rd: Al Znd Ed:  Contributory Factors: 408V001A 208V002A  3 0001212 Slight Monday 02/01/2012 08:29 418039/597049  Jocation: Al Burghan Ist Rd: Al Znd Ed:  Contributory Factors: 408V001A 208V002A  3 0001212 Slight Monday 02/01/2012 08:29 418039/597049  Jocation: Al Burghan Ist Rd: Al Znd Ed:  Contributory Factors: 408V001A 208V002A  3 0001212 Slight Monday 02/01/2012 08:29 418039/597049  Jocation: Al Bu												
Cas No Veh ref Cas Class Sex Age Severity Car Pass Ped Direction Ped Movement Ped location School Pupil 1 2 Dry/Rider Male 14 Slight No Not ped Not ped Not ped Other  Description: VI V2 V3 Trav Nv on Al. V2 V3 Waiting it Traffic. VI Approached Andcollided with Rear of V2 Pushing it into V3  User Information:  Contributory Pactors: 305V000A  28 0091212 Slight Wednesday 15/02/2012 18:85 418214/596963  Location: Al 1/2 Mile N of Helm Junction, Bockenfield 1st Md: Al 2nd Rd:  Speed C'Way Jot Det/Ctrl Lighting Weather Rd Surf PedX - Human - Phy Fac Special Hazard 60MPH Single c'way NotOCI Dark/no lights Fine Dry None None None None None None None None			The state of the s									
Description: V1 V2 V3 Trav Nw on Al. V1 V3 Waiting it Traffic. V1 Approached Androllided with Rear of V2 Pushing it into V3  User Information:  Contributory Factors: 308V000A  Location: Al 1/2 Mile N of Helm Junction, Bockenfield 1st Rd: Al 2nd Rd:  Speed C'Way Jot Det/Ctrl Lighting Weather Rd Surf PedX - Human - Phy Pac Special Hazard 60MFH Single c'way Not3C7 Dark/no lights Fine Dry None Mone None None None Web Vehicle type Towing Manoeuvre Dir Veh loc Junct. loc Skidding Hit obj in Left cway Hit obj off Sex Age B 1 Goods > 7.5t Art Going ahead NN SE On main Not at No None None Male 58 - 2 Car No Going ahead NN SE On main Not at No None None Male 27 - Cas No Veh ref Cas Class Sex Age Severity Car Pass Ped Direction Ped Movement Ped location School Pupil 1 2 Dry/Rider Male 27 Slight Mo Not ped Not ped Not ped Other  Description: Vehs Irav. S/E on Al in Slow Moving Traffic, Driver of V2 Pressed Brake Instead of Clutch, Coming to a Stopy, V1 Failed to Stopy in Time, Colliding with Ress of V1  Wear Information:  Contributory Factors: 408V0012 208V0012  3 0001212 Slight Monday 02/01/2012 08:29 418099/897049  Location: Al Burghan 1st Rd: Al 2nd Rd:  Speed C'Way Jot Det/Ctrl Lighting Weather Rd Surf PedX - Human - Phy Fac Special Hazard 60MFH Single s'vay Not2CT Daylight Monday 02/01/2012 08:29 418099/897049  Location: Al Burghan 1st Rd: Al 2nd Rd:  Speed C'Way Jot Det/Ctrl Lighting Weather Rd Surf PedX - Human - Phy Fac Special Hazard 60MFH Single s'vay Not2CT Daylight Monday 02/01/2012 08:29 418099/897049  Location: Al Burghan 1st Rd: Al 2nd Rd:  Contributory Factors: 408V0012 208V0012 208V0012 815 obj off Sex Age B 1 Car Mc Coing ahead SE NN On nain Not at Vs Karb Other None None None None None None None None												-7/4
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User Information:  Contributory Factors: 308V000A  28 0092212 Slight Wednesday 15/02/2012 18:55 418214/596963  Location: Al 1/2 Mile N of Heim Junction, Bockenfield 1st Rd: Al 2nd Rd:  Speed C'Way Jot Det/Ctrl Lighting Weather Rd Surf PedX - Human - Phy Fac Special Hazard 60MPH Single c'way MotUC7 Dark/no lights Fine Dry Nome Mone Nome Nome Nome Nome Nome Nome Nome Nom												
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Docation: Al 1/2 Mile N of Helm Junction, Bockenfield 1st Rd: Al 2nd Rd:  Speed C'Way Jot Det/Ctrl Lighting Weather Rd Surf PedX - Human - Phy Fac Special Bazard 60MPH Single c'way NotJCT Dark/no lights Fine Dry None None None None None None  Veh Vehicle type Towing Manoeuvre Dir Veh loc Junct. loc Skidding Hit obj in Left cway Hit obj off Sex Age B 1 Goods > 7.5t Art Going shead NW SE On main Not at No None None Male 58 - 2 Car No Going shead NW SE On main Not at No None None Male 27 - Cas No Veh ref Cas Class Sex Age Severity Car Fass Ped Direction Ped Movement Ped location School Pupil 1 2 Dry/Rider Male 27 Slight No Not ped Not ped Not ped Other  Bescription: Vehs Trav. S/E on Al in Slow Moving Traffic, Driver of V2 Fressed Brake Instead of Clutch, Coming to a Stopy VI Failed to Stop in Time, Colliding with Rear of VI Vsear Information:  Contributory Factors: 408V001A 208V002A  3 0001212 Slight Monday 02/01/2012 08:23 418059/897049  Location: Al Burghan 1st Rd: Al 2nd Rd:  Speed C'Way Jot Det/Ctrl Lighting Weather Rd Surf PedX - Human - Phy Fac Special Bazard Mond Single c'way NotJCT Daylight Dain Ice None None None None None None None Non												
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Speed C'Way Jot Det/Ctrl Lighting Weather Rd Surf PedX - Human - Phy Fac Special Hazard 60MPH Single c'way NotJCT Dark/no lights Fine Dry None None None None None None None None	28	7	0092212	Slight	Wednes	day 15/02/2	012 18:55	418214/5969	63			
Fine Dry None None None None None None None None		2 Mile N c	f Helm Jun	ction, E	Bockenfiel	d 1st Rd: A	1 2nd Rd:					
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1 Goods > 7.5t Art Going ahead NW SE On main Not at No None None Kale 58 - 2 Cax No Going ahead NW SE On main Not at No None None Kale 27 - Cas No Veh ref Cas Class Sex Age Severity Car Pass Ped Direction Ped Movement Ped location School Pupil 1 2 Drv/Rider Nale 27 Slight No Not ped Not ped Not ped Other  Bescription: Vehs Trav. S/E on Al in Slow Moving Traffic, Driver of V2 Fressed Brake Instead of Clutch, Coming to a Stop, V1 Failed to Stop in Time, Colliding with Reer of V2  User Information: Contributory Factors: 408V001A 208V002A  3 0001212 Slight Monday 02/01/2012 08:29 418099/597049  Location: Al Burghan 1st Rd: Al 2nd Rd:  Speed C'Way Jot Det/Ctrl Lighting Weather Rd Surf PedX - Human - Phy Fac Special Bazard 60MIH Single c'way NotJCT Daylight Pain Ice None None None None None  Veh Vehicle type Towing Manoauvre Dir Veh loc Junct loc Skidding Hit obj in Left cway Hit obj off Sex Age B. 1 Car No Going ahead SE NW On main Not at Yes Kerb Other Male 60 -  Cas No Veh ref Cas Class Sex Age Severity Car Pass Ped Direction Ped Movement Ped location School Pupil  Drv/Rider Male 60 Slight No Not ped Not ped Other  Description: V1 Trav. N/W on Al, Driver Loses Control Due to Icy Conditions, V1 Skids, Leaving Carriageway to N/S,	Speed C'Way			Dark/no	o lights	Fine	Dry	None	None	None	None	
2 Car No Going shead NW SE On main Not at No None None Kale 27 - Cas No Veh ref Cas Class Sex Age Severity Car Pass Ped Direction Ped Movement Ped location School Pupil 1 2 Drw/Rider Male 27 Slight No Not ped Not ped Not ped Other  Description: Vehs Trav. S/E on Al in Slow Moving Traffic, Driver of V2 Fressed Brake Instead of Clutch, Coming to a Stop, V1 Failed to Stop in Time, Colliding with Reer of V2  User Information: Contributory Factors: 408V001A 208V002A  3 0001212 Slight Monday 02/01/2012 08:29 418039/597049  Location: Al Burghan 1st Rd: Al 2nd Rd:  Speed C'Way Jot Det/Ctrl Lighting Weather Rd Surf PedX - Human - Phy Fac Special Bazard None None None None None None  Vah Vehicle type Towing Manosuvre Dir Veh loc Junct. loc Skidding Hit obj in Left cway Hit obj off Sex Age B.  1 Car No Coing shead SE NW On main Not at Yes Kerb Other Male 60 -  Cas No Veh ref Cas Class Sex Age Severity Car Pass Ped Direction Ped Movement Ped location School Pupil  1 Drv/Rider Male 60 Slight No Not ped Not ped Other  Description: V1 Trav. N/W on Al, Driver Loses Control Due to Icy Conditions, V1 Skids, Leaving Carriageway to N/S,	Speed C'Way		tJCT									a B/
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Description: Vehs Trav. S/E on Al in Slow Moving Traffic, Driver of V2 Fressed Brake Instead of Clutch, Coming to a Stop, V1 Failed to Stop in Time, Colliding with Rear of V2  User Information:  Contributory Factors: 408V001A 308V002A  3 0001212 Slight Monday 02/01/2012 08:29 418099/597049  Location: Al Burghan 1st Rd: Al 2nd Rd:  Speed C'Way Jot Det/Ctrl Lighting Weather Rd Surf PedX - Human - Phy Fac Special Bazard Monday Single c'way NotJCT Daylight Rain Ice None None None None None  Veh Vehicle type Towing Maneauvre Dir Veh loc Junct loc Skidding Hit obj in Left cway Hit obj off Sex Age B.  1 Car No Coing shead SE NW On main Not at Yes Kerb Other Male 60  Cas No Veh ref Cas Class Sex Age Severity Car Pass Ped Direction Ped Movement Ped location School Pupil  1 Drv/Rider Male 60 Slight No Not ped Not ped Other  Description: V1 Trav. N/W on Al, Driver Loses Control Due to Icy Conditions, V1 Skids, Leaving Carriageway to N/S,	Speed C'Way 60 MPH Single Veh Vehicle type 1 Goods > 7.5t	e <b>Towing</b> Not e <b>Towing</b> Not t Art G	Manoeuvre Soing ahead	Dir 1	on main	Not at	No	None		None	Male 58	-v
Description: Vehs Trav. S/E on Al in Slow Moving Traffic, Driver of V2 Fressed Brake Instead of Clutch, Coming to a Stop, V1 Failed to Stop in Time, Colliding with Reer of V2  Veer Information:  Contributory Factore: 408V001A 208V002A  3 0001212 Slight Monday 02/01/2012 08:29 418099/597049  Location: Al Burghan 1st Rd: Al 2nd Rd:  Speed C'Way Jot Det/Ctrl Lighting Weather Rd Surf PedX - Human - Phy Fac Special Bazard 60MPH Single c'way NotJCT Daylight Dain Ice None None None None None  Veh Vehicle type Towing Managuare Dir Veh loc Junct. loc Skidding Hit obj in Left oway Hit obj off Sex Age B.  1 Cax No Coing shead SE NW On main Not at Yes Kerb Other Male 60  Cas No Veh ref Cas Class Sex Age Severity Car Pass Ped Direction Ped Movement Ped location School Pupil  1 Drv/Rider Male 60 Slight No Not ped Not ped Other  Description: V1 Trav. N/W on Al, Driver Loses Control Due to Icy Conditions, V1 Skids, Leaving Carriageway to N/S,	Speed C'Way 60 MPH Single Veh Vehicle type 1 Goods > 7.5t 2 Car	e c'way Not e Towing Not t Art G No G	Manoeuvre Soing ahead Soing ahead	Dir 1 NW SE (	On main On main	Not at	No No	None None	P. Control of the con	None None	Male 58	-v
Stop, VI Failed to Stop in Time, Colliding with Reer of V2  User Information:  Contributory Factors: 408VDC11 208VDC12  3 0001212 Slight Monday 02/01/2012 08:29 418039/597049  Location: Al Burghan 1st Rd: Al 2nd Rd:  Speed C'Way Jot Det/Ctrl Lighting Weather Rd Surf PedX - Human - Phy Fac Special Hazard 60MDH Single c'way NotJCT Daylight Dain Ice None None None None None  Vah Vehicle type Towing Manocauvre Dir Vehloc Junct. loc Skidding Hit obj in Left cway Hit obj off Sex Age B.  1 Car No Coing ahead SE NW On main Not at Yes Kerb Other Male 60  Cas No Veh ref Cas Class Sex Age Severity Car Pass Ped Direction Ped Movement Ped location School Pupil  1 Drv/Rider Male 60 Slight No Not ped Not ped Other  Description: V1 Trav. N/W on Al, Driver Loses Control Due to Icy Conditions, V1 Skids, Leaving Carriageway to N/S,	Speed C'Way 60MPH Single Veh Vehicle type 1 Goods > 7.5t 2 Cax Cas No Veh ref	e c'way No: e Towing No t Art G No G Cas Class	Manoeuvre Soing ahead Soing ahead Sex	Dir 1 NW SE ( NW SE (	On main On main Severity	Not at Not at Car Pass	No No Ped Direction	None None Ped Movement	: Ped locat	None None ion Scho	Male 50 Male 27 ool Pupil	-v
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3 0001212 Slight Monday 02/01/2012 08:29 418039/597049  Location: Al Burghan 1st Rd: Al 2nd Rd:  Speed C'Way Jot Det/Ctrl Lighting Weather Rd Surf PedX - Human - Phy Fac Special Hazard  60MDH Single c'way NotJCT Daylight Rain Ice None None None None None  Veh Vehicle type Towing Maneauvre Dir Veh loc Junct. loc Skidding Hit obj in Left oway Hit obj off Sex Age B,  1 Car No Going shead SE NW On main Not at Yes Kerb Other Male 60  Cas No Veh ref Cas Class Sex Age Severity Car Pass Ped Direction Ped Movement Ped location School Pupil  1 Drv/Rider Male 60 Slight No Not ped Not ped Other  Description: VI Trav. N/W on Al, Driver Loses Control Due to Icy Conditions, VI Skids, Leaving Carriageway to N/S,	Speed C'Way 60MPH Single Veh Vehicle type 1 Goods > 7.5t 2 Car Cas No Veh ref 1 2 Description: Vel	e c'way Not e Towing I t Art G No G Cas Class Drv/Rider hs Trav. S	Manoeuvre Soing ahead Soing ahead Sex Male	Dir 1 NW SE ( NW SE (  Age  27 n Slow M	On main On main Severity Slight Doving Tra	Not at Not at Car Pass No ffic, Drive	No No Ped Direction Not ped	None None Ped Movement Not ped sed Brake Inst	: Ped locat. Not ped	None None ion Scho Othe	Male 50 Male 27 ool Pupil er	3 -v
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Fomily Single c'way NotJCT Daylight Rain Ice None None None None None None None Non	Speed C'Way 60MPH Single Veh Vehicle type 1 Goods > 7.5t 2 Car Cas No Veh ref 1 2 Bescription: Vel Stop, V1 Failer Veer Information	e C'way Note  Towing !  t Art G  No G  Cas Class  Drv/Rider  hs Trav. S d to Stop.	Manoeuvre Coing ahead Coing ahead Sex Kale C/E on Al in in Time, Co	Dir V NW SE ( NW SE ( Age 27 n Slow M	On main On main Severity Slight Doving Tra with Rea	Not at Not at Car Pass No ffic, Drive r of V2 Contributo	No No Ped Direction Not ped r of V2 Fress rry Factors: 40	None None Ped Movement Not ped sed Brake Insta	Ped locat. Not ped ead of Clutch	None None ion Scho Othe	Male 50 Male 27 ool Pupil er	3 -v
Veh Vehicle type Towing Manocurve Dir Veh loc Junet. loc Skidding Hit obj in Left oway Hit obj off Sex Age B.  1 Car No Coing shead SE NW On main Not at Yes Kerb Other Male 60 - Cas No Veh ref Cas Class Sex Age Severity Car Pass Ped Direction Ped Movement Ped location School Pupil 1 1 Drv/Rider Male 60 Slight No Not ped Not ped Other  Description: VI Trav. N/W on Al, Driver Loses Control Due to Icy Conditions, VI Skids, Leaving Carriageway to N/S,	Speed C'Way 60MPH Single Veh Vehicle type 1 Goods > 7.5t 2 Car Cas No Veh ref 1 2 Bescription: Vel 5top, V1 Failed User Information	e C'way Note  Towing !  t Art G  No G  Cas Class  Drv/Rider  hs Trav. S  d to Stop	Manoeuvre Coing ahead Coing ahead Sex Kale E/E on Al in in Time, Co	Dir 1 NW SE ( NW SE ( Age 27 n Slow Molliding	On main On main Severity Slight Doving Tra with Rea	Not at Not at Car Pass No ffic, Drive r of V2 Contributo	No No Ped Direction Not ped r of V2 Fress rry Factors: 40	None None Ped Movement Not ped sed Brake Insta	Ped locat. Not ped ead of Clutch	None None ion Scho Othe	Male 50 Male 27 ool Pupil er	3 -v
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Cas No Veh ref Cas Class Sex Age Severity Car Pass Ped Direction Ped Movement Ped location School Pupil 1 Drv/Rider Male 60 Slight No Not ped Not ped Not ped Other  Bescription: VI Trav. N/W on Al, Driver Loses Control Due to Icy Conditions, VI Skids, Leaving Carriageway to N/S,	Speed C'Way 60MPH Single Veh Vehicle type 1 Goods > 7.5t 2 Cax Cas No Veh ref 1 2  Description: Veh 5top, V1 Failed User Information  3  Location: Al Bu: Speed C'Way	e c'way Note  Towing   t Art G No G Cas Class Drv/Rider hs Trav. S d to Stop. a:  (rghan 1st   Jot	Manoeuvre Soing ahead Soing ahead Sex Hale F/E on Al in An Time, Co  0001212 Rd: Al 2nd Det/Ctrl	Dir 1 NW SE ( NW SE ( Age 27 n Slow Molliding  Slight Rd: Lightin	On main On main Severity Slight Moving Tra with Rea Monday	Not at Not at Car Pass No ffic, Driver of V2 Contribute 02/01/20 Weather Dain	No No No Ped Direction Not ped or of V2 Fress Pactors: 40 012 08:29	None None Ped Movement Not ped sed Brake Inst 08VD011 208VD0 418099/5970 PedX - Human None	Ped locat. Not ped ead of Clutch 2A 49 n - Phy Fac	None None ion Scho Othe h, Coming Special None	Male 50 Male 27 col Pupil er to a  Hazar	3 -v
1 I Drv/Rider Male 50 Slight No Not ped Not ped Not ped Other  Description: VI Trav. N/W on Al, Driver Loses Control Due to Icy Conditions, VI Skids, Leaving Carriageway to N/S,	Speed C'Way 60MPH Single Veh Vehicle type 1 Goods > 7.5t 2 Cax Cas No Veh ref 1 2  Description: Veh Stop, V1 Failed User Information  3  Location: Al Bu: Speed C'Way 60MFH Single	e c'way Note  Towing I  Art G No G Cas Class Drv/Rider hs Trav. S d to Stop a:  (rghan 1st I Jot c'way Note	Manoeuvre Soing ahead Soing ahead Sex Hale F/E on Al in in Time, Co  0001212 Rd: Al 2nd Det/Ctrl	Dir 1 NW SE ( NW SE ( Age 27 n Slow Molliding Slight Rd: Lightin Dayligh	On main On main Severity Slight Goving Tra with Rea Monday	Not at Not at Car Pass No ffic, Driver of V2 Contribute 02/01/20 Weather Dain	No No No Ped Direction Not ped or of V2 Fress Pactors: 40 012 08:29	None None Ped Movement Not ped sed Brake Inst 08VD011 208VD0 418099/5970 PedX - Human None	Ped locat. Not ped ead of Clutch 2A 49 n - Phy Fac	None None ion Scho Othe h, Coming Special None	Male 50 Male 27 col Pupil er to a  Hazar	3 -v
1 I Drv/Rider Male 50 Slight No Not ped Not ped Not ped Other  Description: VI Trav. N/W on Al, Driver Loses Control Due to Icy Conditions, VI Skids, Leaving Carriageway to N/S,	Speed C'Way 60MPH Single Veh Vehicle type 1 Goods > 7.5t 2 Cax Cas No Veh ref 1 2  Description: Veh 5top, V1 Failed User Information  3  Location: Al Bu: Speed C'Way 60MDH Single Veh Vehicle type	e c'way Note  Towing I  Art G  No G  Cas Class  Drv/Rider  hs Trav. S  d to Stop  a:  (rghan 1st I  Jot  c'way Note  a Towing I	Manoeuvre  Soing ahead  Sex  Hale  S/E on Al in  in Time, Co  O001212  Rd: Al 2nd  Det/Ctrl  SOT	Dir 1 NW SE ( NW SE ( Age 27 n Slow M slliding Slight Rd: Lightin Dayligi	On main On main Severity Slight Doving Tra with Rea Monday  G	Not at Not at Car Pass No ffic, Driver of V2 Contribute 02/01/20 Weather Dain Junct. loc	No No No Ped Direction Not ped or of V2 Fress (AC DI2 08:29 Rd Surf Ice or Skidding	None None Ped Movement Not ped sed Brake Inst 08V0011 208V00 418099/5970 PedX - Human None Hit obj in I	Ped locat. Not ped ead of Clutch 2A 49 n - Phy Fac None eft cway H.	None None ion Scho Othe h, Coming Special None it obj off	Male 50 Male 2° col Pupil er to a  Hazarr None Sex Age	d B/1
Description: V1 Trav. N/W on A1, Driver Loses Control Due to Icy Conditions, V1 Skids, Leaving Carriageway to N/S,	Speed C'Way 60MPH Single Veh Vehicle type 1 Goods > 7.5t 2 Car Cas No Veh ref 1 2 Description: Vehicle type 1 Failed User Information 3 Location: Al But Speed C'Way 60MPH Single Veh Vehicle type 1 Car	e C'way Note  Towing I  t Art G  No G  Cas Class  Drv/Rider  hs Trav. S  d to Stop  a:  (rghan 1st I  Jot  c'way Note  Towing I  No G	Manoeuvre Soing ahead Sex Male S/E on Al in In Time, Co  0001212 Rd: Al 2nd Det/Ctrl LCT Manoeuvre Soing ahead	Dir 1 NW SE ( NW SE ( Age 27 n Slow M colliding Slight Rd: Lightin Dayligh Dir 1 SE NW (	On main On main Severity Slight Soving Tra with Ree  Monday  g tt  Vah loo on main	Not at Not at Car Pass No ffic, Drive r of V2 Contributo 02/01/20 Weather Pain Junct. loc	No No No Ped Direction Not ped r of V2 Fress vry Factors: 40 012 08:29  Rd Surf Ice Skidding Yes	None None Ped Movement Not ped sed Brake Inst 08V0011 209V00 418099/5970 PedX - Human None Hit obj in I	: Ped locat. Not ped ead of Clutch 2A 49 n - Phy Fac None	None None None Scho Othe A, Coming Special None Stobjoff	Male 50 Male 2° col Pupil er to a  Hazar None Sex Age Male 60	d B/1
Description: VI 12av. N/W on AI, Driver Loses to Torrol Due to Icy Conditions, VI Skids, Leaving Carriageway to N/S,	Speed C'Way 60MPH Single Veh Vehicle type 1 Goods > 7.5t 2 Cax Cas No Veh ref 1 2 Description: Vel 5500, VI Failed User Information 3 Location: Al Bu: Speed C'Way 60MFH Single Veh Vehicle type 1 Cax Cas No Veh ref	e C'way Note  Towing I  Art G  No G  Cas Class  Drv/Rider  hs Trav. S  d to Stop  rghan 1st I  Jot  a'way Note  Towing I  No G  Cas Class	Manoeuvre Soing ahead Soing ahead Sex Hale F/E on Al in in Time, Co  0001212 Rd: Al 2nd Det/Ctrl EJCT Manoeuvre Soing ahead Sex	Dir 1 NW SE ( NW SE ( Age 27 n Slow Molliding Slight Rd: Lightin Dayligh Dir 1 SE NW ( Age	On main On main Severity Slight Soving Tra with Rea  Monday  g te Yeh loc On main Severity	Not at Not at Car Pass No ffic, Drive r of V2 Contribute  02/01/20 Weather Dain Junet. loc Not at Car Pass	No No No Ped Direction Not ped or of V2 Fress Ary Factors: 40 012 08:29  Rd Surf Ice of Skidding Yes	None None Ped Movement Not ped sed Brake Inst 08V0011 208V00 418099/5970 PedX - Human None Hit obj in I Korb Ped Movement	Ped locat. Not ped ead of Clutch 2A 49 n - Phy Fac None eft cway H.	None None Scho Othe A, Coming Special None it obj off Other Lon Scho	Male 50 Male 27 pol Pupil er to a  Hazarr None Sex Age Male 60 pol Pupil	d B/1
nounts were onto brassed Area, Colliding with Pence	Speed C'Way 60MPH Single Veh Vehicle type 1 Goods > 7.5t 2 Cax Cas No Veh ref 1 2 Description: Vel 3top, VI Failer User Information 3 Location: Al Bu: Speed C'Way 60MUH Single Veh Vehicle type 1 Car Cas No Veh ref 1 1	e C'way Note  Towing   t Art G No G Cas Class Drv/Rider hs Trav. S d to Stop a:  (rghan 1st) Gray Hot a Towing   No G Cas Class Drv/Rider	Manoeuvre Soing ahead Sex Male S/E on Al in In Time, C:  0001212 Rd: Al 2nd Det/Ctrl Door Sex Mane Sex Male	Dir 1 NW SE ( NW SE ( Age 27 n Slow Modiliding  Slight  Rd:  Lightin  Dayligh  SE NW ( Age 60	On main On main Severity Slight boving Tra with Res  Monday  g tt  Yeh loc on main Severity Slight	Not at Not at Car Pass No ffic, Drive of V2 Contributo  02/01/20 Weather Pain Junct. lo	No No No Ped Direction Not ped or of V2 Press ory Factors: 40 012 08:29 Rd Surf Ico o Skidding Yes Ped Direction Not ped	None None Ped Movement Not ped sed Brake Insta 08V0012 209V00 418099/5970  PedX - Human None Hit obj in I Korb Ped Movement Not ped	Ped location of Clutch  2A  49  n - Phy Fac None  Aft cway H.  Ped location of the ped	None None Tone Tone Special None Tother Tone Tone Tone Tone Tone Tone Tone Tone	Male 50 Male 2° col Pupil er to a  Hazam None Sex Age Male 60 col Pupil	d B/1

