



A30 Chiverton to Carland Cross

Appraisal Specification Report

HA551502-ARP-GEN-SW-RP-LE-000006

P06 | S4

15/08/18

Notice

This document and its contents have been prepared and are intended solely for Highways England's information and use in relation to the A30 Chiverton to Carland Cross Scheme. Arup assumes no responsibility to any other party in respect of, arising out of or in connection with this document and/or its contents.

Document Control

Document Title	Appraisal Specification Report		
Document Reference	HA551502-ARP-GEN-SW-RP-LE-000006		
PCF Stage	3	PCF Product	Y
Document Status	S4 SUITABLE FOR STAGE APPROVAL		

Prepared for:

Highways England

Prepared by:

Arup

Revision History

Revision	Date	Author	Notes
P06	15/08/18	JE	FINAL ISSUE
P05	15/08/18	JE	FINAL ISSUE
P04	09/08/18	CR	FOR SIGN OFF
P03	09/08/18	CR	FOR SIGN OFF
P02	01/08/18	CR	FOR COMMENT

Arup Approvals

Revision	Role	Name	Date
P06	Author	James Eastham	15/08/18
	Checker	James Eastham	15/08/18
	Approver	Tom Metcalfe	15/08/18
	Authoriser	Rhys Davies	15/08/18

Highways England Reviewers (Refer to Cover Sheet)

Revision	Title	Name	Date
---	---	--	---
	---	--	---
	---	--	---

Highways England Approval (Refer to Cover Sheet)

Revision	Title	Name	Date
--	--	--	---

Table of Contents

	Pages
Executive Summary	1
1 Introduction	2
1.1 Purpose of the Appraisal Specification Report	2
1.2 Current Stage of Project	2
1.3 Overall Project Programme	2
1.4 Scheme Objectives	3
1.5 Stakeholders	3
1.6 Project Definition	3
2 Transport Modelling	4
2.1 Existing Knowledge and Data	4
2.2 Topic-Related Constraints	7
2.3 Scale of Impact	7
2.4 Traffic Data Requirements and Survey Approach	8
2.5 Proposed Methodology	8
2.6 Summary of the Relevant Areas of the Communication Strategy	13
2.7 Work Programme	13
2.8 Risks	13
2.9 Change Log	14
2.10 References	14
3 Economy	15
3.1 Existing Knowledge and Data	15
3.2 Topic-Related Constraints	15
3.3 Scale of Impact	15
3.4 Traffic Data Requirements and Survey Approach	15
3.5 Proposed Methodology	15
3.6 Summary of the Relevant Areas of the Communication Strategy	16
3.7 Work Programme	17
3.8 Risks	17
3.9 Change Log	17
3.10 References	17
4 Operational Assessment	18
4.1 Existing Knowledge and Data	18
4.2 Topic-Related Constraints	18
4.3 Scale of Impact	18
4.4 Traffic Data Requirements and Survey Approach	18
4.5 Proposed Methodology	18

4.6	Summary of the Relevant Areas of the Communication Strategy	19
4.7	Work Programme	19
4.8	Risks	19
4.9	Change Log	19
4.10	References	19
5	Environment	20
5.1	Existing Knowledge and Data	20
5.2	Topic-Related Constraints	20
5.3	Scale of Impact	20
5.4	Traffic Data Requirements and Survey Approach	20
5.5	Proposed Methodology	21
5.6	Summary of the Relevant Areas of the Communication Strategy	24
5.7	Work Programme	25
5.8	Risks	25
5.9	Change Log	25
5.10	References	25
6	Social	27
6.1	Existing Knowledge and Data	27
6.2	Topic-Related Constraints	27
6.3	Scale of Impact	27
6.4	Traffic Data Requirements and Survey Approach	27
6.5	Proposed Methodology	27
6.6	Summary of the Relevant Areas of the Communication Strategy	29
6.7	Work Programme	29
6.8	Risks	29
6.9	Change Log	30
6.10	References	30
Appendix A	Appraisal Specification Summary Table	i
Appendix B	Environmental Risk Assessment	vii
Appendix C	Environmental Constraints Plan	xxx

Table of Figures

Figure 2-1	Average Daily Traffic Flows and Growth 2013	5
Figure 2-2	Summer Daily Traffic Flows and Growth 2013	6
Figure 2-3	Proposed Network	9

Table of Tables

Table 1-1	Key Project Timescales	2
Table 2-1	Transport Modelling Change Log	14

Table 3-1	Economic Assessment Change Log	17
Table 0-1	Appraisal Specification Summary Table	i
Table 0-2	Part 1: Scheme & Surrounding Area	vii
Table 0-3	Part 2. Environmental/Policy Baseline Summary	viii
Table 0-4	Environmental Assessment	xv
Table 0-5	Summary	xxiii
Table 0-6	General	xxv
Table 0-7	Part 1 – Scheme & Surrounding Area	xxv
Table 0-8	Part 2 – Environmental/Policy Baseline	xxvi
Table 0-9	Part 3 – Preliminary Risk Assessment	xxviii
Table 0-10	Part 4 - Summary	xxviii

Executive Summary

The section of the A30 in Cornwall between Chiverton Cross and Carland Cross, north of Truro experiences congestion and delays throughout the year, with poor journey time reliability. The route is in need of improvement to meet Highways England's objectives of maintaining the smooth flow of traffic, making the network safer and supporting economic growth.