No. Area L/A		Referen	ice 5	Severity	y Day	Date	Tine	Grid Coords	Link/Node	Street		
156 F6		068231	0 8	Slight	Thursd	ay 04/11/2	010 01:00	417870/59728	0			
Location: All M	ile Sout	h of Wes	tmoor	1st Rd	1: Al 2nd I	ld:						
Speed C'Way 60 MPH Single		Jot Det/C		Lightin Dark/n	n <b>g</b> o lights	Weather Rain	Rd Surf Wet	PedX - Human None	- Phy Fac	Special None	Hazard None	Ĺ
Veh Vehicle type	Towin	g Manoeuv	rre	Dir	Veh loc	Junct. 1	oc Skidding	Hit obj in Le	eft cway Hi	t obj off	Sex Age	B/T
1 Car	No	Going a	head	s N	On main	Not at	No	None	N	one	Untra1	N/C
2 Other: Motor	v No	Going a	head	S N	On main	Not at	No	None	N	one	Male 59	-ve
as No Veh ref	Cas Clas Drv/Rid		Sex Male	2300	Severity Slight	Car Pass	Ped Birection Not ped	Not ped	Ped location	n Scho Othe	8	
								2. Viturns Arous				
2		0001112	2 8	light	Monday	02/01/2	012 08:30	417456/59845	4			_
Location: Al 1/2	Mile S			n by Pa								
Speed C'Way 60 MPH Single	c'way N	ct Det/Ct		<b>Lightin</b> Dayligh		Weather Fine	Rd Surf	PedX - Human None	- Phy Fac None	Special None	Hazard None	1
Weh Vehicle type	Towing	Manoeuv	re	Dir '	Veh loc	Junct, lo	c Skidding	Hit obj in Le	ft cway Hi	t obj off	Sex Age	B/T
1 Car	No	Going a	head	NS (	On main	Not at	Over	Kerb	N	one	Female 51	-ve
as No Veh ref	Cas Clas		Sex Female		Severity Slight	Car Pass	Ped Direction	Ped Movement Not ped	Ped location	on Scho	ool Pupil	
Description: V1	Tran C	on 31 1	Deima	r Tosas	Control	on Downward	Slope of Tr	olina Doa eo Bl	ack Top VI I			
	N/S. Rol											
	25					6000 ET ET ET		65-00063				_
59	ne se de la company	030311		Slight		Lange Land		417432/59872	19			
Location: Al J/ Speed C'Way		Moor Jund Jct Det/C				i: Al 2nd Rd Weather		PedX - Hunar	- Phy Fac	Special	Hazaro	đ
		T/Stag 0			SC CONTRACTOR	Fine	Dry	None	None	None	None	
Veh Vehicle typ					Veh loc	Junct. 1		Hit objin L	STATE OF THE PARTY	t obj off		e B/I
1 Car	No	33/2/10/2000			On main	Junt app		None		one		-ve
2 Car	No.				On main	Junt app		None		ione		) -ve
Cás No Veh ref l 2	Passeng		Sex Femal	27.7	Slight	Front	Not ped	n Ped Movement Not ped	Not ped	Oth Oth	ool Pupil er	
Description: Ve	hs Trav	N on Al	App.	West	Moor Junet	ion in Lin	e of Traffic.	Vl Collides wi	th Rear of V	2		
(3)			1000					405V001B 406V001				
49		024041	3	Slight	Monday	06/05/	2013 10:38	417434/59876	59			
Location: Al J/	W Feltor	n Junctio	on Wes	t Moor	1st Rd: A	1 2nd Rd: C	111					
Speed C'Way 60 MPH Single		Jct Det/C T/Stag G			- C C C C C C C C.	Weather Fine	Rd Surf	PedX - Hunar None	n - Phy Fac None	Special None	Hazar None	d
Veh Vehicle type	e Towin	g Manoeur	vre	Dir	Veh loc	Junct. 1	oc Skidding	g Hit obj in L	eft cway Hi	t obj off	Sex Age	e B/1
1 Car	No	200			On main	Enter na		None		lone		1 -ve
2 Car Cas No Veh ref		Going a	Sex			Mid junc		None  Ped Movement		on Sch	Male 70 ool Pupil	D -ve
1 Z	Drv/Rid	ler	Male	257.6	Slight	No	Not ped	Not ped	Not ped	Oth	ATE C	
Description: V2 Junction, V1 IV User Information	rns rig					ding with 1	N/S of V1	right onto Al				
227		,9/26/38/2014	128		150 SASTAN	HALVASAN		-: Agricage New Action (4)	500			_
26 Location: Felto	n by Pa	007831 ss 100M 5		Slight Bridge					.9			
Speed C'Way 60 MPH Single	c'way	Jct Det/C NotJCT	trl	Lighti Dark/	<b>ng</b> no lights	Weather Snow	Rd Surf Snow	PedX - Human None	n - Phy Fac None		Hazar defec <b>m</b> one	
Veh Vehicle typ	e Towin				Veh loc On main	Junct. 1	oc Skiddin	g Hit obj in I		t obj off		e B/1
	Cas Cla	96	Sex				Ped Direction	n Ped Movement	Ped locati	on Sch	ool Pumpil	
Cas No Veh ref	THE WAR							Invocancial	200464			
Cas No Veh ref	Drv/Ric		Male		Slight	No	Not ped	Not ped ost Control, Lea	Not ped	Oth		

		Reference	Severit	y Day	Date	Time	Grid Coc	rds	Link/N	lode Sta	reet		
167	- 0	0744412	Fatal	Monday	12/11/	2012 07:43	417418/	599279					
Location: Felton	by Pass	App. 1/4 1	Mile S o	f River Co	quet, Felt	on 1st Rd: Al	2nd Rd:						
Speed C'Way		Det/Ctrl	Lighti		Weather			Human	- Phy I		cial	Hazard	
	c'way No			no lights	Fine	Wet	None	- W 20	None	Non		None	
Veh Vehicle type	A CONTRACTOR OF COMME			Veh loc	Junet. 1		Hit obj i	n Left	cway		off Sex	Age	
1 Car 2 Car		oing ahea			Not at	No.	None			None	Male Male		-V4
3 Car		oing ahead			Not at	No	None			None	Male		N/I
as No Veh ref (			Age			Ped Direction		ement	Ped loc		School Pu		41/
1 1 1	Drv/Rider	Male	49	Slight	No	Not ped	Not ped		Not per		Other		
	Drv/Rider			Fatal	No Front	Not ped	Not ped		Not pe		Other		
o o 1 Description: V1 : Carriageway, Col		n Al, V26	3 Trav.		or Reasons			as Veer	s into	N/Bound			
Carriageway to N User Information:	I/S											 1B	
10		205112	41 1 1 .	12 1	55000000		1174004						
18 		236112	Slight	Monday			417423/	599409					
Location: Al 3001 Speed C'Way		Det/Ctrl	Lighti	The same of the sa	Weather	Rd Surf	DodV -	Uman	- Dhy E	Fac Spec	min1	Hazard	
	'way Not		Daylig	100000	Fine	Wet	None	numan	None	None		None	
Weh Vehicle type	Towing h	fanoeuvre	Dir	Veh loc	Junet. 1	oc Skidding	Hit obj i	n Left	cway	Hit obj	off Sex	Age	B/T
1 Car	No S	top	N S	On main	Not at	No	None			None	Male	30	N/F
2 Car	No S	top	M E	On main	Not at	No	None			None	Male	3.2	N/I
	as Class	Sex Fema	Age le 30	Severity Slight	Car Pass Front	Ped Direction Not ped	Ped Move Not ped		Ped loc		School Pu	pil	
Description: Vehs													
Jser Information:			estator.			ory Pactors: 41			EL SECTE O		*	35-7-5-7	
75	- 4	343912	Slight	Monday	07/05/2	2012 17:22	417425/	E 9 9 4 E 6					
Location: Al 3002							34/349/	033400					
peed C'Way		Det/Ctrl			Weather	Rd Surf	PedX -	Human		Pao Spe		Hazard	
	"way Not		Daylig		Fine	Dry	None		None		orks	None	n Im
Weh Vehicle type 1 Car		nanoeuvre oing ahead		Veh loc	Junct 1	No No	Hit obj i Roadwork		cway	None	off Sex	Agre le 37	
2 Car		oing anead aiting		On main	Not at	No	Roadwork			None		le 37	
3 Van/Goods < 3		aiting		On main	Not at	No	Roadwork			None		le 32	
		Sex	Age	Severity	Car Pass	Ped Direction	Ped Move	ement	Ped loc	ation	School Pu	pil	
as No Veh ref C	as Class	DEA											
1 1 1	rv/Rider	Fema	le 37	Slight	No	Not ped	Not ped		Not pe		Other		
1 1 D	rv/Rider rv/Rider	Fema Fema	le 37 le 32	Slight Slight	No No	Not ped Not ped	Not ped		Not pe	d	Other		
1 1 D 2 3 D 3 F	rv/Rider rv/Rider assenger	Fema Fema	le 37 le 32 le 15	Slight Slight Slight	No No No	Not ped Not ped Not ped	Not ped Not ped Not ped	L L	Not pe	d d	Other		
1 1 D 2 3 D 3 F Description: Vehs Colliding with R	rv/Rider rv/Rider assenger Trav. S	Fema Fema Fema on Al, V3	le 37 le 32 le 15 Stops	Slight Slight Slight Due to Tra	No No No ffic Ahead, Rear of V	Not ped Not ped Not ped , V2 Stops Beh	Not ped Not ped Not ped ind V3, V	l l l Fails	Not per Not per to Sto	d d p in Tim	Other Other me,		
1 1 D 2 3 D 3 F Description: Vehs Colliding with R Jer Information:	orv/Rider orv/Rider eassenger of Trav. S ear of V	Fema Fema Fema on Al, V3	le 37 le 32 le 15 Stops	Slight Slight Slight Due to Tra	No No No ffic Ahead Rear of V Contribute	Not ped Not ped Not ped , V2 Stops Beh ory Factors: 81	Not ped Not ped Not ped ind V3, V	l l Fails	Not per Not per to Sto	d d p in Tim	Other Other me,	.010 06 0	
1 1 D 2 3 D 3 8 F Description: Vehs Colliding with R Jeer Information:	orv/Rider orv/Rider eassenger s Trav. S ear of V	Fema Fema Fema on Al, V3 2, Shuntin	le 37 le 32 le 15 Stops g V2 Fo	Slight Slight Slight Due to Tra rward into	No No No ffic Ahead, Rear of Vi Contribute	Not ped Not ped Not ped Not ped Ory Factors: 81	Not ped Not ped Not ped ind V3, V	l l Fails	Not per Not per to Sto	d d p in Tim	Other Other me,		
1 1 D 2 3 D 3 S Bescription: Versical Colliding with R User Information: 124 F6 Location: Alnorth Speed C'Way	orv/Rider Drv/Rider Cassenger Trav. S Lear of Vi	Fema Fema Fema on Al, V3 2, Shuntin 0547110 ge over Ri Det/Ctrl	le 37 le 32 le 15 Stops g V2 Fo Slight iver Coq	Slight Slight Slight Due to Tra rward into  Friday uet, Felto	No No No Ffir Ahead, Rear of V: Contribute 27/08/2 n 1st Rd: A Weather	Not ped Not ped Not ped , V2 Stops Beh ) ory Factors: 81 010 15:25 1 2nd Rd: Rd Surf	Not ped Not ped Not ped ind V3, V 10C001A 50 417444/	1 Fails 1 Fails 19V001B 599930	Not per Not per to Sto	d d p in Tim	Other Other He,	Hazard	1233
1 1 D 2 3 F 3 S Bescription: Veris Colliding with R User Information: 124 F6 Location: Alnorth Speed C'Way 70 MPH Dual c's	orv/Rider Drv/Rider Cassenger Trav. S ear of Vi	Fema Fema Fema on Al, V3 2, Shunnin D547110 ge over Ri Det/Ctrl	le 37 le 32 le 15 Stops g V2 Fo Slight iver Coq Lighti Daylic	Slight Slight Slight Slight Due to Tra rward into  Friday uet, Felto ng ht	No No No Fic Ahead, Rear of Vi Contribute 27/08/2 n 1st Rd: A Weather Fine	Not ped Not ped Not ped Not ped Y2 Stops Beh Ory Factors: 81 010 15:25 1 2nd Rd: Rd Surf Dry	Not ped Not ped Not ped ind V3, V 100001A 50 417444/ PedX - None	9V001B 599930	Not pe Not pe to Sto - Phy P None	d d p in Tim	Other Other me,	Hazard None	
1 1 D 2 3 F 3 3 F 3 3 F Description: Vehis Colliding with R User Information: 124 F6 Location: Alnorth Speed C'Way 70 MPH Dual c't Web Vehicle type	orv/Rider orv/Rider assenger arav. S ear of W  orv/Rider assenger arav. S ear of W  orviral orviral orviral orviral	Fema Fema Fema on Al, V3 2, Shuntin  0547110 ge over Ri Det/Ctrl JCT 4anoeuwre	le 37 le 32 le 15 Stops Slight iver Coq Lighti Daylig	Slight Slight Slight Due to Tra rward into  Friday uet, Felto ng tht Veh loc	No No No ffic Ahead, Rear of Vi Contribute 27/08/2 n 1st Rd: A Weather Fine Junct. 16	Not ped Not pe	Not ped Not ped Not ped ind V3, V 100001A 50 417444/ PedX - None Hit obj in	9V001B 599930	Not pe Not pe to Sto - Phy P None	d d p in Tim ac Spec None	Other Other me,	Hazard None Age	B/I
1 1 D 2 3 F 3 S Bescription: Vehs Colliding with R User Information: 124 F6 Location: Alnorth Speed C'Way 70 MPH Dual c's Veh Vehicle type 1 Car	orv/Rider orv/Rider assenger assenger arav. S ear of W  or of Brid  Jot way Not Towing M No G	Fema Fema Fema on Al, V3 2, Shuntin  547110 ge over Ri Det/Ctrl JCT fanoeuvre oing shead	le 37 le 32 le 18 Stops Slight iver Coq Lighti Daylic	Slight Slight Slight Slight Due to Tra rward into  Friday uet, Felto ng tht Veh loc On mein	No No No ffic Ahead, Rear of Vi Contribut  27/06/2 n 1st Rd: A Weather Fine Junct 10	Not ped Not ped Not ped Not ped Y2 Stops Beh Ory Factors: 81 010 15:25 1 2nd Rd: Rd Surf Dry Oc Skidding Yes	Not ped Not ped Not ped ind V3, V 10C001A 50 417444/ PedX - None Eit obj 11	9V001B 599930	Not pe Not pe to Sto - Phy P None	d d p in Tim  ac Spec None Hit obj	Other Other He,	Hazard None Age	B/I
1 1 D 2 3 D 3 S Description: Vehs Colliding with R Joer Information: 124 F6 Location: Alnorti Speed C'Way 70 MPH Dual c's Weh Vehicle type 1 Car 2 Car	orv/Rider orv/Rider assenger as Trav. S ear of V  on of Brid  Jot way Not  Towing N  No G No S	Fema Fema Fema on Al, V3 2, Shuntin  0547110 ge over Ri Det/Ctrl JCT  4anoeuvre oing sheace	le 37 le 32 le 15 le 55 le 55 Stops g V2 Fo Slight iver Coq Lighti Paylic Bir i N S N S	Slight Slight Slight Slight Due to Tra rvard into  Friday uet, Felto ng th Veh loc On main On main	No No Ffic Ahead, Rear of Vi Contribut  27/06/2 n 1st Rd: A Weather Fine Junct 16 Not at	Not ped Not ped Not ped Not ped V2 Stops Beh OTY Factors: 81 010 15:25 1 2nd Rd: Rd Surf Dry OC Skidding Yes No	Not ped Not ped Not ped ind V3, V 10C001A 50 417444/ PedX - None Hit obj 11 None	1 Fails 1 Fails 990001B 599930 Human	Not per to Sto	d d p in Tim  ac Spec None Hit obj None	Other Other He, Male Male	Hazard None Age 22	B/I
1 1 D 2 3 D 3 3 F Bescription: Vehs Colliding with R User Information: 124 F6 Location: Alnorth Speed C'Way 70MPH Dual c's Veh Vehicle type 1 Car 2 Car Cas No Veh ref	orv/Rider orv/Rider assenger as Trav. S ear of V  on of Brid  Jot way Not  Towing N  No G No S	Fema Fema Fema Fema on Al, V3 2, Shuntin  0547110 ge over Ri Det/Ctrl JCT danoeuvre oing shead top Sex	le 37 le 32 le 15 s Stops g V2 Fo  Slight iver Coq Lighti Daylig Dir a N S N S Age	Slight Slight Slight Slight Due to Tra rvard into  Friday uet, Felto ng th Veh loc On main On main	No No No ffic Ahead, Rear of V Contribut  27/08/2 n 1st Rd: A Weather Fine Junct 10 Not at Car Pass	Not ped Not ped Not ped Not ped Y2 Stops Beh Ory Factors: 81 010 15:25 1 2nd Rd: Rd Surf Dry Oc Skidding Yes	Not ped Not ped Not ped ind V3, V 10C001A 50 417444/ PedX - None Hit obj 11 None	1 Fails 1 Fails 19V001B S99930 Human n Left	Not per to Sto	d d p in Tim ac Spec None Hit obj None None	Other Other He,	Hazard None Age 22	B/I
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No. A	rea L/A		Referen	ice 5	Severit	y Day	Date	Time	Grid Coords	Link/Node	Street			
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Speed 70 MPH	C'Way	c'way	Jot Det/C		Light: Dark/	i <b>ng</b> no lights	Weather Rein	Rd Surf	PedX - Human None	- Phy Pac None	Special None		lazard ione	
Veh Ve	hicle ty	pe Town	ng Manoeur	7Fe	Dir	Veh loc	Junct. loc	Skidding	Hit obj in Lef	toway Hit	t obj off	Sex	Age	B/9
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Cas No	Veh ref	Cas C1	ass	Sex	Age	Severity	Car Pass P	ed Direction	Ped Movement	Ped locatio	n Scho	ol Pupi	11	
1	1	Dry/R	der	Male	45	Serious	No E	ot ped	Not ped	Not ped	Othe	er		
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The Victoria 150-182 The Quays Salford M50 3SP

wsp.com



# A1 Alnwick to Ellingham

# **TA49 LIGHTING ASSESSMENT**





FIRST ISSUE / FOR REVIEW (P0) PUBLIC

PROJECT NO. 70044137 OUR REF. NO. HE551459/WSP/HLG/A2E/RP/EO/00001

**DATE: AUGUST 2018** 

WSP The Victoria 150-182 The Quays Salford M50 3SP

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# **QUALITY CONTROL**

Issue/revision	First issue	Revision 1	Revision 2	Revision 3
Remarks	For Review			
Date	07/08/2018			
Prepared by	K. Smith			
Signature				
Checked by	S. Halliday			
Signature				
Authorised by	C. Atkins			
Signature				
Project number	70044137			
Report number	HE551459/WSP/HLG/ A2E/RP/EO/00001			
File reference	HE551459/WSP/HLG/ A2E/RP/EO/00001			



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Appendix A - Capital Costs (CAPEX)

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## **EXECUTIVE SUMMARY**

WSP have been commissioned by Highways England to undertake PCF Stage 2 (Option Selection) for the A1 Alnwick to Ellingham.

This report focuses on the road lighting element of the scheme and whether there is economic justification for road lighting in accordance with Design Manual for Roads and Bridges (DMRB) TA49/07 'Appraisal of new and replacement lighting on the strategic motorway and all-purpose trunk road network'.

The A1 Alnwick to Ellingham dualling upgrade involves widening the existing A1 either to the east or the west as indicated by local features. Farm access and the bridleway/public right of way near Broxfield will be maintained via a bridge. A new junction will provide ease of access with the A1, B6341 & B6347

When considering the implementation of road lighting through the TA49 appraisal process it has been demonstrated, through calculation, that lighting is not economically justified. This is mainly due to the number of PIC savings being determined as low should road lighting be proposed. All sections (A to C) and the scheme as a whole have resulted in BCR's of less than 1.0 being calculated. This confirms that the cost of providing a lighting scheme far outweighs any costs saved made through PIC savings.

It is possible that OPEX savings could be considered such as controlled dimming through MoRLiCS compatible CMS systems or a reduction of the lighting extents. However, from an economically quantifiable view point it is unlikely that any sections within the scheme would produce a BCR that exceeds 1.0 in order to justify a new lighting scheme if reduced OPEX costs were applied.

The non-quantifiable assessment process considered has concluded that there is a level of non-quantifiable justification for the introduction of new lighting. It is considered that journey ambience alone cannot be considered for justification as this could be considered to be a direct link to the 10% accident savings lighting provides within the quantifiable element of the SAR process. It is possible however that lighting may help where there is no hard shoulder to identify broken down vehicles during the hours of darkness.

The Road Safety Engineer concluded that the existing route dark collision rate is below the national average although the severity of the collisions that have occurred, (58%) is above the national average killed and seriously injured (KSI) figure of 24%. When combining this aspect with the upgrade from the current road layout to a new dual carriageway many of the existing hazards will also be removed further strengthening the case for dark collision reduction (such as removal of at grade junctions). This has enabled the RSE to conclude that road lighting will not be required within the project. However, the use of the following should be considered within the design;

- 'intelligent' style road studs to pre-light the route
- Use of a white lining system that included the reflective beading
- Reflectors on the VRS or painting it black & white.

All the above measures are effective in reducing collisions during the hours of darkness in addition to their known benefits in daylight conditions. The use of bike guard on the vehicle restraint system (VRS) will further improve safety for powered two wheelers.

It is recommended that lighting should not be provided on any of the sections of the A1 Alnwick to Ellingham project. There is no economic or safety benefit supporting the installation of road lighting within the project.

The RSE has suggested options which should be considered within the design, if feasible, to mitigate the installation of road lighting.



The Table below summarises the requirement for road lighting following assessment by both the lighting engineer and the RSE;

#### **TA49/07 Recommendations**

SECTION	Economic Conclusion	Road Safety Conclusion	Combined Conclusion
Section A – Scheme limits to South Charlton Junction (ch53150 – 58250)			
Section B – South Charlton Junction with B6341 & B6347 (ch58250 – 59100)			
Section C – South Charlton Junction to scheme limits (ch59100 – 61100)			

Key	Lighting Required
	Lighting Not Required



## 1 INTRODUCTION

- 1.1.1. WSP have been commissioned by Highways England to undertake PCF Stage 2 (Option Selection) for the A1 Alnwick to Ellingham.
- 1.1.2. The A1 in Northumberland is an important route between England and Scotland, especially for long distance travel along the eastern side of the country. The A1 between Alnwick to Ellingham is currently a single carriageway.
- 1.1.3. This stretch of road needs improving because journey times are generally slow it can be hard to overtake, leading to some drivers overtaking unsafely. There are limited alternative routes making it difficult to provide alternative routes if the A1 requires maintenance or if there are any unplanned events on the road.
- 1.1.4. This report focuses on the road lighting element of the scheme and whether there is economic justification for road lighting in accordance with Design Manual for Roads and Bridges (DMRB) TA49/07 'Appraisal of new and replacement lighting on the strategic motorway and all-purpose trunk road network'.
- 1.1.5. Following the economic assessment of the lighting requirements, the results will be reviewed by a Road Safety Engineer who will provide comments and recommendations from a safety aspect in accordance with items such as the road usage, accident history and the local environment.

#### 1.2 PURPOSE AND SCOPE OF REPORT

- 1.2.1. The purpose of this report is to assess whether it is economically justifiable to provide road lighting throughout the scheme, whilst assessing the benefit of providing new lighting in the areas that are currently unlit. The report assesses the need for the replacement in accordance with Highways England DMRB.
- 1.2.2. In order to assess if the road lighting proposal identified is economically justifiable an economic assessment has been completed in accordance with Technical Advice Note TA49/07 'Appraisal of new and replacement lighting on the strategic motorway and all-purpose trunk road network'.
- 1.2.3. In order to determine if the installation of road lighting is justified in accordance with Highways England requirements an outline design is completed to enable a build-up of Capital (CAPEX) and Operating (OPEX) costs. These cost are fed into Highways England's Scheme Appraisal Report (SAR) spread sheet in order to determine whether the costs are, as a minimum, fully recovered, principally through accident saving's over the life expectancy of the installation.
- 1.2.4. As part of this appraisal it is advised that a Road Safety Engineers Briefing Report (RSEB) is also carried out by a Road Safety Engineer (RSE) to provide an independent view of the application of road lighting and accident data in general.
- 1.2.5. The findings of this report are detailed within the Conclusions and Recommendations section of this report and are summarised within the Executive Summary.



## 2 PROJECT DETAILS

## 2.1 PROJECT BACKGROUND

- 2.1.1. The A1 Alnwick to Ellingham dualling upgrade involves widening the A1 to dual carriageway along the existing road. There will be one new junction at South Charlton, connecting the A1, B6341 and B6347. Access will be provided for businesses and properties to the new junctions.
- 2.1.2. This scheme continues on from the Morpeth to Felton section. The A1 Morpeth to Felton duelling upgrade involves widening the existing A1 but with a significant deviation from the existing A1 in the 'middle' of this section. There will be a new A1 between Priests Bridge and Burgham Park, to the west of the current A1 and of Tindale Hill and Causey Park Bridge. There will be three new junctions: at Highlaws; at Fenrother; and at Westmoor. Access to the A1 will be via the new junctions only and it will be required to close most of the current local accesses onto the A1. There will be sections provided to the new junctions as part of the scheme.
- 2.1.3. This report considers the A1 Alnwick to Ellingham section only with a separate report considered for the A1 Morpeth to Felton.



#### 2.2 PREFERRED ROUTE

- 2.2.1. As part of the preferred route announcement in September 2017 three options were considered for the proposed improvements between Alnwick to Ellingham;
- 2.2.2. Orange Option: upgrade the existing road to dual carriageway, either widening to the east or the west depending on the local features that we need to consider
- 2.2.3. Green Option: upgrade approximately 1.2 miles (2 km) of existing road to dual carriageway, and build a new carriageway to the east of the existing road at Heckley Fence, before crossing over to the west of the existing road at Elsnook Plantation and continuing until Shipperton Burn.
- 2.2.4. Blue Option: upgrade the majority of the existing road to dual carriageway, with approximately 2.2 miles (3.5 km) section of new carriageway built to the west of the existing route between Elsnook Plantation and Shipperton Burn
- 2.2.5. The Orange route has been selected as the preferred route. The decision for the preferred route was made following consideration of numerous factors and provides additional network resilience and overtaking opportunities. It also provides safety benefits by providing an overbridge junction connecting B6341, B6347 and the A1 at South Charlton.
- 2.2.6. This lighting assessment uses the orange route as the base for considering if lighting is required within the scheme limits.

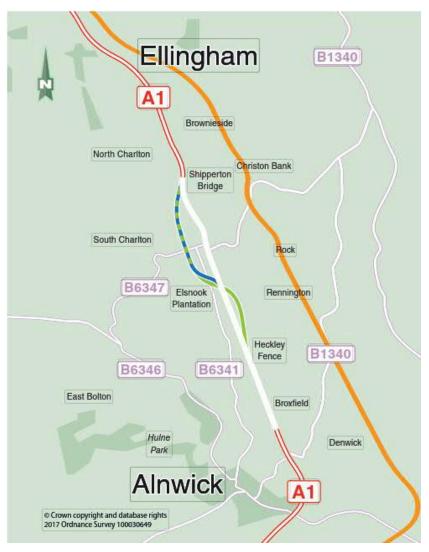


Figure 1 - Route Options



## 2.3 ROUTE SECTIONS

2.3.1. The proposed scheme has been separated into 3 distinct sections to facilitate the handling of large amounts of data. Deciding on the requirements for lighting in smaller condensed sections rather than one full section for the scheme will enable a more comprehensive understanding of the final recommendations.

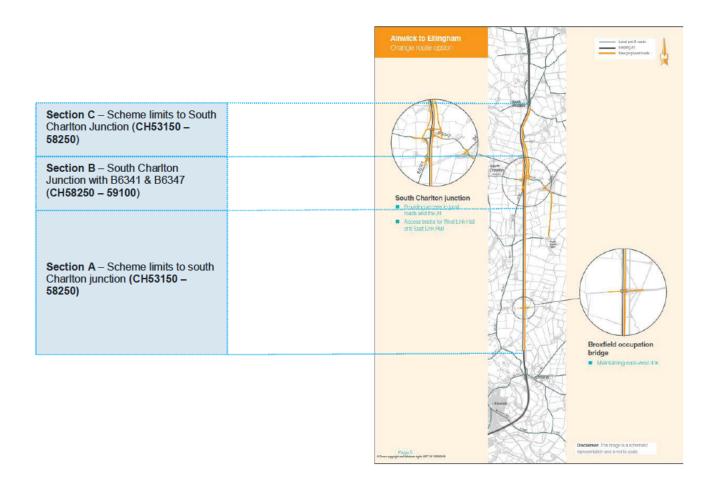


Figure 2 - Route Sections



## 3 EXISTING ALIGNMENT AND ROAD LIGHTING

#### 3.1 EXISTING ALIGNMENT

3.1.1. For the purpose of this report the existing alignment has not been considered as the proposed route is both off line and not using the same principal geometry and route. However, the RSE has considered the existing route and the collisions for the route.

#### 3.2 EXISTING ROAD LIGHTING DESCRIPTION

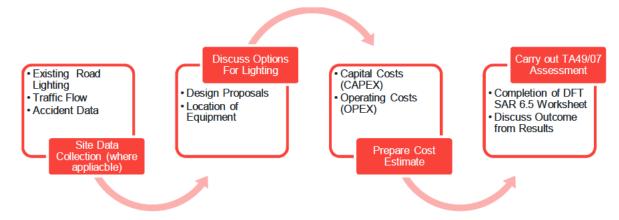
3.2.1. None of the existing route or immediate connecting roads between the Alnwick to Ellingham are currently lit.



#### 3.3 ECONOMICAL APPRAISAL PROCESS

- 3.3.1. In order to assess if the road lighting proposal identified is economically justifiable an economic assessment needs to be completed in accordance with the Highways England's DMRB Technical Advice Note TA49/07.
- 3.3.2. The economic assessment aspect of this report follows the requirements of TA49/07 in which the Benefit Cost Ratio (BCR) is calculated. The BCR is a calculation that determines the value for money that could be provided in terms of accident savings provided by lighting if it was to be installed within the project. If the BCR is greater than 1.0 then the scheme benefits outweigh the costs, thus road lighting can be justified.
- 3.3.3. As part of this assessment it is advised that a RSEB is also carried out by a RSE to provide an independent review of the replacement of lighting and accident data in general. A full copy of the RSEB for this section of road under consideration is included in Appendix E.
- 3.3.4. To ensure a common approach in carrying out the economic assessment the Department for Transport (DfT) produced a Scheme Appraisal Report (SAR) template. Using the SAR 2017a the following items have been used to populate the data required for the A1 Alnwick to Ellingham;
  - Traffic flow data.
  - Accident data from the previous 5 years (where applicable).
  - Capital costs (CAPEX).
  - Operating costs (OPEX).
  - Installation costs.
  - Decommissioning costs.
  - Personal Injury Collision (PIC) saved in opening year.
- 3.3.5. The economic assessment process introduced by TA49/07 uses PIC savings as the basis for justification for lighting. This is achieved by using existing accident data, where applicable, as a benchmark and calculating how many night-time accidents would be saved by the renewal of lighting. This report has used 5 year historical road traffic accident data to inform a decision on the predicted accident savings based on the preferred route (as detailed in the RSEB) specific to the network as specified in TA49/07. It should be noted that the RSE report provides an in depth review of existing and proposed based on the new route.
- 3.3.6. The economic assessment process also incorporates average traffic flow information as provided within the Scheme Appraisal Report.
- 3.3.7. The economic assessment process for the A1 Alnwick to Ellingham followed within production of this report is summarised in Figure 3 below. This provides information on the level of input required at each stage in order to provide sufficient information for input into the economic assessment process.

Figure 3 - TA49/07 Process





## 3.4 SITE DATA COLLECTION

- 3.4.1. This report has used 5 year historical road traffic accident data specific to the network supplied by the project team. The data used is detailed within the RSE report and considers the existing accident data for the current route.
- 3.4.2. The PSV percentage was not available from the information obtained and has not been used in the SAR. The predicted traffic growth information was not available at the time of carrying out the SAR but an assumption has been made of 30% in line with Highways England SAR 2017a and DFT guidance.



## 4 OPTIONS FOR ROAD LIGHTING

## 4.1 OPTIONS BREAKDOWN

- 4.1.1. TA49/07 states that the assessment process should produce an outline design "in sufficient depth to enable costs to be estimated reasonably accurately".
- 4.1.2. A road lighting design solution for each of the sections defined in Section 2.3 was developed and selected against the following criteria:
  - The requirement for compliance with the latest design standards specified within the DMRB (i.e TD34).
  - Incorporation of the latest lighting technology available with respect to luminaire optics and lighting column configuration.
  - Selection of the most cost effective replacement option based on initial capital investment costs and life cycle maintenance.
- 4.1.3. Table 1 below provides the proposed road lighting design solution for each section which has been considered for the purposes of this TA49 assessment.

Table 1 – Proposed Road Lighting Design Solution for Each Section

Section	Proposed Lighting Solution
А	Main Carriageway: Road lighting columns of 12m nominal height complete with a post top mounted (twin stub bracket) and LED luminaires (2 No.) mounted within the central reservation.
	Slip Roads: Road lighting columns of 10m nominal height with a post-top mounted LED luminaire mounted in a single sided arrangement in the verge.
В	Main Carriageway: Road lighting columns of 12m nominal height complete with a post top mounted (twin stub bracket) and LED luminaires (2 No.) mounted within the central reservation.
	Slip Roads: Road lighting columns of 10m nominal height with a post-top mounted LED luminaire mounted in a single sided arrangement in the verge.
С	Main Carriageway: Road lighting columns of 12m nominal height complete with a post top mounted (twin stub bracket) and LED luminaires (2 No.) mounted within the central reservation.
	Slip Roads: Road lighting columns of 10m nominal height with a post-top mounted LED luminaire mounted in a single sided arrangement in the verge.



#### 4.2 DESIGN STANDARDS

- 4.2.1. The section of the A1 Alnwick to Ellingham under consideration in Table 1 will be designed in accordance with DMRB document TD34/07 'Design for Road Lighting for the Strategic Motorway and All Purpose Trunk Road Network' which states that the road lighting shall be designed in accordance with BS5489-1:2013 'Code of Practice for the Design of Road Lighting Part 1: Lighting of Roads and Public Amenity Areas'.
- 4.2.2. TD34/07 sets out the required extent of lighting that should be provided within a typical scenario, this guidance has been followed for the proposed outline design where applicable.

#### 4.3 IDENTIFY LIGHTING CLASS

4.3.1. As part of the design process a lighting class has to be selected for each section of the A1 Alnwick to Ellingham in accordance with BS5489-1:2013. The required lighting class is selected based on the criteria set out in Table 2 below which has been extracted from Table A.2 'Lighting Classes for traffic routes (v > 40mph)' of BS5489-1:2013.

Table 2 - Lighting Classes for Traffic Routes (v > 40mph) extracted from BS5489-1:2013

Traffic Flow	Lighting Class			
	Dual Carriageway	Single Carriageway		
	Junction Density High	Junction Density Low		
High to very high	M2	M3	M2	
Low to Moderate	M3	M4	M3	
Very low	M4	M5	M4	

4.3.2. Table 3 below provides the recommended lighting class for each section as determined from Table 2 above.

Table 3 - Proposed Lighting Class for Each Section

Section	Description	Proposed Lighting Class
Α	Main Carriageway	M4
	Slip Road	M4
В	Main Carriageway	M3
	Slip Road	M3
С	Main Carriageway	M3
	Slip Road	M3

4.3.3. Table 3 identifies a lighting class for the main carriageway and for the associated slip roads for each section. The required lighting parameters for each lighting class are highlighted in Table 4 below which has been extracted from Table 1 'M Lighting Classes' of BS EN13201-2:2015.



Table 4 - M3 and M4 Lighting Class Parameters extracted from BS EN 13201-2:2015

Requirements	Lighting Class M3	Lighting Class M4
Lav in cd-m2 (Minimum Maintained)	1.0	0.75
Uo (Minimum)	0.4	0.4
UI (Minimum)	0.6	0.6
TI (Disability Glare) (Maximum)	15%	15%
Rei (Requirement for Edge illuminance) (Minimum)	0.5	0.5

#### 4.4 DESIGN PARAMETERS

- 4.4.1. The basic road lighting design parameters for the A1 Alnwick to Ellingham have included the following: -
  - IP 66, LED luminaire units (mounted at 0° tilt) to be used throughout to minimise the environmental impact (i.e. light spill) caused by the proposed lighting scheme.
  - Only luminaires with a luminous intensity rating of G4 to G6 have been considered within this design.
  - A maintenance factor of 0.83 was applied for all LED luminaire units.

#### 4.5 PREPARE COST ESTIMATES

- 4.5.1. The TA49 economic assessment requires the input of capital cost (CAPEX) and operating costs (OPEX).
- 4.5.2. The capital cost associated with each section has been calculated using the unit lighting equipment rates provided in Appendix A. It should be noted that these rates have been derived for assessment purposes and although they have been based on UK industry rates they have not been verified by production of accurate drawings or design calculations. The capital cost applicable to each section is detailed in Table 5 below.

Table 5 – Capital Cost Summary

Section	Location	CAPEX
Α	Scheme limits to South Charlton Junction	£788,791.50
В	South Charlton Junction with B6341 & B6347	£1,412,286.75
С	South Charlton Junction to scheme limits	£344,457.75
All Sections		£2,545,539.00

- 4.5.3. All sections considered exceed the minimum £100,000 requirement to be considered under a TA49 appraisal in accordance with the SAR guidance.
- 4.5.4. The operating costs which consider maintenance, energy and decommissioning costs associated with each section have been calculated using the unit lighting equipment costs provided in Appendix B. It should be noted that these rates have been derived for assessment purposes only using industry standard rates.
- 4.5.5. The SAR 2017a template requires the input of the additional annual average maintenance costs calculated from the overall operating costs. However, it is considered that additional maintenance costs should only be added to existing maintenance costs where existing lighting units are being retained. As there is no scope / provision to retain existing lighting units within this scheme the additional maintenance costs have been considered as the full maintenance cost per annum for the proposed lighting units. Therefore, the annual average maintenance costs applicable to each section are detailed in Table 6 below.



Table 6 - Additional Annual Average Maintenance Costs

Section	Location	OPEX
А	Scheme limits to South Charlton Junction	£44,621.44
В	South Charlton Junction with B6341 & B6347	£51,828.37
С	South Charlton Junction to scheme limits	£11,419.67
All Sections	Sections A to C	£107,869.48

## 4.6 CARRY OUT TA49 ECONOMIC ASSESSMENT

- 4.6.1. TA49/07 instructs the assessor to use Highway England's publication Scheme Appraisal Report 2017a (SAR 2017a) to assess the monetised benefits of lighting.
- 4.6.2. The SAR 2017a template states that all lighting systems with a capital investment cost of greater than £100,000 should be assessed in accordance with SAR 2017a. As detailed in Table 5.
- 4.6.3. The figures/information gathered are input into the SAR 2017a template which automatically calculates the monetised benefits of lighting. Appendix C contains all SAR 2017a worksheets for information.



#### 5 ASSESSMENT OF RESULTS

#### 5.1 INTERPRETATION OF RESULTS

- 5.1.1. In order to calculate the BCR the following figures were calculated for each section.
  - Present Value Benefits (PVB); represents the monetised savings when considering accident savings in the opening year discounted to the base year (2010).
  - Present Value Costs (PVC); are the costs applicable to the project discounted to the base year (2010) and converted to market prices by applying a factor equivalent to the general taxation level in the economy. This is necessary to enable comparison with monetised benefits on a like-for-like basis
  - Net Present Value (NPV); is the comparison of PVC/PVB to enable a positive or negative lighting benefit.
- 5.1.2. Table 7 below provides a breakdown of figures (works costs) obtained from outline designs carried out for each individual section, together with figures automatically calculated when collated data is input into the SAR 2017a template. The accompanying SAR 2017a worksheets for the individual sections are provided within Appendix C, with the figures for the lit, unlit and whole sections determined by combining the costs and figures accordingly.

Table 7 - BCR Calculation Summary

Section	Capital Cost	PIC Saving in Yr 1	PVB	PVC	NPV (PVB-PVC)	BCR (PVB/PVC)
А	£788,791.50	0.02	£41,069.00	£1,469,780.00	-£1,428,711.00	0.030
В	£1,412,286.75	0.00	£0.00	£2,097,240.00	-£2,097,240.00	0.000
С	£344,457.75	0.00	£0.00	£488,270.00	-£488,270.00	0.000
All Sections	£1,470,137.59	0.02	£41,069.00	£4,055,290.00	-£4,014,221.00	0.010
Key						
	BCR less than 1.0			Lighting not economically justified		
	BCR greater than or equal to 1.0			Lighting economically justified		

- 5.1.3. Table 7 above shows that each individual section returns a BCR of less than 1.0, indicating that a proposed lighting scheme in each individual section, and as a combined scheme, is not economically justifiable.
- 5.1.4. It should be noted that within the OPEX calculations completed, no energy saving initiatives have been applied. Should energy saving initiatives be applied in any future design, technology such as controlled dimming, through MoRLiCS compatible CMS systems, could increase the BCR figures and potentially provide a higher BCR in some instances when considering the proposed lighting installation. It however is unlikely to increase above the required level of 1.0.



## 6 ROAD SAFETY ENGINEERS REPORT

#### 6.1 REQUIREMENTS

- 6.1.1. Within TA49/07 it is a requirement to engage the Road Safety Engineer (RSE) to make an independent assessment of the scheme under consideration. Within Appendix E there is copy of the full Road Safety Engineers Briefing report (RSEB) carried out by Road Safety Initiatives (RSI). A summary of the full RSEB is provided in Section 6.2 below.
- 6.1.2. This information provided within this report was completed by Lyn Turner (WSP RSE) on May 2018.
- 6.1.3. The purpose of this RSEB is to review and understand the accident data for the existing route and consider how the proposed alignment will impact on the accidents. In addition to considering the likely benefit or disbenefit any proposed road lighting may have on the accident rates for the route.
- 6.1.4. This RSEB also considers Interim Advice Note 167/12, Revision 1 Guidance for the Removal of Road Lighting. This is because IAN 167/12 provides supplementary requirements and guidance to TA49/07 and TD 34/07 (Design of Road Lighting for the Strategic Motorway and All Purpose Trunk Road Network).
- 6.1.5. The RSEB comprised an examination of relevant documents relating to the proposed scheme and analysis of provided five-year collision data and the impact on the proposed alignment and accident savings. The collision data considered has been derived from collision statistics validated by the DfT (known as Nationally Validated data). Collisions have been "rationalised" to exclude those where driver gross negligence has been shown to be a significant contributory factor, in accordance with advice given in IAN 167/12 where applicable.

#### 6.2 SUMMARY OF REPORT

- 6.2.1. The dual carriageway section of the A1 is currently below the national averages for dark collision, where no street lighting is present.
- 6.2.2. The RSEs opinion as a qualified HD19 Audit Team Leader is that, as the route is to be upgraded to a new dual carriageway, it will be of a higher standard than the existing single carriageway. Many highway hazards, such as at-grade junctions, would be removed and looking at the evidence of the historic collisions, they do not believe that street lighting is required at this time. They have concluded that on the mainline the numbers of dark collisions should not increase by more than the 10% as stated in TA49/07. However, the use of items listed below and regular maintenance of the route will also help in the reduction of collisions on the new route.
- 6.2.3. With regards to the new grade separated junctions, these could be more complex. It is widely known that compact junctions, have a collision record due to the tight nature of the radii, leading to loss of control collisions, with the most vulnerable vehicle type powered two wheelers, however other vehicles are susceptible too, such as loss of control type incidents. By upgrading the B6347 junction to grade separated junctions, from the historical collision data it can be seen that 2 collisions have been removed through rationalisation as they occurred at the B6347 junction by right-turning manoeuvres. Associated queueing collisions and those collisions occurred at farm accesses which are to be closed will Also be saved.
- 6.2.4. Ideally the B6347 junction should be assessed on a junction by junction basis using the GD04 assessment or COBALT tool or the comparison of like for like STATS19 collision data to analyse against.
- 6.2.5. In the absence of these items, it cannot be categorically advised not to provide street lighting on the junctions, however there are other methods in which to highlight the junctions to the motorists during the hours of darkness or inclement weather. These can include the use of:
  - 'intelligent' style road studs to pre-light the route
  - Use of a white lining system that included the reflective beading
  - Reflectors on the VRS or painting it black & white.
- 6.2.6. All the above measure are effective in reducing collisions during the hours of darkness in addition to their known benefits in daylight conditions.



6.2.7. The use of bike guard on the vehicle restraint system (VRS) will further improve safety for powered two wheelers.

#### 6.3 PREDICTED PIC SAVINGS

- 6.3.1. Design Manual for Roads and Bridges TA49/07 gives a formula for predicting collision savings. The standard talks about the proportion of darkness collisions on all types of strategic roads is on average 28% of the total collisions occurring during the hours of daylight and darkness, however, this figure was sought from Road Casualties Great Britain 2004. Looking at Road Casualties Great Britain 2015, this figure has decreased to 27%.
- 6.3.2. Within TA49/07 section 4, table 1 gives a generalised indication of the darkness PIA saving due to road lighting on links, suitable for appraisal.
- 6.3.3. For an all-purpose Dual carriageway the figure of 10% is noted.
- 6.3.4. Part of the scheme within this document is going to be on new links as the route deviates from the existing alignment. Other parts of the route are on the existing alignment but are replacing a single carriageway with a dual carriageway. All of the scheme extent is currently unlit.
- 6.3.5. The standard makes reference darkness savings on a new link which refers to Volume 13, COBA which has since been redrawn. The standard also makes reference to darkness savings on an existing unlit link. Both refer to the calculation of the number of opening year darkness collisions multiplied by the 10% figure which will give the predicted collision saving.

Table 8 – PIC Savings

	Section A	Section B	Section C	Total
Total Number of Rationalised collisions (5 Years)	2	2	0	4
Total During Darkness (5 Years)	1	0	0	1
Collisions in darkness per annum (actual)	0.2	0	0	0.2
Predicted Collision saving = no. of opening year darkness collisions x 10%	0.02	0	0	0.02



#### 7 ASSESSMENT OF THE NON QUANTIFIABLE BENEFITS

#### 7.1 REQUIREMENTS

- 7.1.1. TA49/07 uses predicted PIC cost savings to assess the need for lighting and although it is stated within the document that lighting may provide other non-quantifiable benefits (non-neutral impact) the guidance is limited and does not provide any definitive guidance with respect to how a non-quantifiable benefit may be assessed.
- 7.1.2. Therefore in the absence of any clear guidance an assessment matrix and associated guidance note has been developed to assess each section against the non-quantifiable issues identified for the purposes of this assessment. It should be noted that TA49/07 states that road construction departures from standards (such as narrow lanes) cannot be considered as a situation where lighting alone should be automatically introduced to mitigate the risk of the departure.
- 7.1.3. Table 9 below highlights the assessment matrix developed for the purposes of this assessment using the model developed in part with TA49 as a basis so that the non-quantifiable benefits of each section could be assessed in a structured manner.