The scope of the scheme is to upgrade 12.5km of single carriageway to dual carriageway on the A30 between Chiverton Cross Roundabout and Carland Cross roundabout.

The specific Transport Objectives are:

- to contribute to regeneration and sustainable economic growth
 - to support employment & residential development opportunities
- to improve the safety, operation & efficiency of the transport network
- improve network reliability and reduce journey times
 - to deliver capacity enhancements to the SRN
- supporting the use of sustainable modes of transport
- delivering better environmental outcomes, and;
- to improve local and strategic connectivity

This report sets out the proposed methodologies for the scheme appraisal work for Stage 3 of the project. The methodology includes all elements of scheme appraisal required for the production of Appraisal Summary Tables and the update of the Value for Money statements. The methodologies detailed in this report are consistent with WebTAG and guidance detailed in IAN 176/13.

1 Introduction

1.1 Purpose of the Appraisal Specification Report

- 1.1.1 This Appraisal Specification Report is a PCF Product and sets out the proposed methodology for the appraisal of the economic, environmental and social impacts of scheme.
- 1.1.2 This report sets out the proposed methodologies for the scheme appraisal work for Stage 3 of the project. The methodology includes all elements of scheme appraisal required for the production of Appraisal Summary Tables and the update of the Value for Money statements. The methodologies detailed in this report are consistent with WebTAG and guidance detailed in IAN 176/131.

1.2 Current Stage of Project

- 1.2.1 The current stage of the project is PCF Stage 2. A Stage 2 Appraisal Specification Report was produced in July 2016. This described the methodologies to be used for the appraisal of scheme options through Stages 1 and 2, leading to a preferred route announcement, which is anticipated to be in June 2017.
- 1.2.2 Traffic modelling for Stage 3 will commence in November, due to be complete by April 2017.

1.3 Overall Project Programme

- 1.3.1 The Road Investment Strategy for the 2015/16 to the 2019/20 road period states that the A30 Chiverton to Carland Cross scheme will enter construction in this investment period. The latest date for construction start is therefore March 2020.
- 1.3.2 The RIS announced the scheme as 'committed subject to other funding contributions'. The expectation is that Highways England will, with assistance from Cornwall Council, apply for European Regional Development Funding. An application for £8m for the development phase has been approved. A further application for £12m for the construction phase is being progressed but is uncertain. The ERDF has conditions which also need to be met to secure and retain this funding. To meet a construction start of March 2020, the Development Consent Order needs to be submitted in the summer of 2018.
- 1.3.3 The Stage 3 traffic modelling work is required to be completed by April 2017 to provide information for the environmental assessment, prior to the submission of the draft Development Consent Order (DCO) application in August 2018.

Table 1-1 Key Project Timescales

Stage		Deadline
3	Traffic data required for environmental assessment	April 2017
	Draft of Development Consent Order (DCO) application	August 2018

1.4 Scheme Objectives

- 1.4.1 The scope of the scheme is to upgrade 12.5 km of existing single carriageway to expressway-compatible dual carriageway on the A30 between Chiverton Cross roundabout and Carland Cross roundabout. The existing Chiverton Cross and Carland Cross at-grade roundabouts, together with a key intermediate junction at Chybucca, are to be replaced with grade-separated junctions to provide connections to the local highway network.
- 1.4.2 A workshop was held in July 2015 to define the objectives for the scheme. The key objectives were subsequently confirmed by Highways England's South-west Regional Board and listed in the Client Scheme Requirements as:
- Contribute to regeneration and sustainable economic growth
 - Support employment and residential development opportunities
 - Improve the safety, operation and efficiency of the transport network
 - Improve network reliability and reduce journey times
 - Deliver capacity enhancements to the strategic roads network
 - Support the use of sustainable modes of transport
 - Improve local and strategic connectivity

1.5 Stakeholders

- 1.5.1 This ASR has been produced following consultation with Highways England's Transport Planning Group (TPG) and environmental teams.
- 1.5.2 Highways England is working closely with Cornwall Council through the project to ensure that the identified solutions meet the needs and objectives of both parties.
- 1.5.3 The Communication Planning for Major Projects report sets out Highways England's expectations and proposals for the communications and stakeholder engagement.

1.6 Project Definition

- 1.6.1 The project definition is in the Client Scheme Requirements (Stage 3 CSR link to be confirmed).

2 Transport Modelling

2.1 Existing Knowledge and Data

Existing Problems

- 2.1.1 The Stage 1 Technical Appraisal Report (June 2016) sets out the existing conditions on this section of the network and the extent of the current transport problems; the main issues identified in the report are summarised below.