Table 9 - Non-Quantifiable Benefits of Lighting - Assessment Matrix

Description	Section A	Section B	Section C
Road Users			
Journey ambience	Positive	Positive	Positive
Driver Safety (accident reduction)	Neutral	Neutral	Neutral
Driver security	Neutral	Neutral	Neutral
Pedestrian safety	Neutral	Neutral	Neutral
Night-time routine maintenance	Neutral	Neutral	Neutral
Road Configuration			
Unusual number of lanes / constant lane changes	Neutral	Neutral	Neutral
Poor site lines and visibility	Neutral	Neutral	Neutral
Complex / unusual road Alignment	Neutral	Neutral	Neutral
Severe bends	Neutral	Neutral	Neutral
Narrow Lanes	Neutral	Neutral	Neutral
Close proximity of junctions (<1000m)	Neutral	Neutral	Neutral
Emergency Refuge (ER) / Hard Shoulder (HS)			
HS present	Positive	Positive	Positive
Discontinuous HS with ER	N/A	N/A	N/A
Discontinuous HS without ER	N/A	N/A	N/A



7.1.4. Table 10 below highlights the assessment matrix developed for the purposes of this assessment using the model developed in part with TA49 as a basis so that the non-quantifiable benefits of each section could be assessed in a structured manner.

Table 10 - Non-Quantifiable Benefits of Lighting Guidance Note

Description	Note	Default Position	Comment					
Road Users								
Journey ambience	1	Positive	-					
Driver Safety (accident reduction)	2	Neutral	This value will always be neutral if the TA49 economic assessment has confirmed that lighting cannot be justified on economic grounds.					
Driver security	3	Neutral	This value should always default to neutral if fear of crime / personal safety is not of significant concern at the given location					
Pedestrian safety / security	4	Neutral	This value should always default to neutral if no pedestrian access / facility is provided.					
Night-time routine maintenance	5	Neutral	Should be neutral unless regular night-time maintenance is essential and lighting is considered essential for the night-time routine maintenance activities.					
Road Configuration	Road Configuration							
Unusual number of lanes / constant lane changes	6	Neutral	This value should always default to neutral unless there are unusual quantities of lane changes.					
Poor site lines and visibility	7	Neutral	This value should always default to neutral unless the assessor can determine that lighting would assist driver perception.					
Complex / unusual road Alignment	8	Neutral	This value should always default to neutral unless there is definitive evidence that lighting would assist driver direction and perception.					
Severe bends	9	Neutral	This value should always default to neutral unless there is definitive evidence that lighting would assist.					
Narrow Lanes	10	Positive	If narrow lanes exist then lighting should be provided to highlight the areas of concern.					
Close proximity of junctions (<1000m)	11	Positive	It has been shown that road junction in close proximity can benefit from lighting. For the purpose of this assessment the junction proximity has been taken from the end / commencement of the slip roads.					
Emergency Refuge (	(ER) / H	ard Shoulde	er (HS)					
HS present	12	Neutral	If a hard shoulder is present this should always default to neutral					
Discontinuous hard shoulder with ER	13	Neutral	If a hard shoulder is present this should always default to neutral					
Discontinuous HS without ER	14	Neutral	If a hard shoulder is present this should always default to neutral					



7.1.5. Table 11 below provides the conclusion for each item identified for the assessment of non-quantifiable benefits.

Table 8 - Non-Quantifiable Benefits of Lighting, Section Conclusions

Section	Description	Non-quantifiable Benefit (i.e., positive)	Conclusion
A	<ul><li>Journey Ambience</li><li>Hard Shoulder Present</li></ul>	<ul> <li>Journey ambience alone cannot be considered justification for lighting.</li> <li>As no hard shoulder is present it is considered that lighting could be beneficial in identifying broken down vehicles in locations where a hard shoulder is not present.</li> </ul>	Mainline lighting and slip road lighting could be considered as a form of mitigation for safety where other safety measures cannot be implemented.
В	<ul><li>Journey Ambience</li><li>Hard Shoulder Present</li></ul>	<ul> <li>Journey ambience alone cannot be considered justification for lighting.</li> <li>As no hard shoulder is present it is considered that lighting could be beneficial in identifying broken down vehicles in locations where a hard shoulder is not present.</li> </ul>	Mainline lighting and slip road lighting could be considered as a form of mitigation for safety where other safety measures cannot be implemented.
С	<ul><li>Journey Ambience</li><li>Hard Shoulder Present</li></ul>	<ul> <li>Journey ambience alone cannot be considered justification for lighting.</li> <li>As no hard shoulder is present it is considered that lighting could be beneficial in identifying broken down vehicles in locations where a hard shoulder is not present.</li> </ul>	Mainline lighting and slip road lighting could be considered as a form of mitigation for safety where other safety measures cannot be implemented.



### 8 CONCLUSION AND RECOMMENDATIONS

#### 8.1 CONCLUSION

#### The TA49 economic assessment (quantifiable)

- 8.1.1. When considering the implementation of road lighting through the TA49 appraisal process it has been demonstrated, through calculation, that lighting is not economically justified. This is mainly due to the number of PIC savings being determined as low should road lighting be proposed. All sections (A to C) and the scheme as a whole have resulted in BCR's of less than 1.0 being calculated. This confirms that the cost of providing a lighting scheme far outweighs any costs saved through PIC savings.
- 8.1.2. It is possible that OPEX savings could be considered such as controlled dimming through MoRLiCS compatible CMS systems or a reduction of the lighting extents. However from an economically quantifiable view point it is unlikely that any sections within the scheme would produce a BCR that exceeds 1.0 in order to justify a new lighting scheme if reduced OPEX costs were applied.

#### The TA49 lighting benefits assessment (Non-quantifiable)

8.1.3. The non-quantifiable assessment process considered has concluded that there is a level of non-quantifiable justification for the introduction of new lighting. It is considered that journey ambience alone cannot be considered for justification as this could be considered to be a direct link to the 10% accident savings lighting provides within the quantifiable element of the SAR process. It is possible however that lighting may help where there is no hard shoulder to identify broken down vehicles during the hours of darkness. This potential saving is not quantifiable and should be mitigated by other safety initiatives.

#### **Road Safety Engineers Assessment**

- 8.1.4. The RSE concluded that the existing route dark collision rate is below the national average. When combining this aspect with the upgrade from the current road layout to a new dual carriageway many of the existing hazards will also be removed further strengthening the case for dark collision reduction (such as removal of at grade junctions). This has enabled the RSE to conclude that road lighting will not be required within the project. However the use of the following should be considered within the design;
  - 'intelligent' style road studs to pre-light the route
  - Use of a white lining system that included the reflective beading
  - Reflectors on the VRS or painting it black & white.
- 8.1.5. All the above measure are effective in reducing collisions during the hours of darkness in addition to their known benefits in daylight conditions.
- 8.1.6. The use of bike guard on the vehicle restraint system (VRS) will further improve safety for powered two wheelers.

#### 8.2 RECOMMENDATION

- 8.2.1. It is recommended that lighting should not be provided on any of the sections of the A1 Alnwick to Ellingham project. There is no economic or safety benefit supporting the installation of road lighting within the project.
- 8.2.2. The RSE has suggested areas which should be considered within the main line and slip roads/junctions within the design where feasible to mitigate the installation of road lighting.

# Appendix A

**CAPITAL COSTS (CAPEX)** 



#### CAPEX Cost Sheet - Link A

Item	Description	12M Road Lighting Column with a Twin Bracket Arm incorporating LED Luminaires (21.00klum)	12M Road Lighting Column with a Twin Bracket Arm incorporating LED Luminaires (17.00klum)	10M Road Lighting Column with a Single Post Top incorporating LED Luminaires (15.00klum)	10M Road Lighting Column with a Single Post Top incorporating LED Luminaires (10.00klum)					
1	Column	£1,600.00	£1,600.00	£1,400.00	£1,400.00					
2	Bracket Arm	£150.00	£150.00	£0.00	£0.00					
3	Luma 2 luminaire (includes CMS)	£500.00	£500.00	£0.00	£0.00					
4	Luma 1 luminaire (Includes CMS)	£0.00	£0.00	£250.00	£250.00					
5	Passive Termination (Sensor)	£0.00	£0.00	£0.00	£0.00					
6	Termination	£140.00	£140.00	£70.00	£70.00					
7	2.5mm <sup>2</sup> 2 core Cu cable XLPE/SWA/PVC*	£0.00	£0.00	£0.00	£0.00					
8	25mm <sup>2</sup> 3 core Cu cable XLPE/SWA/PVC*	£480.00	£480.00	£480.00	£480.00					
9	Earth Electrode*	£25.00	£25.00	£25.00	£25.00					
10	Feeder Pillar*	£110.00	£110.00	£110.00	£110.00					
11	Trenching*	£170.00	£170.00	£170.00	£170.00					
12	Cross Carriageway ducting*	£105.00	£105.00	£105.00	£105.00					
13	Chambers*	£60.00	£60.00	£60.00	£60.00					
14	DNO*	£25.00	£25.00	£25.00	£25.00					
15	VCB allowance for column mounting*	£4,000.00	£4,000.00	£4,000.00	£4,000.00					
16	Traffic Management - TM*	£0.00	£0.00	£0.00	£0.00					
17	Detailed Design Fee*	£368.25	£368.25	£334.75	£334.75					
Total Cape	cost prior to TM & Detailed Design Fee	£7,365.00	£7,365.00	£6,695.00	£6,695.00					
									I	
Total Cape	Cost	£7,733	£7,733	£7,030	£7,030	£0	£0	£0	£0	£0
	Proposed Quantity	0	102	0		0	0	0	0	0
	Sub Total Link Total		£788,791.50	£0.00	£0.00	£0.00 £788,791.50	£0.00	£0.00	£0.00	£0.00

<sup>\*</sup>Capex costs are based on the following assumptions Item 7, 8 & 11 - 40m Column spacings; A I items - include Installation; Item 10 - 80 columns per feeder p llar; Item 10 - 60 earth electrodes allowed for scheme; Item 14 - Assumed transfer and suitable DNO mains cable laid in the vicin ty of Feeder Pillar; Item 15 - Add tional 2100 per M (based on 40m spacings) allowed for Wider VOS compared to standard width; Item 16 - 10% of Total Capex Cost prior to TM & Detailed Design Fee; Item 16 & 17 - 5% of Total Capex Cost prior to TM & Detailed Design Fee (where applicable).

#### CAPEX Cost Sheet - Link B

Item	Description	12M Road Lighting Column with a Twin Bracket Arm incorporating LED Luminaires (21.00klum)	12M Road Lighting Column with a Twin Bracket Arm incorporating LED Luminaires (17.00klum)	10M Road Lighting Column with a Single Post Top incorporating LED Luminaires (15.00klum)	10M Road Lighting Column with a Single Post Top incorporating LED Luminaires (10.00klum)					
1	Column	£1,600.00	£1,600.00	£1,400.00	£1,400.00					
2	Bracket Arm	£150.00	£150.00	00.03	£0.00					
3	Luma 2 luminaire (includes CMS)	£500.00	£500.00	£0.00	£0.00					
4	Luma 1 luminaire (Includes CMS)	£0.00	£0.00	£250.00	£250.00					
5	Passive Termination (Sensor)	£0.00	£0.00	£0.00	£0.00					
6	Termination	£140.00	£140.00	£70.00	£70.00					
7	2.5mm <sup>2</sup> 2 core Cu cable XLPE/SWA/PVC*	£0.00	£0.00	£0.00	£0.00					
8	25mm <sup>2</sup> 3 core Cu cable XLPE/SWA/PVC*	£480.00	£480.00	£480.00	£480.00					
9	Earth Electrode*	£25.00	£25.00	£25.00	£25.00					
10	Feeder Pillar*	£110.00	£110.00	£110.00	£110.00					
11	Trenching*	£170.00	£170.00	£170.00	£170.00					
12	Cross Carriageway ducting*	£105.00	£105.00	£105.00	£105.00					
13	Chambers*	£60.00	£60.00	£60.00	£60.00					
14	DNO*	£25.00	£25.00	£25.00	£25.00					
15	VCB allowance for column mounting*	£4,000.00	£4,000.00	£4,000.00	£4,000.00					
16	Traffic Management - TM*	£0.00	£0.00	£0.00	£0.00					
17	Detailed Design Fee*	£368.25	£368.25	£334.75	£334.75					
Total Cape	cost prior to TM & Detailed Design Fee	£7,365.00	£7,365.00	£6,695.00	£6,695.00					
Total Capex	Cost	£7,733	£7,733	£7,030	£7,030	£0	£0	£0	£0	£0
	Proposed Quantity	19	0	180		0	0	0	0	0
	Sub Total Link Total		£0.00	£1,265,355.00	£0.00	£0.00 £1,412,286.75	20.00	£0.00	£0.00	£0.00

<sup>\*</sup>Capex costs are based on the following assumptions Item 7, 8 & 11 - 40m Column spacings; A I items - include Installation; Item 10 - 80 columns per feeder p llar; Item 10 - 60 earth electrodes allowed for scheme; Item 14 - Assumed transfer and suitable DNO mains cable laid in the vicin ty of Feeder Pillar; Item 15 - Add tional 2100 per M (based on 40m spacings) allowed for Wider VOS compared to standard width; Item 16 - 10% of Total Capex Cost prior to TM & Detailed Design Fee; Item 16 & 17 - 5% of Total Capex Cost prior to TM & Detailed Design Fee (where applicable).

#### CAPEX Cost Sheet - Link C

ltem	Description	12M Road Lighting Column with a Twin Bracket Arm incorporating LED Luminaires (21.00klum)	12M Road Lighting Column with a Twin Bracket Arm incorporating LED Luminaires (17.00klum)	10M Road Lighting Column with a Single Post Top incorporating LED Luminaires (15.00klum)	10M Road Lighting Column with a Single Post Top incorporating LED Luminaires (10.00klum)					
1	Column	£1,600.00	£1,600.00	£1,400.00	£1,400.00					
2	Bracket Arm	£150.00	£150.00	00.03	£0.00					
3	Luma 2 luminaire (includes CMS)	£500.00	£500.00	£0.00	£0.00					
4	Luma 1 luminaire (Includes CMS)	£0.00	£0.00	£250.00	£250.00					
5	Passive Termination (Sensor)	£0.00	£0.00	£0.00	£0.00					
6	Termination	£140.00	£140.00	£70.00	£70.00					
7	2.5mm <sup>2</sup> 2 core Cu cable XLPE/SWA/PVC*	£0.00	£0.00	£0.00	£0.00					
8	25mm <sup>2</sup> 3 core Cu cable XLPE/SWA/PVC*	£480.00	£480.00	£480.00	£480.00					
9	Earth Electrode*	£25.00	£25.00	£25.00	£25.00					
10	Feeder Pillar*	£110.00	£110.00	£110.00	£110.00					
11	Trenching*	£170.00	£170.00	£170.00	£170.00					
12	Cross Carriageway ducting*	£105.00	£105.00	£105.00	£105.00					
13	Chambers*	£60.00	£60.00	£60.00	£60.00					
14	DNO*	£25.00	£25.00	£25.00	£25.00					
15	VCB allowance for column mounting*	£4,000.00	£4,000.00	£4,000.00	£4,000.00					
16	Traffic Management - TM*	£0.00	£0.00	£0.00	£0.00					
17	Detailed Design Fee*	£368.25	£368.25	£334.75	£334.75					
Total Cape	x cost prior to TM & Detailed Design Fee	£7,365.00	£7,365.00	£6,695.00	£6,695.00					
T-1-1 0	-0									
Total Cape	CCost	£7,733	£7,733	£7,030	£7,030	£0	£0	£0	£0	03
	Proposed Quantity	0	0	49		0	0	0	0	0
	Sub Total Link Total		£0.00	£344,457.75	£0.00	£0.00 £344,457.75	£0.00	£0.00	£0.00	£0.00

<sup>\*</sup>Capex costs are based on the following assumptions Item 7, 8 & 11 - 40m Column spacings; A I items - include Installation; Item 10 - 80 columns per feeder p llar; Item 10 - 60 earth electrodes allowed for scheme; Item 14 - Assumed transfer and suitable DNO mains cable laid in the vicin ty of Feeder Pillar; Item 15 - Add tional 2100 per M (based on 40m spacings) allowed for Wider VOS compared to standard width; Item 16 - 10% of Total Capex Cost prior to TM & Detailed Design Fee; Item 16 & 17 - 5% of Total Capex Cost prior to TM & Detailed Design Fee (where applicable).

# Appendix B

**OPERATING COSTS (OPEX)** 



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	Rou ine Maintenance	£0 00	60 00	£D 00
2	Scou ing	£9 00	69 00	20 00
3	amp Replacement (3 year cycle SON NA o ED)	£0 00	00 03	£0 00
4	Non-Routine Maintenance	£0 00	20 00	60 00
5	Ene gy Consumpton	£0 00	00 03	£0 00
6	M 20% o stal Opex cost p io o M)	£0 00	£0.00	£0 00
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	Rou ine Ma rtenance	£ 700	£ 7 00	£ 700	£ 7 00	£ 700	£ 7 00	£ 700	£ 7 00	£ 700
2	Scouting (N.A. o. CMS)	20 00	60 00	£0 00	20 00	2000	£0 00	£0 00	20 00	20 00
3	Ongoing uminai e Costs D i e ep acement (at 5y s) CMS se vice cha ges etc.)	£5 00	£5 00	£5 00	£5 00	£500	£5 00	£5 00	£5 00	£5 00
4	Non Rou ine Maintenance	£0.00	20 00	£0 00	20 00	0002	20 00	£0 00	20 00	20 00
5	Ene gy Consump on	20 00	£0 00	£0 00	20 00	0003	£0 00	20 00	20 00	20 00
6	M (20% o o al Opex cost p io to M)	£440	£4 40	£4 40	£4 40	£440	£4 40	£440	£4 40	£4 40
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5	Ene gy Consumpton	£0 00	£0 00	£0 00
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	Rou ine Ma rtenance	£ 700	£ 7 00	£ 700	£ 7 00	£ 700	£ 7 00	£ 700	£ 7 00	£ 700
2	Scouting (NA o CMS)	£0 00	20 00	£0 00	20 00	0002	20 00	£000	20 00	£0 00
3	Ongoing uminai e Costs D i e ep acement (at 5y s) CMS se vice cha ges etc.)	£5 00	£S 00	£5 00	£5 00	£500	£5 00	£5 00	£5 00	£5 00
4	Non Rou ine Maintenance	20 00	60 00	£0 00	20 00	0003	£0 00	20 00	20 00	£0 00
5	Ene gy Consump on	20 00	£0 00	£0 00	20 00	0003	£0 00	2000	20 00	£0 00
6	M (20% o o al Opex cost p io to M)	£4 40	£4 40	£4 40	£4 40	£440	£4 40	£440	£4 40	£4 40
T a	ex s TM	22	22	22	22	22	22	22	22	22
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Ene gy Component	3 4 4 7 3	3 4473	3 4 4 7 3	3 4473	3 4473	3 4473	3 4473	3 4473	3 4 4 7 3
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	Rou ine Maintenance	£0 00	60 00	00 03
2	Scou ing	£9 00	69 00	20 00
3	amp Replacement (3 year cycle SON NA o ED)	£0 00	00 03	60 00
4	Non-Routine Maintenance	£0 00	00 03	60 00
5	Ene gy Consumpton	£0 00	£0.00	60 00
6	M 20% o stal Opex cost p io o M)	£0 00	£0 00	60 00
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				49						
em	es	2M a m aT ake Am a m a es 2 k )	2M a m aT ake Am a maes 7 km)	Mam ae s T maes k m)	Ma m a e s T a m a es k m)					
	Rou ine Ma ritenance	£ 700	£ 7 00	£ 700	£ 7 00	£ 700	£ 7 00	£ 700	£ 7 00	£ 700
2	Scouting (NA o CMS)	20 00	60 00	£0 00	20 00	0003	£0 00	£0 00	20 00	£0 00
3	Ongoing uminai e Costs D i e ep acement (at 5y s) CMS se vice cha ges etc.)	£5 00	£S 00	£5 00	£5 00	£500	£5 00	£5 00	£5 00	£5 00
4	Non Rou ine Maintenance	20 00	60 00	£0 00	20 00	0003	£0 00	£0 00	20 00	£0 00
5	Ene gy Consump on	00 03	£0 00	£0 00	20 00	0003	60 00	0003	20 00	00 03
6	M (20% o o al Opex cost p io to M)	£4 40	£4 40	£4 40	£4 40	£440	£4 40	£440	£4 40	£4 40
T a	ex s TM	22	22	22	22	22	22	22	22	22
T a	ex s e )	2 4	2 4	2 4	2 4	2 4	2 4	2 4	2 4	2 4
T a	ex s			29						

#### 

	System Wattage	0	0	0
	ae pe KWh (pence)	0 3	0 3	0 3
gue om	Bu ning Hou s (70.35 ECU)	4 00	4 00	4 00
ine or	esent Day Annual E e gy Cost	20 00	£0 00	£0 00
ine gy	Ene gy Component	3 4473	34473	3 4473
'				
	2 mss s			
	0.544kg e Kwh	0	0	0
	CO2 Emissions ove 30 eas kg	0	0	0

Sys em Wat age	242	96	85	56	0	0	0	0	0
ce pe KWh pence)	0 3	0.3	0.3	0 3	0 3	0 3	0.3	0.3	0.3
Bu ning Hous (2020 ECU)	4 000	4 000	4 0 0 0	4 000	4 0 0 0	4 000	4 000	4 000	4 000
esent Day Annual Ene gy Cost	£ 2584	£ 0 92	£44.20	£29 2	0003	£0 00	£0 00	60 03	60 00
Ene gy Component	3 4 4 7 3	3 4473	3 4 4 7 3	3 4473	3 4473	3 4473	3 4473	3 4473	3 4 4 7 3
			7.4						
2 maa a									
0.544kg e Kwh	0	0	2 266	0	0	0	0	0	0

M e )	
-	

#### 50 M 5.5

7.4
27

M Ma e a e s)
= opcsed Man enance Cost - Exsting Man enance
Cost (whe e applicable) 29

= oposed Ene gy 7 4 2 99

M Ma e a e s)+ M e )+ 49.7 npu hs va ue no SAR no kahee "Cos Mas e "Me n enence VC box
M e mmss s)

2 mss s ve eas 27 opposed Emissions - Existing Emissions (whe e app cable)

# Appendix C

**SCHEME APPRAISAL REPORTS** 

(SAR 2017A)



# A1 A2E Link A Commitment of Works Expenditure Standard SAR TITLE WORKSHEET

Page: 1

SAR name: A1 A2E Link A Co	mmitment of Works E	xpenditure Standard SAR		
HE Area / DBFO: Area 14	▼	SAR file name:	14A1A2ELinkA_02	0718.xlsm
Trunk Road number: A1		Short name:		
			N.B. Do not ii	nclude Road Number in Short Name
Full title: A1 Alnwick to Ellin	ngham			
Start Point	or Mid-Point		End F	Point
Easting (6 digits)	Northing (6 digits)	_	Easting (6 digits)	Northing (6 digits)
Location OSGR:				
Does the scheme involve Compulsory	Purchase or Highways	Act Orders? No		
Scheme stage: Commitment of Work	s Expenditure	Scheme category:	Safety	•
Scheme cost range: >£100K	•	SAR type:	Standar	d SAR
Total cost to HE for budgetary p	urposes ( <i>current price</i> s	s including non-recoverable VAT):	£913,	356
Agent's Scheme Ref.:		Current PIN: TBC		Previous PINs:
Completed / Amended by	<u></u>	Checked by	_	Approved by
Name: Kelly Smith	Name:	Stephen Halliday	Name:	Chris Atkins
Email: <u>kelly.smith2@wsp.com</u>	Email:	stephen.halliday@wsp.com	Email:	<u>chris.atkins@wsp.com</u>
Date: 02/07/2018	Date:	02/07/2018	Date:	02/07/2018
	Name: Email:	HE Project Manager		

Page: 2



# A1 A2E Link A Commitment of Works Expenditure Standard SAR SCHEME DETAILS WORKSHEET

SCHEME DETAILS WORKSHEET N.B. Excessively long comments on this and / or other pages should instead be entered in a separate document file or files and referenced in the Attachments page. New A1 scheme (widening) requires consideration for the potential requirement for road lighting in accordance wi h TA49/07 Problem to be addressed: (Brief reasons for carrying out the scheme) Complete a scheme appraisal report (SAR) to determine the Benefit Cost Ration (BCR) of road lighting for the applicable link / links of the A1 Proposed solution: (Brief description of the proposed scheme) Other solutions considered: None (State 'None' if there are none - do not leave blank) Expected outcomes: If BCR is less than 1 hen the HE may consider not providing road lighting for the applicable link / links of the A1 (Results considered probable given analyses conducted) Month Year Expected Date of Opening: Oct - Dec 2022 **Assessment Period** Justification for Assessment Period: Road lighting assessed over 30 year period as per TA49/07 30 ▼ years More Information **History and Programme Dates** SAR Completed Additional Comments Data Entry Completed Conception: Start of Public Consultation: Preferred Solution Decision: **Draft Order Publication:** 

Intermediate:

05/04/2018

Commitment of Works Expenditure:

Commencement of Operation:

N.B. 'Data Entry Completed' indicates the date in which the person filling in the SAR reached the point where no more user data was required. 'SAR Completed' indicates the date when others filled in all additional approvals information.



### A1 A2E Link A Commitment of Works Expenditure Standard SAR TRAFFIC & ACCIDENTS WORKSHEET

Page: 3

#### Details of the Kev Trunk Road in the Scheme

Road type:	All-Purpose	AADT (vehicles):	30,000	Two-way	•
Road width:	D2	▼ Percentage HGVs:	10%		
Speed limit:	50mph or more	▼ Year of AADT:	2015		

#### Predicted Traffic Growth Between Opening Year and Final Assessment Year

Traffic Growth should relate to all vehicle types combined and for those time periods (e.g. weekday peak period, 12-hour or daily) in which monetised benefits are received. Where more than one link receives monetised benefits, growth should be the flow-weighted average growth on those links.

30%	•	

(State 'None' if there are none do not leave blank)

Source of traffic growth forecasts: SAR6.5 User Notes and DFT paper 'Road Traffic Forecasts 2015' https://www.gov.uk/government/uploads/system/uploads/attachment\_data/file/411471/road-trafficforecasts-2015.pdf

#### **Reported Injury Accident Information**

Geographic area covered:

Alnwick to Ellingham

	12-month		Accid	dents			Casu	alties	
	period from	Fatal	Serious	Slight	TOTAL	Fatal	Serious	Slight	TOTAL
	01/01/2012	0	0	0	0	0	0	0	0
	01/01/2013	0	2	1	3	0	1	5	6
	01/01/2014	1	0	0	1	1	0	2	3
	01/01/2015	1	0	0	1	1	1	0	2
	01/01/2016	0	0	1	1	0	0	2	2
TOTAL:	5	2	2	2	6	2	2	9	13
AVERAGE:	per annum	0.4	0.4	0.4	1.2	0.4	0.4	1.8	2.6

Severity Index: 66.7%

Additional information (e.g. overall	
accident rate, national comparison):	



COSTS MASTER INPUT WORKSHEET

N.B. The term "Estimate Price Year" in each of Parts A - D relates to the year to which the prices entered relate - i.e. the price base - rather than the current year.

A. Works Costs	Estimate Year GI	OPI factor to 2010:	0.9017
Estimate Price Vision   2017			
1 Sorios 100 Proliminarios (tomo		cost growth factor:	1.0000
	orary accommodation, traine management)		
3. Series 300 – Fencing			
•	riers and Guardrails		
		-	
	aping)		
	T 31		
		6700	704.50
		£/00	,791.50
-		-	
	Teals Arter Construction.		
	A.1 - A.18) discounted to Construction Year	£788,791.50	(a)
A1 Preparation and Supervision	Cnets		
Ioparation and ouper vision			
Estimate Year price growth lectors   1,0000   Service State Price   1,0000   Service State   1,0			
Estimate Prior Verar [207]			
Total Freparation and Supervisio	in costs (suin or items A1.1 - A1.2)	239,732.24	(41)
B. Land Costs	Estimate Drive Versus Status	CDDI.	0.00
	Estimate Price Year: Choose	GDPI:	0 00
HE Valuer's estimate of cost of la	and acquisition		
2. Estimate of Part 1 compensation			
		00.03	(b)
			(=)
0.00.00.00			
C. Other Costs	Estimate Price Year: Choose	GDPI:	0.00
	Estimate Free Feat.	051 1.	0 00
Public Transport Subsidies			
	ontributions T		
	C.1 - C.3)	£0.00	(c)
D. Contributions			1
2. 33	Estimate Price Year: Choose ▼	GDPI:	0 00
	newal etc		
Total Contributions (sum of item	s D.1 - D.3)	£0.00	(d)
E. Scheme Costs for Budgeting I	Purposes		
_			
4. Diale Allacona	Does the scheme have a Risk Assessment ? Without Risk Assessment		
1. RISK Allowance	Mean Risk Allowance in Works Costs price year prices (£):		
2 Non Possyorable VAT	Percentage of cost for which VAT is not recoverable:	re Information	
2. Non-Recoverable VAT	Percentage of cost for which VAT is not recoverable.	re information	
	O and a few Management of the	Г	
3 Construction Year			
o. Construction 1 cal			
4. Scheme Costs		£913.35	6
	(Including Risk, Non-Recoverable VAT and Optimism Bias)		
F. Present Value of Costs (PVC)			1
. ,			
Change in Maintenance Costs			
	Costs price-year prices (£):		
2. Scheme PVC	TOTAL PVC in 2010 Market Prices, Discounted to 2010	£1,469,78	30



## A1 A2E Link A Commitment of Works Expenditure Standard SAR PUBLIC ACCOUNTS WORKSHEET

Page: 8

Local Government Funding	TOTAL £		NB:
Investment costs:	0	(a)	<ol> <li>Costs appear as positive numbers, while increases in revenues and 'Developer and Other Contributions' appear as negative numbers.</li> </ol>
Central Government Funding: Transport			2. Costs over whole Assessment Period in 2010
Operating costs:	849,459	(b)	market prices discounted to 2010.
Investment costs:	620,320	(c)	3. Unless the scheme affects grants and subsidies or
Developer and other contributions:	0	(d)	government revenues other than fuel tax, this table is
Net Impact:	1,469,780	(e) = (b) + (c) + (d)	sufficient. In all other cases please refer to the ACO.
Central Government Funding: Non-Transport Indirect Tax Revenues:  TOTALS  Broad Transport Budget:	1,469,780		sheet - Standard SARs only) sent Value of Costs (PVC)
Wider Public Finances:	0	(h) = (f) = Indirect T	ax Revenues
	£1.470M		
Key Points: N/A  (Any special considerations or simplifications; state 'None' if there are none - do not leave blank)			



### Page: 12

#### NON-WEBTAG VM WORKSHEET

#### PART A: ROADWORKER SAFETY

N.B. This impact is relevant to improvement schemes which are expected to reduce or increase accidents involving roadworkers or the potential for such accidents.

	ROAD				
Risk Level	Without Scheme (Person-Hrs)	With Scheme (Person-Hrs)	Change (Person-Hrs)	Risk Weighting	Assessment
High Risk			0	3	0
Medium Risk			0	2	0
Low Risk			0	1	0
		<u> </u>		Assessment Score:	Not Applicable

Risk exposure values should be entered for the whole assessment period in relation to maintenance activities that will be change as a result of the scheme ie changes in how highway elements are to be maintained, or changes in the elements to be maintained. The risk exposure values entered for each risk category will represent the sum of the hours spent on all highway elements where the scheme affects the maintenance of more than one element.

Explanation for changes to risk exposure:  (Do not leave blank if Assessment Score is non-zero)	
VM Points:	N/A

#### PART B: EQUALITY ACT COMPLIANCE

N.B. This impact is relevant to improvement schemes which improve or reduce compliance with the requirements of the Equality Act 2010. It does not apply to new highway features which have been designed to be EA compliant e.g. a new pedestrian crossing.

Assessment Score:	Choose ▼	Assessment Score Definitions
_		
Justification for Assessment Score: (Do not leave blank if Assessment		
Score is non-Neutral)		
VM Points:	N/A	



#### WEBTAG APPRAISABLE VM WORKSHEET

#### COSTS SUMMARY FOR SCHEME

1,469,780 Scheme Costs (PVC) £

#### RESULTS SUMMARY FOR WEBTAG SCHEME IMPACTS

IMPACT		Assessment Score (PVB or Qualitative)		BCR (PVB ÷ PVC)		VM Points	
ECONOMY: TEE (Business Users)		Not Applicable		Not Applicable		Not Applicable	
	DDV	Neutral		Not Applicable		0.00	
ECONOMY: Reliability (Business Users) —	IRV	Slight Beneficial		Not Applicable		0.00	
ECONOMY: Regeneration		Not Applicable		Not Applicable		Not Applicable	
ECONOMY: Wider Impacts		Not Applicable		Not Applicable		Not Applicable	
			<u> </u>		Sub-Total	0.00	
ENV RONMENT: Noise		Not Applicable		Not Applicable		Not Applicable	1
ENV RONMENT: Air Quality		Not Applicable		Not Applicable		Not Applicable  Not Applicable	
							-
ENV RONMENT: Greenhouse Gases		Not Applicable	0.00	Not Applicable		Not Applicable	
ENV RONMENT: Landscape ENV RONMENT: Townscape		Not Applicable	0.00	Not Applicable		Not Applicable	-
		Not Applicable	0.00	Not Applicable		Not Applicable	-
ENV RONMENT: Heritage of Historic Resources		Not Applicable	0.00	Not Applicable		Not Applicable	
ENV RONMENT: Biodiversity		Not Applicable	0.00	Not Applicable		Not Applicable	
ENV RONMENT: Water Environment		Not Applicable	0.00	Not Applicable		Not Applicable	
			1.00		Sub-Total	Not Applicable	
			0.00				
SOCIETY: TEE (Commuting and Other Use	ers)	Not Applicable		Not Applicable		Not Applicable	
SOCIETY: Reliability (Commuting and	DDV	Neutral		Not Applicable		0.00	
Other Users)	IRV	Slight Beneficial		Not Applicable		0.00	
SOCIETY: Physical Activity		Not Applicable		Not Applicable		Not Applicable	
SOCIETY: Journey Quality		Not Applicable		Not Applicable		Not Applicable	
SOCIETY: Accidents		£41,069	_	0.03		0.00	
SOCIETY: Security		Not Applicable		Not Applicable		Not Applicable	
SOCIETY: Access to Services		Not Applicable		Not Applicable		Not Applicable	
SOCIETY: Affordability		Not Applicable		Not Applicable		Not Applicable	
SOCIETY: Severance		Not Applicable		Not Applicable		Not Applicable	
SOCIETY: Option Values		Not Applicable		Not Applicable		Not Applicable	

#### Not Applicable Sub-Total Not Applicable

#### RESULTS SUMMARY FOR NON-WEBTAG SCHEME IMPACTS

PUBLIC ACCOUNTS: Wider Public Finances

	IMPACT	Assessment Score	BCR		VM Points	
NON-WEBTAG	Roadworker Safety	Not Applicable	Not Applicable		Not Applicable	
NON-WEBTAG	Equality Act Compliance	Not Applicable	Not Applicable		Not Applicable	
				Sub-Total	Not Applicable	

Not Applicable

Not Applicable

#### RESULTS SUMMARY FOR ALL SCHEME IMPACTS

		Total PVB	Total BCR	Total VM Points	
2	WebTAG Impacts Monetised	£41,069	0.03	0.0	
PAC	WebTAG Impacts Unmonetised	Not Applicable	Not Applicable	0.0	
Ē	Non-WebTAG Impacts	Not Applicable	Not Applicable	Not Applicable	
ALL	TOTAL FOR SCHEME	£41,069	0.03	0.0	



# A1 A2E Link A Commitment of Works Expenditure Standard SAR SOCIETY: Accidents

	SOCIETY Accidents	
Return to 'Standard Impact Assess' Worksheet	Scheme Title: A1 Alnwick to Ellingham	
	Scheme Stage: Commitment of Works Expenditure Date: 0	2/07/2018
Print Preview This Worksheet	For advice and guidance on completing this worksheet, please refer to WebTag Unit A4.1 - WebTAG: TAG unit A4-1 social impact appraisal November 2014 - Publications - GOV.UK	
	_Complete white cells only	
Help		
User Notes	PART A	

Predicted number of personal injury accidents saved in Opening Year: (If the scheme results in a predicted increase in Accident rates, enter as a NEGATIVE value)	0.02	
Time of day of accident savings:	Night Time only	•
(N.B. Choose "Night Time only" for schemes affecting accidents	specifically at nigi	ht.)

accidents	0.02	saved in Opening Year: (a)	jury Accidents (PIAs) s	Number of Personal Ir	
£ / Year	141,456	Average cost of an accident in (b) Opening Year:	Time of Day Night Time only	Road Type Rural Dual AP	Opening Year 2022
£ / Year	2,829	ening Year (a) × (b) = (c)	cident benefits in Ope	Annual ac	
	21 935	Accident benefits capitalisation factor (d) (from Table C.5):	Traffic Growth Over Assessment Period 30%	Assessment Period (years)	Road Type Rural Dual AP
£ in 2010 prices	62,058	ening Year (c) × (d) = (e)	od discounted to Ope	nefits over Assessment Per	Accident ber
	0.662	2010 (from Table C.3a): (f)	from Opening Year to 2	Discount factor	
£ in 2010 prices discounted to 201	41,069	ted to 2010 (e) × (f) = (g)	ment Period discoun	cident benefits over Assess	Acc
		Accident numbers	Traffic Growth over		
	26.729	capitalisation factor (h) (from Table C.5):	Assessment Period 30%	Assessment Period (years) 30	Road Type Rural Dual AP
accidents	1	nent Period (a) × (h) = (i)	saved over Assessm	Number of accidents	

#### PART B

Has COBA analysis been undertaken?	O Yes	● No	N.B. If COBA has been used, data entered into the top row of the table below should be copied from the COBA output.
------------------------------------	-------	------	---

	Nι	ımber of Casualties Save	ed	Number of Personal Injury	£ Benefits in 2010 prices,
	Fatal	Serious	Slight	Accidents (PIAs) Saved	discounted to 2010
Accident impact over Assessment Period (j):				1	£41,069
Accident impact during construction (k):					
Accident impact during future maintenance (I):					
Total accident impact [(m) = (j) + (k) + (l)]				1	£41,069

If either row (k) or row (l) or both are omitted, an	n appropriate Key Points entry must be made.
--	--

Assessment Score:	PVB = £0.041M
Metrics:	1 accidents saved.
Key Points: (Explanation for results - do not leave blank)	One night-time fatality



# A1 A2E Link B Commitment of Works Expenditure Standard SAR TITLE WORKSHEET

Page: 1

SAR name: A1 A2E Link B Commitment of Works Expenditure Standard SAR  HE Area / DBFO: Area 14  SAR file name: 14A1A2ELinkB_020718.xlsm  Trunk Road number: A1  Short name: A2E Link B  N.B. Do not include Road Number in Short Name  Full title: A1 Alnwick to Ellingham  Start Point or Mid-Point  Easting (6 digits) Northing (6 digits)  Location OSGR: Easting (6 digits) Northing (6 digits)  Does the scheme involve Compulsory Purchase or Highways Act Orders? No  Scheme stage: Commitment of Works Expenditure  Scheme category: Safety	
Trunk Road number: A1  Short name: A2E Link B  N.B. Do not include Road Number in Short Name  Start Point or Mid-Point  Easting (6 digits) Northing (6 digits)  Location OSGR:  Does the scheme involve Compulsory Purchase or Highways Act Orders?	
Trunk Road number: A1  Short name: A2E Link B  N.B. Do not include Road Number in Short Name  Start Point or Mid-Point  Easting (6 digits) Northing (6 digits)  Location OSGR:  Does the scheme involve Compulsory Purchase or Highways Act Orders?	
Full title: A1 Alnwick to Ellingham  Start Point or Mid-Point  Easting (6 digits) Northing (6 digits)  Location OSGR:  Does the scheme involve Compulsory Purchase or Highways Act Orders? No	
Full title: A1 Alnwick to Ellingham  Start Point or Mid-Point  Easting (6 digits) Northing (6 digits)  Location OSGR:  Does the scheme involve Compulsory Purchase or Highways Act Orders? No	
Full title: A1 Alnwick to Ellingham  Start Point or Mid-Point  Easting (6 digits) Northing (6 digits)  Location OSGR:  Does the scheme involve Compulsory Purchase or Highways Act Orders? No	
Start Point or Mid-Point  Easting (6 digits) Northing (6 digits)  Location OSGR:  Does the scheme involve Compulsory Purchase or Highways Act Orders?  No	
Easting (6 digits) Northing (6 digits)  Location OSGR:  Does the scheme involve Compulsory Purchase or Highways Act Orders?  No  Easting (6 digits) Northing (6 digits)  Northing (6 digits)  Northing (6 digits)  Volume 1  No	
Location OSGR:	
Does the scheme involve Compulsory Purchase or Highways Act Orders? No ▼	
Scheme stage: Commitment of Works Expenditure ▼ Scheme category: Safety	
Scheme cost range: >£100K ▼ SAR type: Standard SAR	
Total cost to HE for budgetary purposes (current prices including non-recoverable VAT): £1,635,312	
Agent's Scheme Ref.: Current PIN: TBC Previous PINs:	
Completed / Amended by Checked by Approved by	
Name: Kelly Smith Name: Stephen Halliday Name: Chris Atkins	
Email: <u>kelly.smith2@wsp.com</u> Email: <u>stephen.halliday@wsp.com</u> Email: <u>chris.atkins@wsp.con</u>	
Date: 02/07/20189 Date: 02/07/2018 Date: 02/07/2018	
HE Project Manager  Name:  Email:	



# A1 A2E Link B Commitment of Works Expenditure Standard SAR SCHEME DETAILS WORKSHEET

Page: 2	
ts page.	

N.B. Excessively long comments on this ar	and / or other pages should instead be entered in a separate document file or files and referenced in the Attachments page	
Problem to be addressed: New A1 schem	me (widening) requires consideration for the potential requirement for road lighting in accordance wi h TA49/07	
(Brief reasons for carrying		
out the scheme)		
Proposed solution: Complete a sc	cheme appraisal report (SAR) to determine the Benefit Cost Ration (BCR) of road ligh ing for the aplplicable link / links of he A1	
(Brief description of the		
proposed scheme)		
, ,		
Other solutions considered: None		
(State 'None' if there are		
none - do not leave blank)		
,		
Expected outcomes: If BCR is less to	than 1 hen the HE may consider not providing road lighting for the applicable link / links of the A1	
(Results considered probable		
given analyses conducted)		
,		
Mo	onth Year	
Expected Date of Opening: Oct - Dec	▼ 2022 ▼	
Expected Date of Opening.	T 2022 T	
Accommon Davied Justification	on for Assessment Period:	
	on for Assessment Period: assessed over 30 year period as per TA49/07	$\neg$
30 ▼ years Road lighting a	assessed over 30 year period as per TA49/07	
More Information		
More information		
History and Programme Dates	Data Entry Completed SAR Completed Additional Comments	
Conception:		
Start of Public Consultation:		
Preferred Solution Decision:		
Draft Order Publication:		
Intermediate:		$\neg$
Commitment of Works Expenditure:		$\dashv$
Commencement of Operation:		$\dashv$
Commonitor of Operation.		

N.B. 'Data Entry Completed' indicates the date in which the person filling in the SAR reached the point where no more user data was required. 'SAR Completed' indicates the date when others filled in all additional approvals information.



### A1 A2E Link B Commitment of Works Expenditure Standard SAR TRAFFIC & ACCIDENTS WORKSHEET

Page: 3

Details of the Key	r Trunk Roac	I in the Scheme
--------------------	--------------	-----------------

Road type:	All-Purpose	•	AADT (vehicles): 30,000 Tw	o-way	•
Road width:	D2	•	Percentage HGVs: 10%		
Speed limit:	50mph or more	•	Year of AADT: 2015 ▼		

#### Predicted Traffic Growth Between Opening Year and Final Assessment Year

Traffic Growth should relate to all vehicle types combined and for those time periods (e.g. weekday peak period, 12-hour or daily) in which monetised benefits are received. Where more than one link receives monetised benefits, growth should be the flow-weighted average growth on those links.

30%	•	

(State 'None' if there are none do not leave blank)

Source of traffic growth forecasts: SAR6.5 User Notes and DFT paper 'Road Traffic Forecasts 2015' https://www.gov.uk/government/uploads/system/uploads/attachment\_data/file/411471/road-trafficforecasts-2015.pdf

#### **Reported Injury Accident Information**

Geographic area covered:

Alnwick to Ellingham

	12-month		Accidents					Casu	alties	
	period from	Fatal	Serious	Slight	TOTAL		Fatal	Serious	Slight	TOTAL
	01/01/2012	0	0	0	0		0	0	0	0
	01/01/2013	0	1	0	1		0	2	0	2
	01/01/2014	0	0	1	1		0	0	2	2
	01/01/2015	0	0	0	0		0	0	0	0
	01/01/2016	0	1	0	1		0	2	2	4
TOTAL:	5	0	2	1	3		0	4	4	8
AVERAGE:	per annum	0.0	0.4	0.2	0.6		0.0	8.0	8.0	1.6

Severity Index: 66.7%

Additional information (e.g. overall	
accident rate, national comparison):	



COSTS MASTER INPUT WORKSHEET

N.B. The term "Estimate Price Year" in each of Parts A - D relates to the year to which the prices entered relate - i.e. the price base - rather than the current year.

A. Works Costs	Estimate Year GI	OPI factor to 2010:	0.9017
		rice growth factor:	1.0337
1 Sorios 100 Proliminarios (tomo	orary accommodation, traffic management)	cost growth factor:	1.0000
2. Series 200 – Site Clearance	orary accommodation, traine management)		
3. Series 300 – Fencing			
4. Series 400 – Safety Fences, Bar	riers and Guardrails		
5. Series 500 – Drainage 6. Series 600 – Earthworks			
7. Series 600 – Earthworks (landsc	aping)		
8. Series 700 – Pavements			
9. Series 1100 - Kerbs and Footwa			
10. Series 1200 – Traffic Signs (inc		C4 441	2000 75
	Electrical Work and Communications as (including Environmental Barriers)	£1,412	2,286.75
13. Series 2700 – Statutory Underta			
14. Series 2700 - Noise Insulation			
15. Series 2700 – Accommodation			
<ol> <li>Series 3000 – Landscape and E</li> <li>Technology Renewal Costs 15</li> </ol>			
18. Other Costs - Specify:	Teals Arter Construction.		
	A.1 - A.18) discounted to Construction Year	£1,412,286.75	(a)
A1. Preparation and Supervision	Cnets		
I Toparation and Supervision	Estimate Price Year: 2017		
1. Preparation	Default Costs:   OR User-Specified Costs:   OR User-Specified Costs:   OR User-Specified Costs:		566 58
2. Supervision  Total Preparation and Supervision	Default Costs:  OR User-Specified Costs:  On Costs (sum of items A1.1 - A1.2)	£106,983.02	416.44 (a1)
Total Treparation and Supervisio	in costs (sum of items Attr-Atta)	2100,303.02	(4.)
- · · · ·			
B. Land Costs	Estimate Drice Vegru Charge	GDPI:	0.00
	Estimate Price Year: Choose ▼	GDPI:[	0 00
1. HE Valuer's estimate of cost of la	and acquisition		
2. Estimate of Part 1 compensation			
3. HE Valuer's estimate of rehousing			
4. HE Valuer's estimate of resaleab Total Land Costs (sum of items I		£0.00	(b)
			(=)
0.00.00.00			
C. Other Costs	Estimate Price Year: Choose ▼	GDPI:	0 00
	Estimate Free Feat.	05/ 1.[	0 00
Public Transport Subsidies			
2. Local Government Investment C	ontributions T		
3. Other – Specify Total Other Costs (sum of items	C.1 - C.3)	£0.00	(c)
D. Contributions			1
D. Commiscations	Estimate Price Year: Choose ▼	GDPI:	0 00
SU Betterment Deferment or rer     Developer Contributions	newal etc		
3. Other – Specify			
Total Contributions (sum of item	s D.1 - D.3)	£0.00	(d)
E. Scheme Costs for Budgeting I	Purposes		
_			
A Birt All	Does the scheme have a Risk Assessment ? Without Risk Assessment		
Risk Allowance	Mean Risk Allowance in Works Costs price year prices (£):		
2. Non-Recoverable VAT	Percentage of cost for which VAT is not recoverable:	ro Information	
2. Non-Recoverable VAT	Percentage of cost for which VAT is not recoverable:	ore Information	
Construction Year	Construction Year Construction Year p (mid-point of construction period if period is 2021 Construction Year or		1.1186 1.0000
o. Construction Teal	longer than one year): Construction Year GE		0.8332
4. Scheme Costs	TOTAL Scheme Implementation Costs in Construction Year Prices	£1,635,31	2
Consider Cooks	(including Risk, Non-Recoverable VAT and Optimism Bias)	2.,000,0.	-
F. Present Value of Costs (PVC)			
	Additional annual average		
Change in Maintenance Costs	maintenance and renewal costs in Works 51 828 More Information		
	Costs price-year prices (£):		
2. Scheme PVC	TOTAL PVC in 2010 Market Prices, Discounted to 2010	£2,097,24	10



## A1 A2E Link B Commitment of Works Expenditure Standard SAR PUBLIC ACCOUNTS WORKSHEET

Page: 8

Local Government Funding	TOTAL £		NB:
Investment costs:	0	(a)	<ol> <li>Costs appear as positive numbers, while increases in revenues and 'Developer and Other Contributions' appear as negative numbers.</li> </ol>
Central Government Funding: Transport			2. Costs over whole Assessment Period in 2010
Operating costs:	986,592	(b)	market prices discounted to 2010.
Investment costs:	1,110,649	(c)	3. Unless the scheme affects grants and subsidies or
Developer and other contributions:	0	(d)	government revenues other than fuel tax, this table is
Net Impact:	2,097,240	(e) = (b) + (c) + (d)	sufficient. In all other cases please refer to the ACO.
Central Government Funding: Non-Transport Indirect Tax Revenues:  TOTALS  Broad Transport Budget:	2,097,240	_	sheet - Standard SARs only) sent Value of Costs (PVC)
	·	_	
Wider Public Finances:	0	(h) = (f) = Indirect T	ax Revenues
Key Points: N/A	C2.097M		
(Any special considerations or simplifications; state 'None' if there are none - do not leave blank)			



#### Page: 12

#### NON-WEBTAG VM WORKSHEET

#### PART A: ROADWORKER SAFETY

N.B. This impact is relevant to improvement schemes which are expected to reduce or increase accidents involving roadworkers or the potential for such accidents.

	ROAD	URE			
Risk Level	Without Scheme (Person-Hrs)	With Scheme (Person-Hrs)	Change (Person-Hrs)	Risk Weighting	Assessment
High Risk			0	3	0
Medium Risk			0	2	0
Low Risk			0	1	0
				Assessment Score:	Not Applicable

Risk exposure values should be entered for the whole assessment period in relation to maintenance activities that will be change as a result of the scheme ie changes in how highway elements are to be maintained, or changes in the elements to be maintained. The risk exposure values entered for each risk category will represent the sum of the hours spent on all highway elements where the scheme affects the maintenance of more than one element.

Explanation for changes to risk exposure:  (Do not leave blank if Assessment Score is non-zero)			
VM Points:	N/A	]	

#### PART B: EQUALITY ACT COMPLIANCE

N.B. This impact is relevant to improvement schemes which improve or reduce compliance with the requirements of the Equality Act 2010. It does not apply to new highway features which have been designed to be EA compliant e.g. a new pedestrian crossing.

Assessment Score:	hoose <b>T</b>	Assessment Score Definitions
_		
Justification for Assessment Score:  (Do not leave blank if Assessment		
Score is non-Neutral)		
VM Points:	N/A	



#### WEBTAG APPRAISABLE VM WORKSHEET

#### COSTS SUMMARY FOR SCHEME

Scheme Costs (PVC) £ 2,097,240

#### RESULTS SUMMARY FOR WEBTAG SCHEME IMPACTS

IMPACT		Assessment Score (PVB or Qualitative)		BCR (PVB ÷ PVC)		VM Points	
ECONOMY: TEE (Business Users)		Not Applicable		Not Applicable		Not Applicable	
	DDV	Neutral		Not Applicable		0.00	
ECONOMY: Reliability (Business Users) —	IRV	Neutral		Not Applicable		0.00	
ECONOMY: Regeneration		Not Applicable		Not Applicable		Not Applicable	
ECONOMY: Wider Impacts		Not Applicable		Not Applicable		Not Applicable	
					Sub-Total	0.00	1
END COMMENT AND					1 1		1
ENV RONMENT: Noise		Not Applicable		Not Applicable		Not Applicable	
ENV RONMENT: Air Quality		Not Applicable		Not Applicable		Not Applicable	-
ENV RONMENT: Greenhouse Gases		Not Applicable		Not Applicable		Not Applicable	
ENV RONMENT: Landscape		Not Applicable	0.00	Not Applicable		Not Applicable	
ENV RONMENT: Townscape		Not Applicable	0.00	Not Applicable		Not Applicable	
ENV RONMENT: Heritage of Historic Resources		Not Applicable	0.00	Not Applicable		Not Applicable	
ENV RONMENT: Biodiversity		Not Applicable	0.00	Not Applicable		Not Applicable	
ENV RONMENT: Water Environment		Not Applicable	0.00	Not Applicable		Not Applicable	
			1.00		Sub-Total	Not Applicable	
			0.00				
SOCIETY: TEE (Commuting and Other Use	ers)	Not Applicable		Not Applicable		Not Applicable	
SOCIETY: Reliability (Commuting and _	DDV	Neutral		Not Applicable		0.00	
Other Users)	IRV	Neutral		Not Applicable		0.00	
SOCIETY: Physical Activity		Not Applicable		Not Applicable		Not Applicable	
SOCIETY: Journey Quality		Not Applicable		Not Applicable		Not Applicable	
SOCIETY: Accidents		£0		0.00		0.00	
SOCIETY: Security		Not Applicable		Not Applicable		Not Applicable	
SOCIETY: Access to Services		Not Applicable		Not Applicable		Not Applicable	
SOCIETY: Affordability		Not Applicable		Not Applicable		Not Applicable	
SOCIETY: Severance		Not Applicable		Not Applicable		Not Applicable	
SOCIETY: Option Values		Not Applicable		Not Applicable		Not Applicable	

#### Sub-Total Not Applicable

Not Applicable

#### RESULTS SUMMARY FOR NON-WEBTAG SCHEME IMPACTS

PUBLIC ACCOUNTS: Wider Public Finances

	IMPACT	Assessment Score	BCR		VM Points	
NON-WEBTAG	Roadworker Safety	Not Applicable	Not Applicable		Not Applicable	
NON-WEBTAG	Equality Act Compliance	Not Applicable	Not Applicable		Not Applicable	
				Sub-Total	Not Applicable	

Not Applicable

Not Applicable

#### RESULTS SUMMARY FOR ALL SCHEME IMPACTS

		Total PVB	Total BCR	Total VM Points	
	WebTAG Impacts Monetised	£0	0.00	0.0	
PAC	WebTAG Impacts Unmonetised	Not Applicable	Not Applicable	0.0	
Ā	Non-WebTAG Impacts	Not Applicable	Not Applicable	Not Applicable	
4	TOTAL FOR SCHEME	£0	0.00	0.0	



SOCIETY: Accidents

	SOCIETY Accidents		
Return to			
Impact Assess'	Scheme Title: A1 Alnwick to Ellingham		
Worksheet	Scheme Stage: Commitment of Works Expenditure	Date:	02/07/20189
Print Preview This Worksheet	For advice and guidance on completing this worksheet, please refer to WebTag Unit A4.1  WebTAG: TAG unit A4-1 social impact appraisal November 2014 - Publications - GOV.UK	-	
	Complete white cells only		
Help User Notes	PART A		

Predicted number of personal injury accidents saved in Opening Year:  (If the scheme results in a predicted increase in Accident rates, enter as a NEGATIVE value)	0	
Time of day of accident savings: Mid	ht Timo only	,

(N.B. Choose "Night Time only" for schemes affecting accidents specifically at night.)

accidents	0	saved in Opening Year: (a)	Number of Personal Injury Accidents (PIAs) saved in Opening Year: (a					
£ / Year	141,456	Average cost of an accident in (b) Opening Year:	Time of Day Night Time only	Road Type Rural Dual AP	Opening Year 2022			
£ / Year	0	ening Year (a) × (b) = (c)	cident benefits in Ope	Annual ac				
	21 935	Accident benefits capitalisation factor (d) (from Table C.5):	Traffic Growth Over Assessment Period 30%	Assessment Period (years)	Road Type Rural Dual AP			
£ in 2010 pric	0	ening Year (c) × (d) = (e)	Accident benefits over Assessment Period discounted to Opening Year $(c) \times (d) = (e)$					
	0.662	2010 (from Table C.3a): (f)	from Opening Year to 2	Discount factor				
T	0	ted to 2010 (e) v (f) - (a)	ment Period discoun	cident benefits over Assess	A			
	•	ted to 2010 (c) x (i) = (g)						
		Accident numbers	Traffic Growth over					
£ in 2010 price discounted to	26.729	., ., .,	Traffic Growth over Assessment Period 30%	Assessment Period (years)	Road Type ural Dual AP			

#### PART B

	Nu	ımber of Casualties Save	ed	Number of Personal Injury	£ Benefits in 2010 prices,	
	Fatal	Serious	Slight	Accidents (PIAs) Saved	discounted to 2010	
Accident impact over Assessment Period (j):				0	£0	
Accident impact during construction (k):						
Accident impact during future maintenance (I):						
Total accident impact [(m) = (j) + (k) + (l)]				0	£0	

Assessment Score:	PVB = £0.000M
Metrics:	0 accidents saved.
•	
Key Points: (Explanation for results - do not leave blank)	N/A
(Explanation for results -	
00 not leave blatik j	



# A1 A2E Link C Commitment of Works Expenditure Standard SAR TITLE WORKSHEET

Page: 1

SAR name: A1 A2E Link C Commitment of	of Works Expenditure Standard SAR		
HE Area / DBFO: Area 14	SAR file nam	ne: 14A1A2ELinkC_02	0718.xlsm
Trunk Dood numbers A4	Chart nam	ADE Link C	
Trunk Road number: A1	Short hair	ne: A2E Link C	nclude Road Number in Short Name
		IV.B. DO HOUH	riciude Road Number in Snort Name
Full title: A1 Alnwick to Ellingham			
Start Point or Mid-Poir	nt .	End F	Point
Easting (6 digits) Northing (6		Easting (6 digits)	Northing (6 digits)
Location OSGR:	- digits)	Lasting (6 digits)	Northing (o digits)
Location OSGR.			
Does the scheme involve Compulsory Purchase or	r Highways Act Orders? No		
Scheme stage: Commitment of Works Expenditure	▼ Scheme catego	ry: Safety	▼
<u> </u>			
Scheme cost range: >£100K	▼ SAR typ	e: Standar	d SAR
Scheme cost range.	OAK typ	otaridai	d OAR
Total cost to HE for budgetary purposes (cui	rrent prices including non-recoverable VA	T): £398	954
Total cost to TIE for budgetary purposes (cur	Trent prices including non-recoverable VA	1).	,034
Agent's Scheme Ref.:	Current PIN: TBC		Previous PINs:
Agent's denome item.	Guilent IIV. TBO		1 101003 1 1143.
Completed / Amended by	Checked by		Approved by
	Name: Chris Atkins	Name:	Stephen Halliday
Email: kelly.smith2@wsp.com	Email: <u>chris.atkins@wsp,com</u>	Email:	stephen.halliday@wsp.com
Date: 03/05/2018	Date:	Date:	<u>stephen:namday@wsp.com</u>
03/03/2010	Date.	Date.	
	HE Project Manager		
		<del></del>	
	Name:		
	Email:		

Page: 2



Commencement of Operation:

# A1 A2E Link C Commitment of Works Expenditure Standard SAR

		SCHEM	1E DETAILS W	'ORKSHEET	
N.B. Excessively long comme	ents on this and / or	other pages shou	uld instead be entered in a	a separate document file or files and referenced in the Attach	nments page.
Problem to be addressed:	New A1 scheme (wide	ening) requires cons	sideration for the potential requ	uirement for road lighting in accordance wi h TA49/07	
(Brief reasons for carrying					
out the scheme)					
			D)		
	Complete a scheme a	ppraisai report (SAF	R) to determine the Benefit Co	ost Ration (BCR) of road lighing for the aplplicable link / links of he A	ı
(Brief description of the					
proposed scheme)					
Other solutions considered:	None				
(State 'None' if there are					
none - do not leave blank)					
· ·					
•	If BCR is less than 1 h	hen the HE may cor	nsider not providing road lighti	ting for the applicable link / links of the A1	
(Results considered probable					
given analyses conducted)					
	Month	Yea	ı <b>r</b>		
Expected Date of Opening:	Oct - Dec	▼ 2022			
Assessment Period	Justification for	Assessment	Period:		
	Road lighting assesse				
yeare					
More Information					
<b>History and Programme Dates</b>		Entry Comple	eted SAR Complete	ted Additional Comments	
	onception:				
Start of Public Co					
Preferred Solution					
Draft Order P					
	ermediate:				
Commitment of Works Ex	penditure:	05/04/2018			

N.B. 'Data Entry Completed' indicates the date in which the person filling in the SAR reached the point where no more user data was required. 'SAR Completed' indicates the date when others filled in all additional approvals information.



### A1 A2E Link C Commitment of Works Expenditure Standard SAR TRAFFIC & ACCIDENTS WORKSHEET

Page: 3

#### Details of the Key Trunk Road in the Scheme

Road type:	All-Purpose	•	AADT (vehicles): 30,000	Two-way	•
Road width:	D2	•	Percentage HGVs: 10%		
Speed limit:	50mph or more	•	Year of AADT: 2015 ▼		

#### Predicted Traffic Growth Between Opening Year and Final Assessment Year

Traffic Growth should relate to all vehicle types combined and for those time periods (e.g. weekday peak period, 12-hour or daily) in which monetised benefits are received. Where more than one link receives monetised benefits, growth should be the flow-weighted average growth on those links.

30%	•	

(State 'None' if there are none do not leave blank)

Source of traffic growth forecasts: SAR6.5 User Notes and DFT paper 'Road Traffic Forecasts 2015' https://www.gov.uk/government/uploads/system/uploads/attachment\_data/file/411471/road-trafficforecasts-2015.pdf

#### **Reported Injury Accident Information**

Geographic area covered:

Alnwick to Ellingham

	12-month	Accidents				Casualties				
	period from	Fatal	Serious	Slight	TOTAL	•	Fatal	Serious	Slight	TOTAL
	01/01/2012	0	0	0	0		0	0	0	0
	01/01/2013	0	1	1	2		0	2	1	3
	01/01/2014	0	0	0	0		0	0	0	0
	01/01/2015	0	0	1	1		0	0	2	2
	01/01/2016	0	0	0	0		0	0	0	0
TOTAL:	5	0	1	2	3		0	2	3	5
AVERAGE:	per annum	0.0	0.2	0.4	0.6		0.0	0.4	0.6	1.0

Severity Index: 33.3%

Additional information (e.g. overall	
accident rate, national comparison):	



COSTS MASTER INPUT WORKSHEET

N.B. The term "Estimate Price Year" in each of Parts A - D relates to the year to which the prices entered relate - i.e. the price base - rather than the current year.

A. Works Costs		DPI factor to 2010: _ orice growth factor:	0.9017 1.0337
		cost growth factor:	1.0000
1. Series 100 – Preliminaries (temp	porary accommodation, traffic management)	l .	
2. Series 200 – Site Clearance			
3. Series 300 – Fencing			
4. Series 400 – Safety Fences, Bar	rriers and Guardrails		
5. Series 500 – Drainage 6. Series 600 – Earthworks			
7. Series 600 – Earthworks (landso	eaning)		
8. Series 700 – Pavements	oping)		
9. Series 1100 - Kerbs and Footwa	ays		
	cluding signals) and Road Markings		
	Electrical Work and Communications	£344,	457.75
	es (including Environmental Barriers)		
<ol> <li>Series 2700 – Statutory Undert</li> <li>Series 2700 – Noise Insulation</li> </ol>			
15. Series 2700 – Noise Insulation			
16. Series 3000 – Landscape and			
17. Technology Renewal Costs 15			
18. Other Costs - Specify:			
	s A.1 - A.18) discounted to Construction Year	£344,457.75	(a)
A1. Preparation and Supervision	Costs Estimate Price Year: 2017		
4. Danasantian	Default Control D	0= 1	FF 04
Preparation     Supervision	Default Costs:   OR User-Specified Costs:   Default Costs:   OR User-Specified Costs:   OR User-Speci	£7,4	
2. Supervision  Total Preparation and Supervision	on Costs (sum of items A1.1 - A1.2)	£26,093.23	(a1)
rotai Freparation and SuperVISI	on oosis (suiii 01 iteiris M1.1 - M1.2)	たとい,ひざろことろ	(a i /
B. Land Costs			
	Estimate Price Year: Choose	GDPI:	0 00
1 HE Valuaria 4: (	and acquisition	1	
HE Valuer's estimate of cost of I     Estimate of Part 1 componentian			
<ol> <li>Estimate of Part 1 compensation</li> <li>HE Valuer's estimate of rehousing</li> </ol>			
	ig costs ble land residue ( <i>enter as –ve sum</i> )		
Total Land Costs (sum of items		£0.00	(b)
			<u></u>
C. Other Costs			
C. Other Costs	Estimate Price Year: Choose	GDPI:	0 00
	Estimate i IICE i Edi. Ciioose	GDFI:	0 00
Public Transport Subsidies			
2. Local Government Investment C	Contributions		
3. Other – Specify			
Total Other Costs (sum of items	C.1 - C.3)	£0.00	(c)
D. Contributions			
	Estimate Price Year: Choose ▼	GDPI:	0 00
4 OH D-# 1 D-1		l	
<ol> <li>SU Betterment Deferment or rei</li> <li>Developer Contributions</li> </ol>	newai etc		
Other – Specify			
Total Contributions (sum of item	ns D.1 - D.3)	£0.00	(d)
E. Scheme Costs for Budgeting	Durance		
E. Scheme Costs for Budgeting	ruiposes		
Risk Allowance	Does the scheme have a Risk Assessment ? Without Risk Assessment		
1. Nisk Allowalice	Mean Risk Allowance in Works Costs price year prices (£):		
0 N== D=== : :: 1 : 1 :: =	Demonstrate of continuous LLL MATEUR.		·
2. Non-Recoverable VAT	Percentage of cost for which VAT is not recoverable:%	ore Information	
	Construction Year Construction Year		1.1186
Construction Year	(mid-point of construction period if period is 2021 Construction Year	cost growth factor:	1.0000
	longer than one year): Construction Year G	DPI factor to 2010:	0.8332
	TOTAL Cohomo luminos control C		
4. Scheme Costs	TOTAL Scheme Implementation Costs in Construction Year Prices (including Risk, Non-Recoverable VAT and Optimism Bias)	£398,854	
	(including risk, Non-Recoverable VAT and Optimism Bias)		
F. Present Value of Costs (PVC)			
5. 555.5 (1 7 6)			
	Additional annual		
Change in Maintenance Costs	Additional annual average maintenance and renewal costs in Works 11 420 More Information	1	
ago maintonanos oosts	Costs price-year prices (£):	J	
	· · · · · · · · · · · · · · · · · · ·		
	TOTAL DISC		
2. Scheme PVC	TOTAL PVC in 2010 Market Prices, Discounted to 2010	£488,270	<u> </u>



## A1 A2E Link C Commitment of Works Expenditure Standard SAR PUBLIC ACCOUNTS WORKSHEET

Page: 8

Local Government Funding	TOTAL £		NB:		
Investment costs:	0	(a)	<ol> <li>Costs appear as positive numbers, while increases in revenues and 'Developer and Other Contributions' appear as negative numbers.</li> </ol>		
Central Government Funding: Transport			2. Costs over whole Assessment Period in 2010		
Operating costs:	217,382	(b)	market prices discounted to 2010.		
Investment costs:	270,888	(c)	3. Unless the scheme affects grants and subsidies or		
Developer and other contributions:	0	(d)	government revenues other than fuel tax, this table is		
Net Impact:	488,270	(e) = (b) + (c) + (d)	sufficient. In all other cases please refer to the ACO.		
Central Government Funding: Non-Transport Indirect Tax Revenues:	0	(f) (from 'TEE' works	heet - Standard SARs only)		
TOTALS		_			
Broad Transport Budget:	488,270	(g) = (a) + (e) = Pres	sent Value of Costs (PVC)		
Wider Public Finances:	0	(h) = (f) = Indirect T	ax Revenues		
Assessment Score (PVC):	£0.488M				
Key Points: N/A  (Any special considerations or simplifications; state 'None' if there are none - do not leave blank)					



#### Page: 12

#### NON-WEBTAG VM WORKSHEET

#### PART A: ROADWORKER SAFETY

N.B. This impact is relevant to improvement schemes which are expected to reduce or increase accidents involving roadworkers or the potential for such accidents.

	ROAD				
Risk Level	Without Scheme (Person-Hrs)	With Scheme (Person-Hrs)	Change (Person-Hrs)	Risk Weighting	Assessment
High Risk			0	3	0
Medium Risk			0	2	0
Low Risk			0	1	0
				Assessment Score:	Not Applicable

Risk exposure values should be entered for the whole assessment period in relation to maintenance activities that will be change as a result of the scheme ie changes in how highway elements are to be maintained, or changes in the elements to be maintained. The risk exposure values entered for each risk category will represent the sum of the hours spent on all highway elements where the scheme affects the maintenance of more than one element.

Explanation for changes to risk exposure:  (Do not leave blank if Assessment Score is non-zero)					
VM Points:	N/A				

#### PART B: EQUALITY ACT COMPLIANCE

N.B. This impact is relevant to improvement schemes which improve or reduce compliance with the requirements of the Equality Act 2010. It does not apply to new highway features which have been designed to be EA compliant e.g. a new pedestrian crossing.

Assessment Score: Choose	▼	Assessment Score Definitions
Justification for Assessment Score: (Do not leave blank if Assessment		
Score is non-Neutral)		
VM Points: N	Ά	



#### A1 A2E Link C Commitment of Works Expenditure Standard SAR

#### WEBTAG APPRAISABLE VM WORKSHEET

#### COSTS SUMMARY FOR SCHEME

Scheme Costs (PVC) £ 488,270

#### RESULTS SUMMARY FOR WEBTAG SCHEME IMPACTS

IMPACT		Assessment Score (PVB or Qualitative)		BCR (PVB ÷ PVC)		VM Points	
ECONOMY: TEE (Business Users)		Not Applicable		Not Applicable		Not Applicable	
50000007	DDV	Neutral		Not Applicable		0.00	
ECONOMY: Reliability (Business Users) —	IRV	Neutral		Not Applicable		0.00	
ECONOMY: Regeneration		Not Applicable		Not Applicable		Not Applicable	
ECONOMY: Wider Impacts		Not Applicable		Not Applicable		Not Applicable	
					Sub-Total	0.00	
ENV RONMENT: Noise		Not Applicable		Not Applicable		Not Applicable	
ENV RONMENT: Air Quality		Not Applicable		Not Applicable		Not Applicable	
ENV RONMENT: Greenhouse Gases		Not Applicable		Not Applicable		Not Applicable	
ENV RONMENT: Landscape		Not Applicable	0.00	Not Applicable		Not Applicable	5.00
ENV RONMENT: Townscape		Not Applicable	0.00	Not Applicable		Not Applicable	5.00
ENV RONMENT: Heritage of Historic Resources		Not Applicable	0.00	Not Applicable		Not Applicable	5.00
ENV RONMENT: Biodiversity		Not Applicable	0.00	Not Applicable		Not Applicable	5.00
ENV RONMENT: Water Environment		Not Applicable	0.00	Not Applicable		Not Applicable	5.00
			1.00		Sub-Total	Not Applicable	0
			0.00				-
SOCIETY: TEE (Commuting and Other Use	ers)	Not Applicable		Not Applicable		Not Applicable	
Reliability (Commuting and	DDV	Neutral		Not Applicable		0.00	
SOCIETY: Reliability (Commuting and Other Users)	IRV	Neutral		Not Applicable		0.00	
SOCIETY: Physical Activity		Not Applicable		Not Applicable		Not Applicable	
SOCIETY: Journey Quality		Not Applicable		Not Applicable		Not Applicable	
SOCIETY: Accidents		£0		0.00		0.00	
SOCIETY: Security		Not Applicable		Not Applicable		Not Applicable	
SOCIETY: Access to Services		Not Applicable		Not Applicable		Not Applicable	
SOCIETY: Affordability		Not Applicable		Not Applicable		Not Applicable	
SOCIETY: Severance		Not Applicable		Not Applicable		Not Applicable	
SOCIETY: Option Values		Not Applicable		Not Applicable		Not Applicable	

## PUBLIC ACCOUNTS: Wider Public Finances Not Applicable Not Applicable Not Applicable Not Applicable

Sub-Total

0.00

#### RESULTS SUMMARY FOR NON-WEBTAG SCHEME IMPACTS

	IMPACT	Assessment Score	BCR		VM Points	
NON-WEBTAG	Roadworker Safety	Not Applicable	Not Applicable		Not Applicable	
NON-WEBTAG	Equality Act Compliance	Not Applicable	Not Applicable		Not Applicable	
	•			Sub-Total	Not Applicable	

#### RESULTS SUMMARY FOR ALL SCHEME IMPACTS

		Total PVB	Total BCR	Total VM Points	
2	WebTAG Impacts Monetised	£0	0.00	0.0	
PAC	WebTAG Impacts Unmonetised	Not Applicable	Not Applicable	0.0	
L IMI	Non-WebTAG Impacts	Not Applicable	Not Applicable	Not Applicable	
₹	TOTAL FOR SCHEME	£0	0.00	0.0	



## A1 A2E Link C Commitment of Works Expenditure Standard SAR

SOCIETY: Accidents

	SOCIETY Accidents
Return to 'Standard Impact Assess'	Scheme Title: A1 Alnwick to Ellingham
Worksheet	Scheme Stage: Commitment of Works Expenditure Date: 02/07/2018
Print Preview This Worksheet	For advice and guidance on completing this worksheet, please refer to WebTag Unit A4.1 - WebTAG: TAG unit A4-1 social impact appraisal November 2014 - Publications - GOV.UK
	Complete white cells only
Help User Notes	PART A
	Predicted number of personal injury accidents sayed in Opening Year:

(If the scheme results in a predicted increase in Accident rates, enter as a NEGATIVE value)	
Time of day of accident savings: Night Time only	•
(N.B. Choose "Night Time only" for schemes affecting accidents specifically at n.	ight.)

accidents	0	saved in Opening Year: (a)	Number of Personal Injury Accidents (PIAs) saved in Opening Year: (a				
£ / Year	141,456	Average cost of an accident in (b) Opening Year:	Time of Day Night Time only	Road Type Rural Dual AP	Opening Year 2022		
£ / Year	0	ening Year (a) × (b) = (c)	cident benefits in Ope	Annual ac			
	21 935	Accident benefits capitalisation factor (d)	Traffic Growth Over Assessment Period	Assessment Period (years)	Road Type		
£ in 2010 pric	0	(from Table C.5): ening Year (c) × (d) = (e)	30% iod discounted to Ope	anefits over Assessment Per	Rural Dual AP  Accident be		
	0.662	010 (from Table C.3a): (f)	from Opening Year to 2	Discount factor			
£ in 2010 price	0	ted to 2010 (e) × (f) = (g)	Accident benefits over Assessment Period discounted to 2010 (e) x (f) = (g)				
-		Accident numbers	Traffic Growth over				
	26.729	capitalisation factor (h)	Assessment Period 30%	Assessment Period (years) 30	Road Type Rural Dual AP		
		(from Table C.5):	30 /0				

#### PART B

	Number of Casualties Saved		ed	Number of Personal Injury	£ Benefits in 2010 prices,
	Fatal	Serious	Slight	Accidents (PIAs) Saved	discounted to 2010
Accident impact over Assessment Period (j):				0	£0
Accident impact during construction (k):					
Accident impact during future maintenance (I):					
Total accident impact [(m) = (j) + (k) + (l)]				0	£0

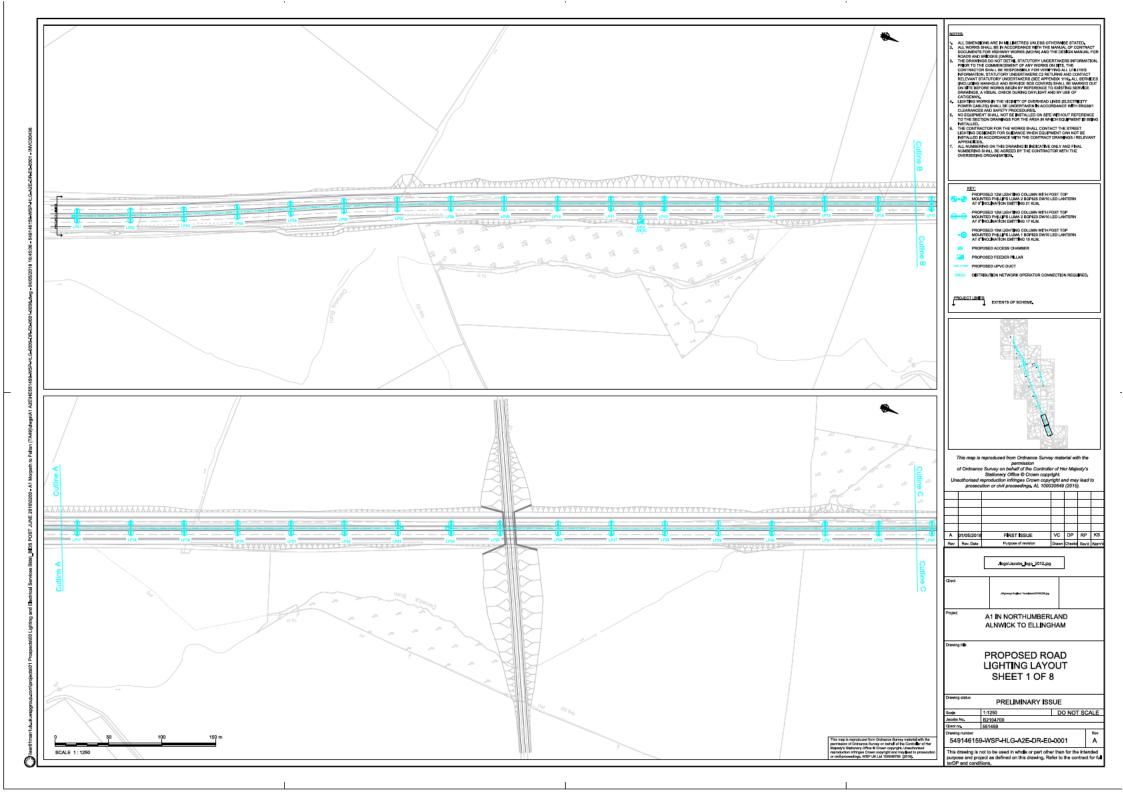
If either row (k) or row (l) or both are omitted, an appropriate Key Points entry must be made.

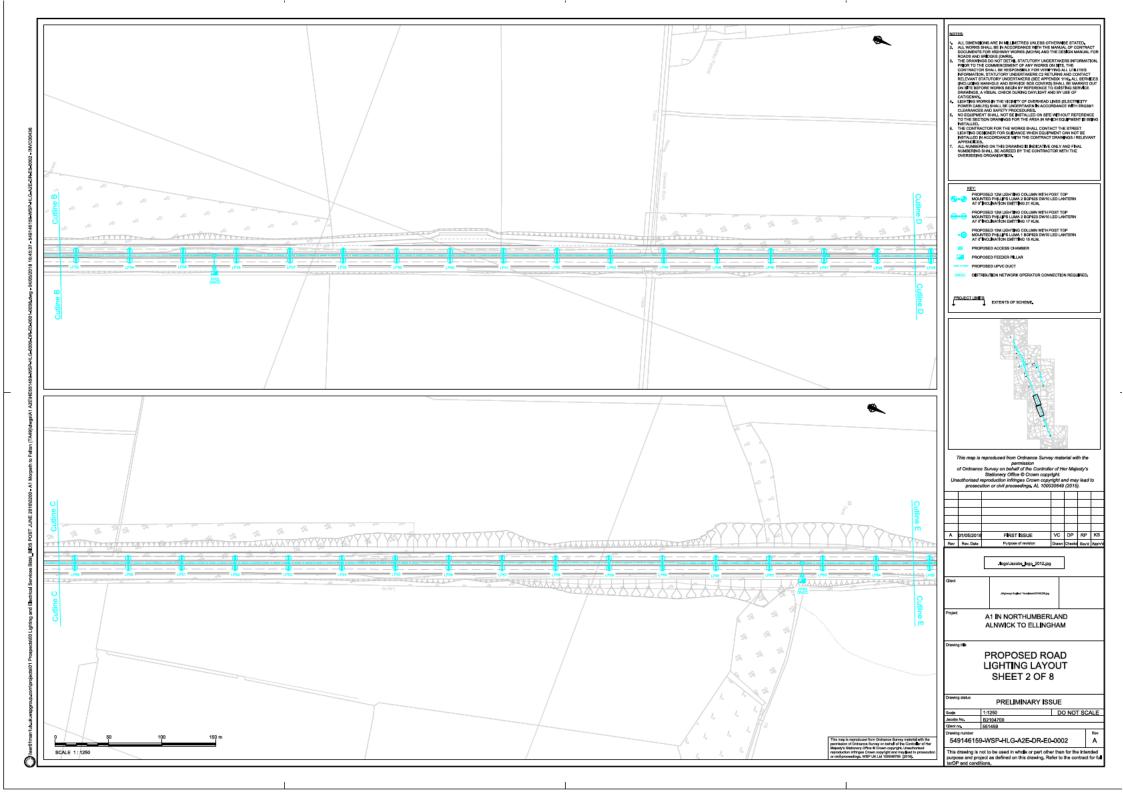
Assessment Score:	PVB = £0.000M
Metrics:	0 accidents saved.
Key Points: (Explanation for results - do not leave blank)	N/A

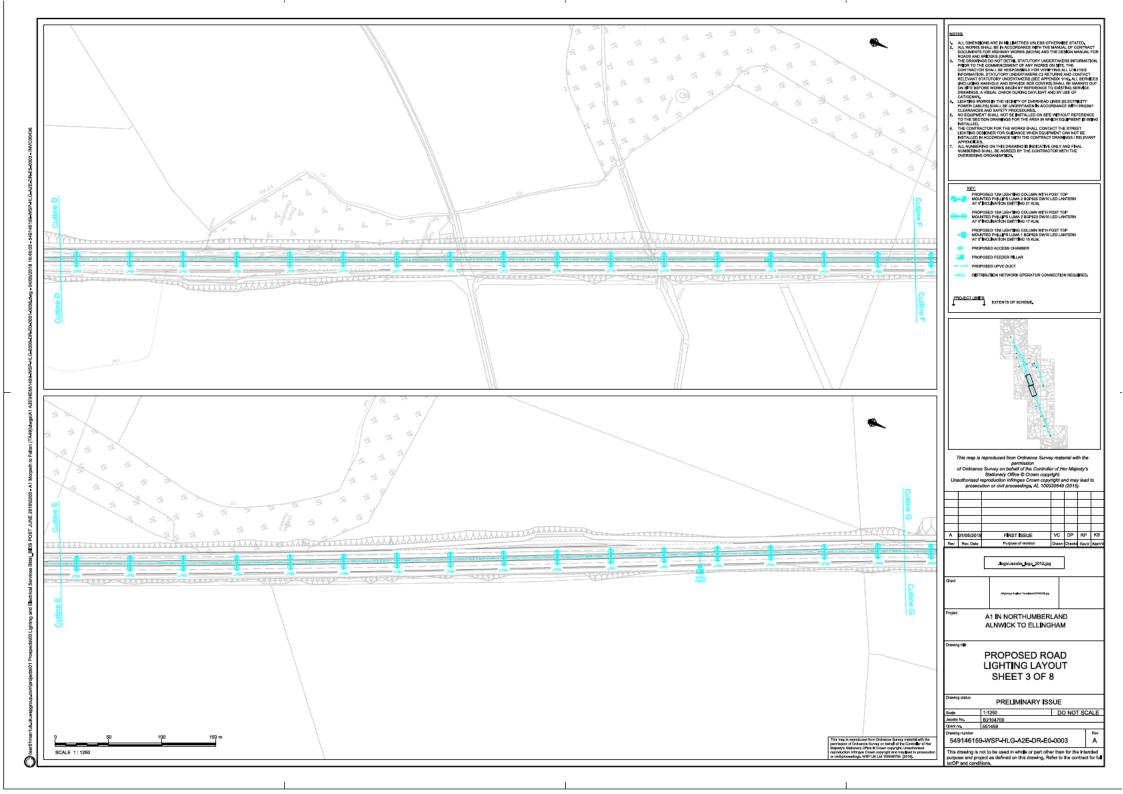
# Appendix D

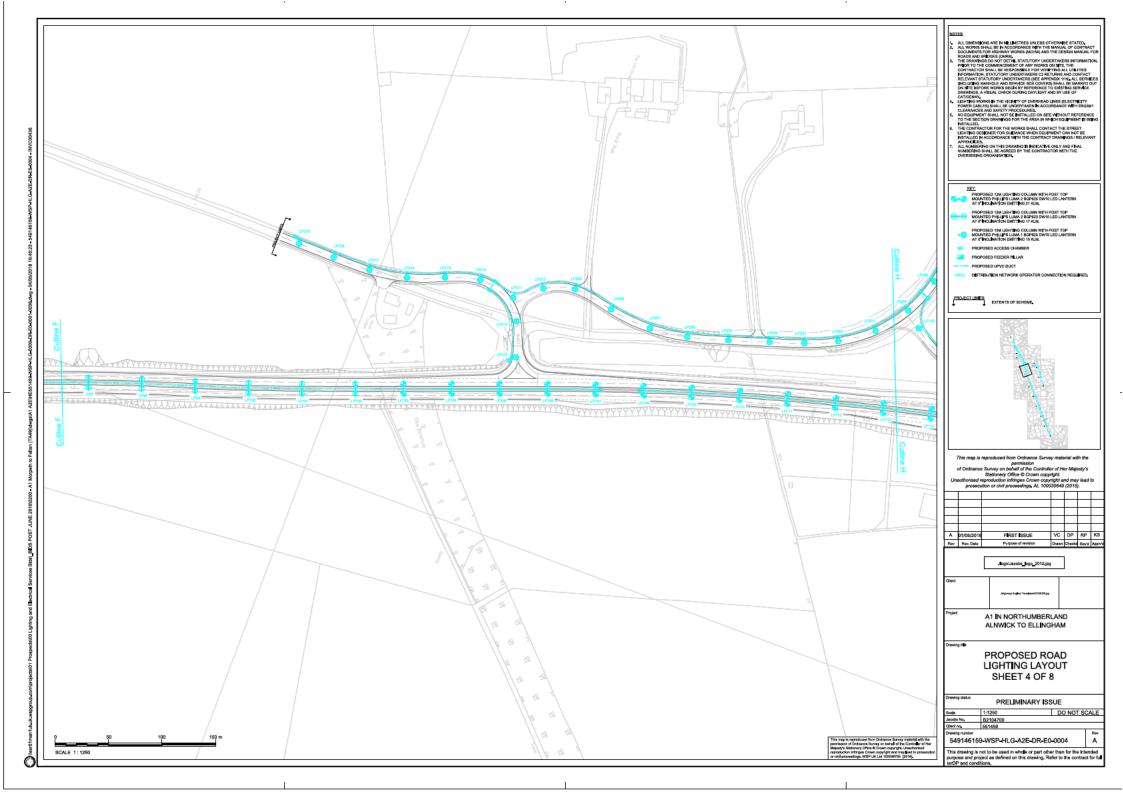
**SCHEME DRAWINGS** 

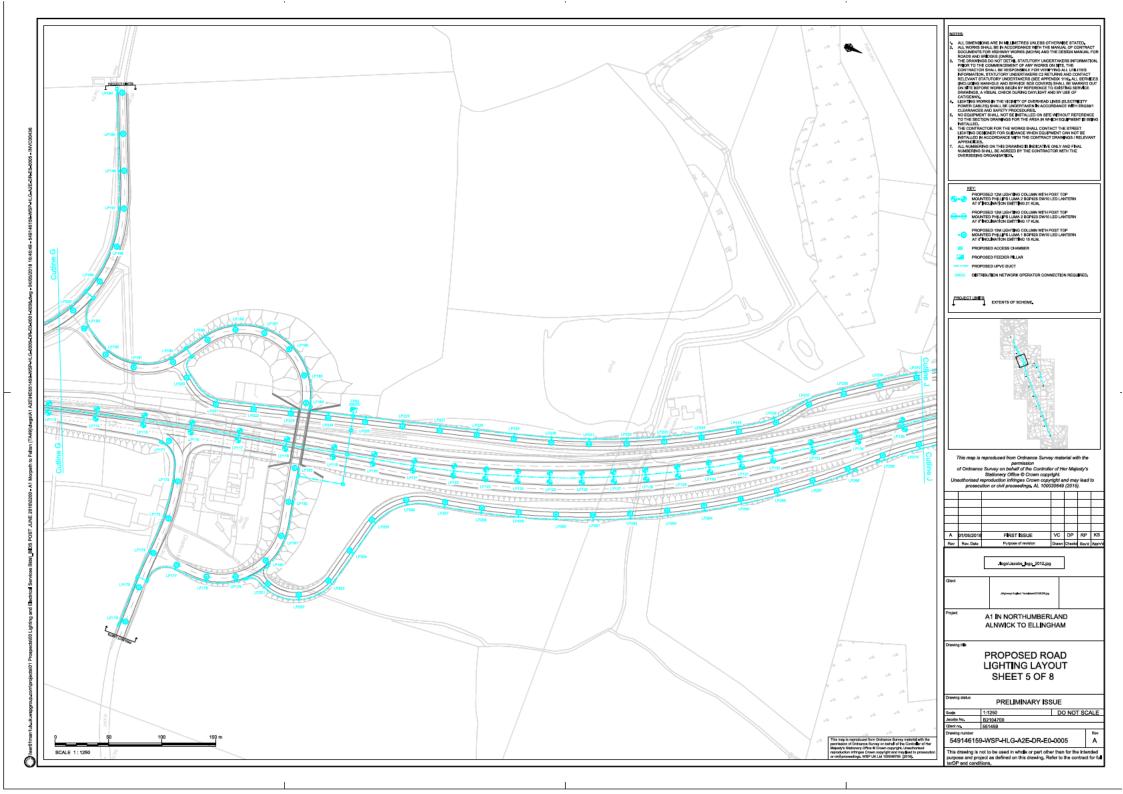


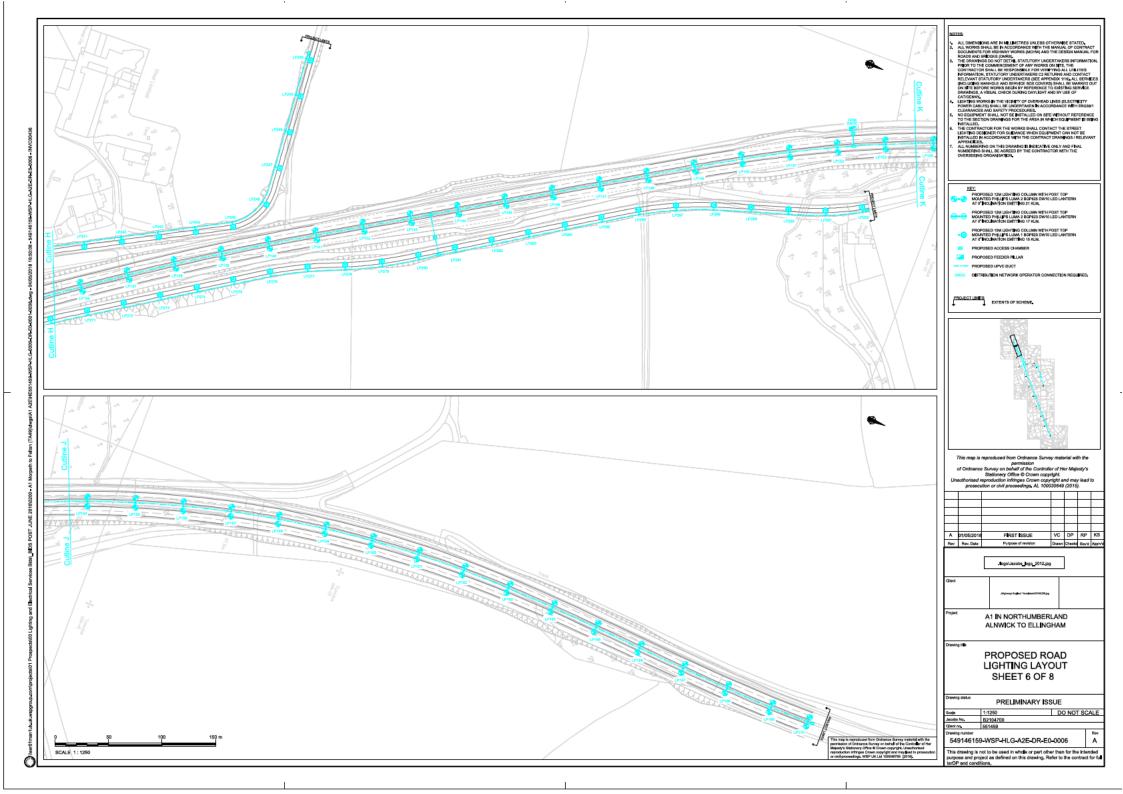


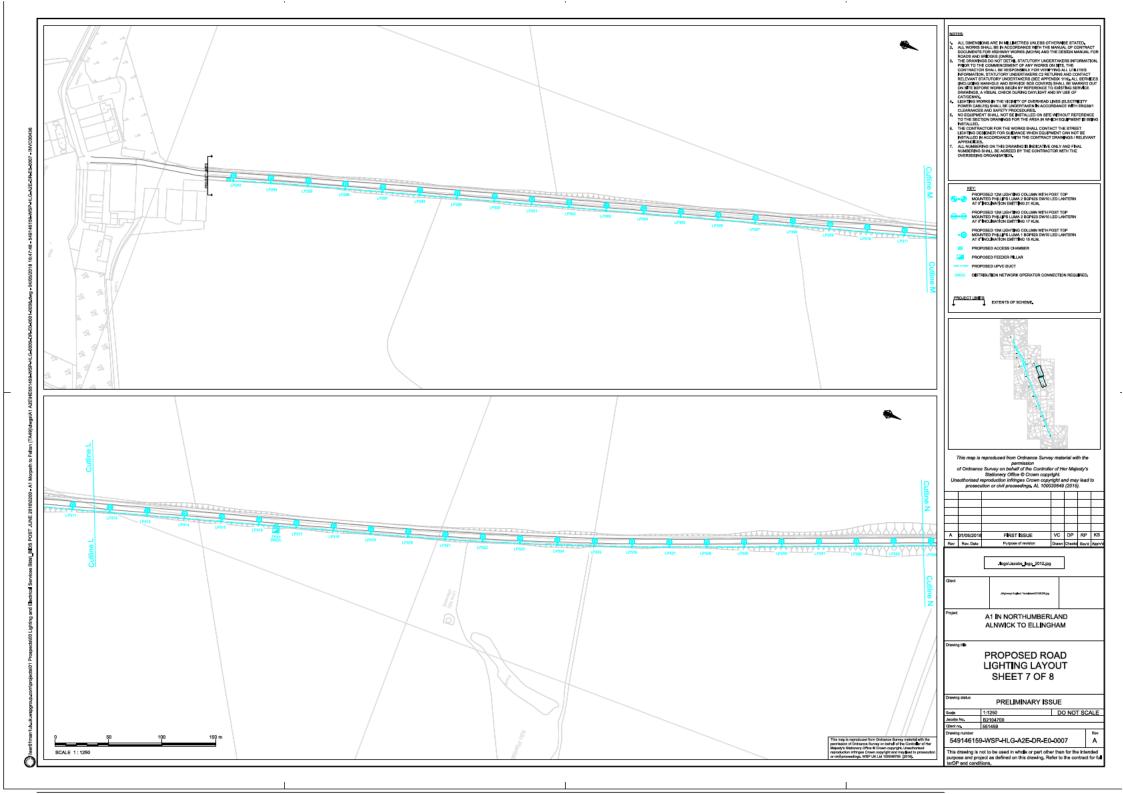


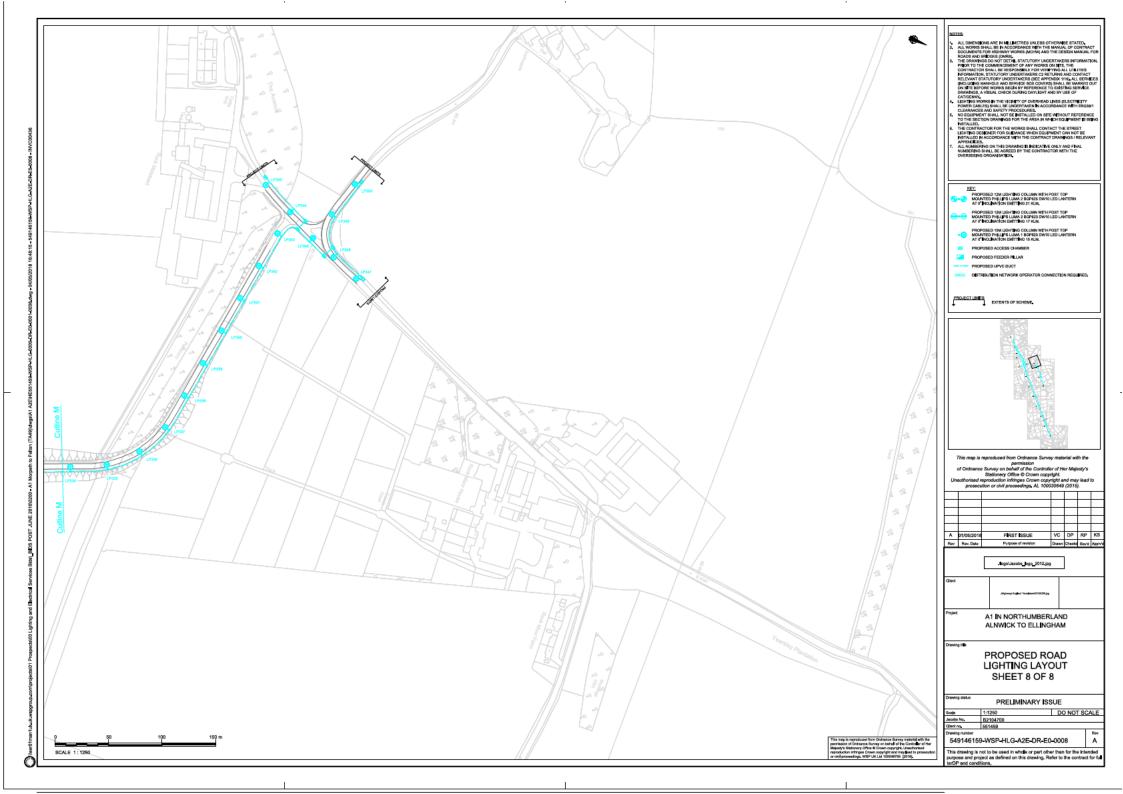












## Appendix E

**ROAD SAFETY ENGINEERS REPORT** 



## **A1 IN NORTHUMBERLAND**

ALNWICK TO ELLINGHAM

Road Safety Engineer's Briefing Report

MAY 2018

## A1 IN NORTHUMBERLAND ALNWICK TO ELLINGHAM

**Highways England** 

#### Road Safety Engineer's Report

Project no: 70044137-K34

Date: MAY 2018

WSP 62-64 Hills Road Cambridge CB2 1LA

www.wsp.com



## QUALITY MANAGEMENT

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## APPENDICES

#### APPENDIX A COLLISION DATA

APPENDIX A-1 COLLISION DATA

## 1 EXECUTIVE SUMMARY

WSP ITS Safety team have been approached to produce a Road Safety Engineer's Report in accordance with DMRB TA49/07 'Appraisal of new and replacement lighting on the strategic motorway and all-purpose trunk road network' in conjunction with the upgrading of the A1 between Alnwick and Ellingham.

The objective of the Road Safety Engineer's Report is to ascertain if street lighting is required on the A1 between Alnwick and Ellingham which is being upgraded from single to dual carriageway including the construction of new grade-separated junctions.

On this section of carriageway in the previous 5 years (2012 to 2016 inclusive) there have been 12 collisions in total consisting of 2 fatal, 5 serious and 5 slight collisions. This resulted in 26 casualties made up of 2 fatalities, 8 serious injury and 16 slight injury casualties.

Only one collision has occurred during the hours of darkness (with no street lighting) which was a fatal collision in 2014.

For the section of existing single carriageway within the scheme extents, the data analysis demonstrates that this section of the A1 is currently below the national averages for dark collisions, no street lighting present. However the severity of the collisions that have occurred, (58%) is above the national average killed and seriously injured (KSI) figure of 24%.

With the intention of the scheme to upgrade the A1 from single carriageway to dual carriageway with the majority of the new construction on the existing line of the carriageway, through rationalisation from IAN167/12, this may remove 33% (4 collisions) of the current single carriageway collisions.

TA49/07 assumes a collision saving of 10% on all purpose dual carriageway and motorway due to the addition of road lighting.

Looking at TA40/07 assuming this link is categorised as 'Darkness Personal Injury Collision (PIC) Saving on a New Link' the predicted PIC saving should be calculated by multiplying the number of opening year darkness PICs by the appropriate percentage A from Table 1, in this case 10%. Thus giving a 0.02 PIC saving per year.

In my opinion as a Road Safety Engineer qualified to HD19 Audit Team Leader, seeing as the route is to be upgraded to a new dual carriageway which will be of a higher standard than the existing single carriageway with many highway hazards such as at-grade junctions and associated queuing removed, and by looking at the evidence of the historic collisions, I do not believe that at this time street lighting is required and I conclude that on the mainline the numbers of dark collisions should not increase by more than the 10% as stated in TA49/07. However, the use of items listed below and regular maintenance of the route will also help in the reduction of collisions on the new route.

With regards to the new grade separated junction, these could be more complex. It is widely known that compact junctions have a collision record due to the tight nature of the radii, leading to loss of control collisions, with the most vulnerable vehicle type powered two wheelers. However, other vehicles are susceptible also to loss of control type incidents.

By upgrading the B6347 junction to grade separated junctions, from the historical collision data it can be seen that 2 collisions have been removed through rationalisation as they occurred at the B6347 junction by right-turning manoeuvres. Associated queueing collisions and those collisions occurred at farm accesses which are to be closed will also be saved.

Ideally the B6347 junction should be assessed on a junction by junction basis using the GD04 assessment or COBALT tool or the comparison of like for like junctions and STATS19 collision data to analyse against.

In the absence of the above measures, it cannot be categorically advised to not provide street lighting on the junctions, however, there are other methods in which to highlight the junctions to the motorists during the hours of darkness or inclement weather. These can include the use of:

- 'Intelligent' style road studs to pre-light the route
- Use of a white lining system that included the reflective beading
- Reflectors on the vehicle restraint system (VRS) or painting it black & white.

All the above measure are effective in reducing collisions during the hours of darkness in addition to their known benefits in daylight conditions.

The use of bike guard on the VRS will further improve safety for powered two wheelers.

## 2 PROJECT BACKGROUND

#### 2.1 BACKGROUND

WSP ITS Safety team have been approached to produce a Road Safety Engineer's Report in accordance with DMRB TA49/07 'Appraisal of new and replacement lighting on the strategic motorway and all-purpose trunk road network'.

#### 2.2 OBJECTIVES

The objective of the Road Safety Engineer's Report is to ascertain if street lighting is required on the A1 between Alnwick and Ellingham which is being upgraded from single to dual carriageway including the construction of new grade-separated junctions.

#### 2.3 SITE DESCRIPTION

Alnwick to Ellingham (A2E) is an 8.5km (5.3 miles) rural single carriageway section from the Alnwick bypass dual carriageway to the Brownieside dual carriageway just south of Ellingham. Alnwick is situated 27.8km (17.3 miles) north of Morpeth and 42.8km (26.6miles) south of Berwick. This section of the A1 is a rural single carriageway trunk road, subject to the national speed limit.

The cross section of the road is relatively consistent throughout this section; with hard strips and verges. The majority of the geometry over the length of Section B is to design standards; however, some elements fall short of current design standards.

• The Alnwick to Ellingham (A2E) Section of the A1 is positioned entirely on the existing A1 and has four at-grade major-minor road junctions, with many additional private and farm accesses. Two of the junctions are accommodated with full standard ghost island T-junctions with right turning provision. Major settlements served by this section of the A1 include South Charlton to the West and Christon Bank to the East, both via the B6347.

## PERSONAL INJURY COLLISION (PIC) ANALYSIS

#### 3.1 BACKGROUND INFORMATION

STATS19 data has been used in this report which has been sourced from the Highways England Area 14 collision database.

The database is held in a excel spreadsheet format and includes all the routes in Area 14 with data ranging from 1994 to 2016.

For the A2E project, data has been extracted from the collision database based on ordnance survey grid references for the scheme, which are as follows:

- Alnwick 419717;615250
- Ellingham 416992, 622671

Road Casualties Great Britain 2016 has been used as a comparison document.

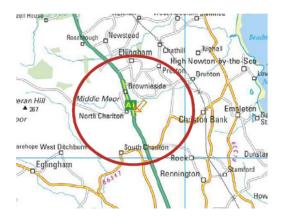
#### 3.2 GENERAL ANALYSIS

Personal Injury Collision data for the Alnwick to Ellington section of the A1 has been sourced from the Area 14 collision database spreadsheet, as described above.

The extents of the collision data extends from Alnwick to Ellingham.







Ellingham - End of scheme extents

The report used collision data between 01/01/2012 and 31/12/2016 which was considered to be acceptable for the purposes of this report as the full STATS19 data reports were available for detailed analysis. The data has been used to produce the analysis in the following pages.

During this time period there were 12 collisions in total consisting of 2 fatal, 5 serious and 5 slight collisions. This resulted in 26 casualties made up of 2 fatalities, 8 serious injury and 16 slight injury casualties.

Table 3-1 Number of collisions per calendar year

	2012	2013	2014	2015	2016	5 Year Total
Fatal	0	0	1	1	0	2
Serious	0	4	0	0	1	5
Slight	0	2	1	1	1	5
Total	0	6	2	2	2	12

Three of the six collisions that occurred in 2013 happened during the month of August. One attributed to illness, one to loss of control and the final one to a rear end shunt collision.

Table 3-2 Number of casualties per calendar year

2012	2013	2014	2015	2016	5 Year Total
0	0	1	1	0	2
0	5	0	1	2	8
0	6	4	2	4	16
0	11	5	4	6	26
	2012 0 0 0 0	0 0 0 5	0 0 1 0 5 0 0 6 4	0 0 1 1 0 5 0 1 0 6 4 2	0 0 1 1 0 0 5 0 1 2 0 6 4 2 4

Table 3-3 Total number of collisions per month

Date range	Total	average collisions per month
2012	0	0.00
2013	6	0.50
2014	2	0.17
2015	2	0.17
2016	2	0.17
Total	12	

From Table 3-4 it can been seen that this data set is significantly lower than the national average of 18% for Dark collisions where street lighting is not present.

From the collision data set, the statistics can be compared to Road Casualties Great Britain 2016 (RCGB16) to see how the route is performing against national targets.

Table 3-4 Comparison of complete data set to National Averages

	2012	2013	2014	2015	2016	5 Year Total	National Average
Collision Severity Ratio	0%	67%	50%	50%	50%	58%	24%
Collisions occurring	0	2	0	0	0	2	000/
on a wet road surface	0%	33%	0%	0%	0%	17%	32%
Total Collisions	0	0	1	0	0	1	070/
during the hours of darkness	0%	0%	50%	0%	0%	8%	27%
Dark Collisions: Street Lighting	0	0	0	0	0	0	7%
present	0%	0%	0%	0%	0%	0%	1 /0
Dark Collisions: No Street Lighting	0	0	1	0	0	1	18%
Present	0%	0%	50%	0%	0%	8%	10 /0

The high KSI rate can be linked to collisions were vehicles have crossed the carriageway or swerved into the opposite carriageway – these collision types will be remove with the proposed works. However care should be taken with small datasets which can lead to over inflated percentages.

One collision occurred in the hours of darkness with no street lighting present in the 5 year dataset.

## 4 ASSUMPTIONS MADE

#### 4.1 RATIONALISATION OF COLLISION STATISTICS

Within the Interim Advice Note 167/12 Revision 1 Guidance for the Removal of Road Lighting the standard states that "The PIC's (Personal Injury Collisions) must be rationalised to exclude anywhere driver gross negligence (DGN) was a significant contributory factor. These include:-

- Intoxicated drivers. (drink or drugs)
- Suicides and attempted suicides.
- Excessive speeding (more than 50% over the speed limit)"

However, given that the scheme that is the subject of this report is upgrading a single carriageway to a dual carriageway, the author has further excluded any collisions that will be impossible within the new scheme, these include:

- All collision that have occurred at a T or staggered junction joining the mainline
- All collisions on the single carriageway that have resulted in head on collisions
- All collisions on the single carriageway involving U turns
- All collision occurring at the merge from dual to single or single to dual

## 5

### RATIONALISED COLLISION DATA

#### 5.1 SINGLE CARRIAGEWAY COLLISIONS

By rationalising the collisions using the method described above, 4 collisions have been removed, 3 that occurred at T or staggered junctions and one due to excess speeding (STATS19 contributory factor 306) leaving 8 collisions to be analysed further.

Table 5-1 Number of collisions per calendar year after rationalisation

	2012	2013	2014	2015	2016	5 Year Total
Fatal	0	0	1	0	0	1
Serious	0	3	0	0	0	3
Slight	0	2	0	1	1	4
Total	0	5	1	1	1	8

Of these 8 collisions the following contributory factors can be assigned.

- Loss of control 5 collisions (one involved illness) 62.5%
- Rear end shunts 2 collisions 25%
- Fatigue 1 collision 12.5%

Table 5-2 Number of collisions per lighting conditions

Date range	Daylight	Dark No lights	Total
2012	0		0
2013	5		5
2014		1	1
2015	1		1
2016	1		1
Total	7	1	8

The collision which occurred during the hours of darkness can be attributed to loss of control on 11 December 2014 at 0701 in fine weather conditions, no road surface details are available, however the STATS19 recorded slippery road due to weather.

When comparing these to RCGB15 which has an average of 18% for Dark no lighting collisions, it can be seen that the scheme extents are lower than average at 12.5%

#### 5.2 COLLISIONS OCCURRING AT JUNCTIONS

#### **EXISTING SINGLE CARRIAGEWAY**

Looking at the at-grade junctions on the A1 that are currently present, it appears that many are farm tracks that lead off the A1, with only one junction at the B6347 which is currently a T-Junction with right turning bays on the A1. Three collisions have occurred at junctions on the A1, one at the farm access for Heckley Fence, Alnwick and two at the B6347 Junction.

It appears that all farm accesses are to be closed and the B6347 changing to a grade separated iunction.

#### **B6347 JUNCTION**

Two collisions have occurred at this location in the 5 year period of this study, both of the collisions occurred during daylight hours in fine weather conditions. Following the rationalisation both collisions have been removed.

## 6

### PREDICTED PIC SAVINGS

Design Manual for Roads and Bridges TA49/07 gives a formula for predicting collision savings. The standard talks about the proportion of darkness collisions on all types of strategic roads is on average 28% of the total collisions occurring during the hours of daylight and darkness, however, this figure was sought from Road Casualties Great Britain 2004. Looking at Road Casualties Great Britain 2016, this figure has decreased to 27%.

Within TA49/07 section 4, table 1 gives a generalised indication of the darkness PIC savings due to road lighting on links, suitable for appraisal.

For an all-purpose dual carriageway a figure of 10% is noted.

The new route is being constructed on the existing alignment but dual carriageway is replacing the single carriageway. All of the scheme extent is currently unlit.

The standard makes reference to darkness savings on a new link which refers to Volume 13, COBA which has since been withdrawn. The standard also makes reference to darkness savings on an existing unlit link. Both refer to the calculation of the number of opening year darkness collisions multiplied by the 10% figure which will give the predicted collision saving.

	Total
Total Number of Rationalised collisions (5 Years)	8
Total During Darkness	1
Collisions in darkness per annum (actual)	0.2
Predicted PIC saving = no. of opening year darkness collisions x 10%	0.02

## 7

#### CONCLUSION

TA49/07 assumes a collision saving of 10% on all purpose dual carriageway and motorway due to the addition of road lighting.

Looking at TA40/07 assuming this link is categorised as 'Darkness PIC Saving on a New Link' the predicted PIC saving should be calculated by multiplying the number of opening year darkness PICs by the appropriate percentage A from Table 1, in this case 10%. Thus giving a 0.02 PIC saving per year.

In my opinion as a Road Safety Engineer qualified to HD19 Audit Team Leader, seeing as the route is to be upgraded to a new dual carriageway which will be of a higher standard than the existing single carriageway with many highway hazards such as at-grade junctions and associated queuing removed, and by looking at the evidence of the historic collisions, I do not believe that at this time street lighting is required and I conclude that on the mainline the numbers of dark collisions should not increase by more than the 10% as stated in TA49/07. However, the use of items listed below and regular maintenance of the route will also help in the reduction of collisions on the new route.

With regards to the new grade separated junction, these could be more complex. It is widely known that compact junctions have a collision record due to the tight nature of the radii, leading to loss of control collisions, with the most vulnerable vehicle type powered two wheelers. However, other vehicles are susceptible also to loss of control type incidents.

By upgrading the B6347 junction to grade separated junctions, from the historical collision data it can be seen that 2 collisions have been removed through rationalisation as they occurred at the B6347 junction by right-turning manoeuvres. Associated queueing collisions and those collisions occurred at farm accesses which are to be closed will also be saved.

Ideally the B6347 junction should be assessed on a junction by junction basis using the GD04 assessment or COBALT tool or the comparison of like for like junctions and STATS19 collision data to analyse against.

In the absence of the above measures, it cannot be categorically advised to not provide street lighting on the junctions, however, there are other methods in which to highlight the junctions to the motorists during the hours of darkness or inclement weather. These can include the use of:

- 'intelligent' style road studs to pre-light the route
- Use of a white lining system that included the reflective beading
- Reflectors on the vehicle restraint system (VRS) or painting it black & white.

All the above measure are effective in reducing collisions during the hours of darkness in addition to their known benefits in daylight conditions.

The use of bike guard on the VRS will further improve safety for powered two wheelers.

# Appendix A

**COLLISION DATA** 

### **APPENDIX A-1**

### **COLLISION DATA**

Reference	Constitut	No. of	No. of	Date	Time	Road	Junction	Lighting	Weather	Grid Ref:	Grid Ref:	Lacation	Description	Co	ont. Factor	
Number	Severity	Vehicles	Casualties	Date	(24hr)	Surface	Detail	Conditions	Conditions	Easting	Northing	Location	Description	1	2	3
0122013	2	2	4	07/03/2013	1718	1	3	1	1	418948	617294	A1 J/W Heckley Fence Alnwick	V1 Trav. N/W on A1 Drifts into Southbound Lane, Colliding with V2 Trav. S/E on A1, Front of V1 Colliding with O/S of V2, Vehicles Leave Carriageway to N/S	Driver using mobile phone	Swerve d	
0424913	2	1	1	11/08/2013	1433	1	0	1	1	418984	617148	A1 App. 2 Miles North of Denwick	V1 Trav. N/W on A1, for Reasons to Be Established V1 left Road to N/S, Colliding with Road Sign	llness		
0432713	2	2	2	19/08/2013	1520	1	0	1	1	417890	620057	A1 0.567M South of South Charlton	Vehs Trav. S on A1, for Reasons Yet to Be Established V1 Has Collided with V2, V2 Crosses into Northbound Carriageway, Leaving Carriageway to O/S down Embankment	Failed to look properly	loss of control	

Reference	Severity	No. of	No. of	Date	Time	Road	Junction	Lighting	Weather	Grid Ref:	Grid Ref:	Location	Description	Co	nt. Factor	
Number	Seventy	Vehicles	Casualties	Date	(24hr)	Surface	Detail	Conditions	Conditions	Easting	Northing	Location	Description	1	2	3
0462613	3	3	1	21/08/2013	0920	1	0	1	1	417025	622019	A1 App. 1 Mile N J/W B5347, Charlton Mires	Vehs Trav. S/E on A1, V3 Stops Due to Stationary Traffic Ahead, V2 Stops Behind V3, V1 Fails to Stop Colliding with Rear of V2, Pushing V2 Forward into Rear of V3	Failed to look properly		
0580213	3	1	1	25/10/2013	1449	2	0	1	1	419566	615632	A1 1 Mile N J/W B1340 Offslip, Denwick	V1 Trav. N/W on A1, F/N/S of V1 to Close to Edge of Carriageway, V1 Drops into Gravel Causing Driver to Lose Control, V1 Spins into O/S Carriageway, Leaves to O/S, Colliding with Sign and Barrier, then Rebounds onto Carriageway	Failed to look properly	slippery road	
0700813	2	2	2	16/12/2013	1101	2	0	1	1	417389	621375	A1 App. 0 5 Miles N of J/W B6347, Charlton Mires	Vehs Trav. S/E on A1, V1 Trav. Behind V2, V2 Braked Due to Vehicle Ahead, V1 Failed to Stop, Colliding with Rear of V2	Careless , reckless or in a hurry	sudden braking	sudd en braki ng

Reference		No. of	No. of		Time	Road	Junction	Lighting	Weather	Grid	Grid Ref:		B	Co	ont. Factor	
Number	Severity	Vehicles	Casualties	Date	(24hr)	Surface	Detail	Conditions	Conditions	Ref: Easting	Northing	Location	Description	1	2	3
0305814	3	3	2	30/05/2014	1114		3	1	1	417711	620601	A1 J/W B6347 CHARLTON MIRES	V2 TRAV. S/E ON A1 APP. J/W B6347, V1 TRAV. N/E ON A1 TURNS RIGHT TOWARDS B6347 INTO PATH OF V2, FRONT OF V1 COLLIDES WITH F/O/S OF V2 V2 LEAVES CARRIAGEWAY TO N/S, COLLIDES WITH ROAD SIGN, THEN COLLIDES WITH F/O/S OF V3, V3 STATIONARY ON B6347 WAITING TO ENTER A1	Poor turn or manoeu vre	failed to look properl y	

Reference	Severity	No. of	No. of	Date	Time	Road	Junction	Lighting	Weather	Grid Ref:	Grid Ref:	Looption	Description	Co	ont. Factor	
Number	Severity	Vehicles	Casualties	Date	(24hr)	Surface	Detail	Conditions	Conditions	Easting	Northing	Location	Description	1	2	3
0746214	1	3	3	11/12/2014	0701		0	6	1	419578	615615	A1 APP. 1/2 MILE N OF DENWICK OFFSLIP, ALNWICK	V1 TRAV. N/W ON A1, V2&3 TRAV. S/E ON A1, FOR REASONS NOT YET KNOWN V1 VEERS INTO SOUTHBOUND LANE, COLLIDING WITH FRONT OF V2, V2 LEAVES CARRIAGEWAY TO N/S, COMING TO A STOP ON N/S VERGE, V1 THEN COLLIDES HEAD ON WITH V3	sudden braking	loss of control	slipp ery road
0085915	1	3	2	06/02/2015	0825		0	1	1	418422	618705	A1 75M NORTH JW ROCK SOUTH FARM COTTAGES, SOUTH CHARLTON	V1&3 TRAV. S/E ON A1, V2 TRAV. N/W ON A1, V1 TRAVELLING AT EXCESS SPEED, OVERTAKES V3, V1 COLLIDES WITH V2, V2 LEAVES CARRIAGEWAY TO N/S AND OVERTURNS	Exceedi ng speed limit	careles s reckles s or in a hurry	failed to judge other perso n spee d or path

Reference		No. of	No. of		Time	Road	Junction	Lighting	Weather	Grid	Grid Ref:			Co	nt. Factor	
Number	Severity	Vehicles	Casualties	Date	(24hr)	Surface	Detail	Conditions	Conditions	Ref: Easting	Northing	Location	Description	1	2	3
0270015	3	1	2	27/04/2015	1509		0	1	1	417630	620913	A1 APP. 300M N OF J/W B6347, CHARLTON MIRES	V1 TRAV. N/W ON A1 NEGOTIATING LEFT HAND BEND, DRIVER DISTRACTED, V1 CONTINUES STRAIGHT AHEAD, LEAVING CARRIAGEWAY TO O/S	distractio n in vehicle		
P127716	3	2	2	19/02/2016	1640		0	1	1	419480	615885	A1 1 MILE NW OF DENWICK	V1 TRAV. N/W ON A1, V2 TRAV. S/E ON A1, DRIVER OF V1 SUFFERS A MICRO SLEEP CAUSING V1 TO ENTER OPPOSITE CARRIAGEWAY, COLLIDING WITH O/S OF V2	fatigue		

Reference	0	No. of	No. of		Time	Road	Junction	Lighting	Weather	Grid	Grid Ref:		B	Co	nt. Factor	
Number	Severity	Vehicles	Casualties	Date	(24hr)	Surface	Detail	Conditions	Conditions	Ref: Easting	Northing	Location	Description	1	2	3
0050825	2	2	4	12/03/2016	1251		3	1	1	417721	620553	A1 B6347	Vehicle 2 driven north on A1. Vehicle 1 driven south on A1. Driver vehicle 1 makes right turn from A1 onto B6347 South Charlton junction across he path of vehicle 2 giving driver no chance to avoid collision. Front near side of vehicle 2 collides with near side of vehicles extensively damaged. Driver vehicle 1 sustains serious internal injuries.	Failed to look properly		



The Victoria 150-182 The Quays Salford M50 3SP

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