Traffic Flows

- 2.1.2 Traffic flows on the A30 single carriageway section between Chiverton and Carland Cross approach the capacity of the link at peak times, and congestion and queues occur throughout the year at the key junctions on the route. Traffic conditions are exacerbated during summer periods, when traffic flows increase on the A30 route. Section 3.3 of the Stage 1 Technical Appraisal Report provides further details on this.

Journey Times

- 2.1.3 Journey times are unreliable throughout the year and significantly more variable on the single carriageway section in comparison with the dual carriageway section of the route to the east of Carland Cross and to the west of Chiverton Cross. The analysis clearly demonstrates the poor level of performance of the single carriageway section and that the dual carriageway sections have a significantly better level of performance, with journey times generally consistent throughout the year. Section 3.4.2 of the Stage 1 Technical Appraisal Report provides further details on this.

Network Stress

- 2.1.4 Network Stress provides a measure of network performance; according to WebTAG Unit A1.3, network stress is defined as “the ratio of counted or measured annual average daily flow to the congestion reference flow”, while the Congestion Reference Flow (CRF) of a link is defined as the AADT at which the carriageway is likely to be congested in the peak periods on an average day.
- 2.1.5 Network Stress was analysed at four sites on the A30 in the vicinity of the scheme; their stress levels are presented in Table 2-1.

Table 2-1 A30 Stress Levels

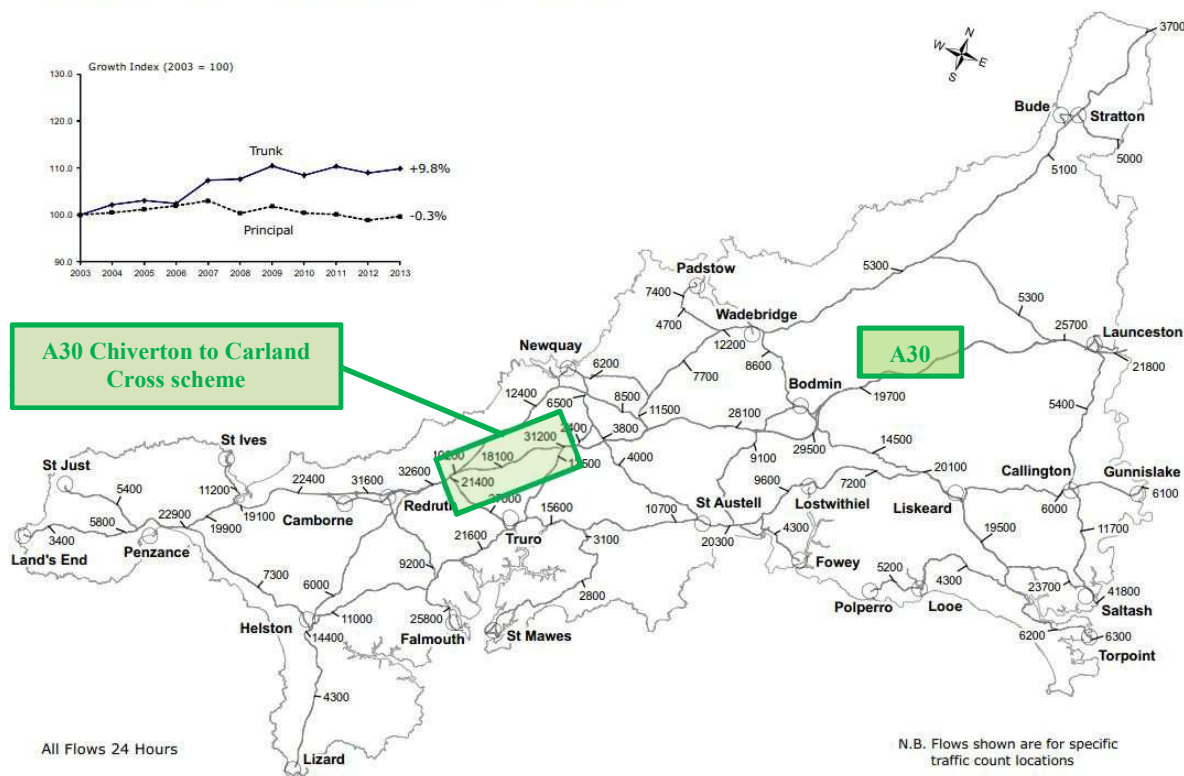
Site	Stress
WB, East of Carland Cross	50.3%
EB, East of Carland Cross	50.3%
WB, Zelah Hill	101.4%
EB, Zelah Hill	101.4%
WB, East of Chybucca	95.2%
EB, East of Chybucca	95.2%
WB, West of Chiverton	47.1%
EB, West of Chiverton	47.1%

Source: Annual Report for 2014 – Highways England Traffic Information Database

- 2.1.6 It is evident that the corridor is congested during peak periods on an average day, especially at the Zelah Hill junction, where stress is above 100%. East of Carland Cross and west of Chiverton Cross, stress drops to around 50%, demonstrating that the dual carriageway sections of the A30 offer significant improved network performance.

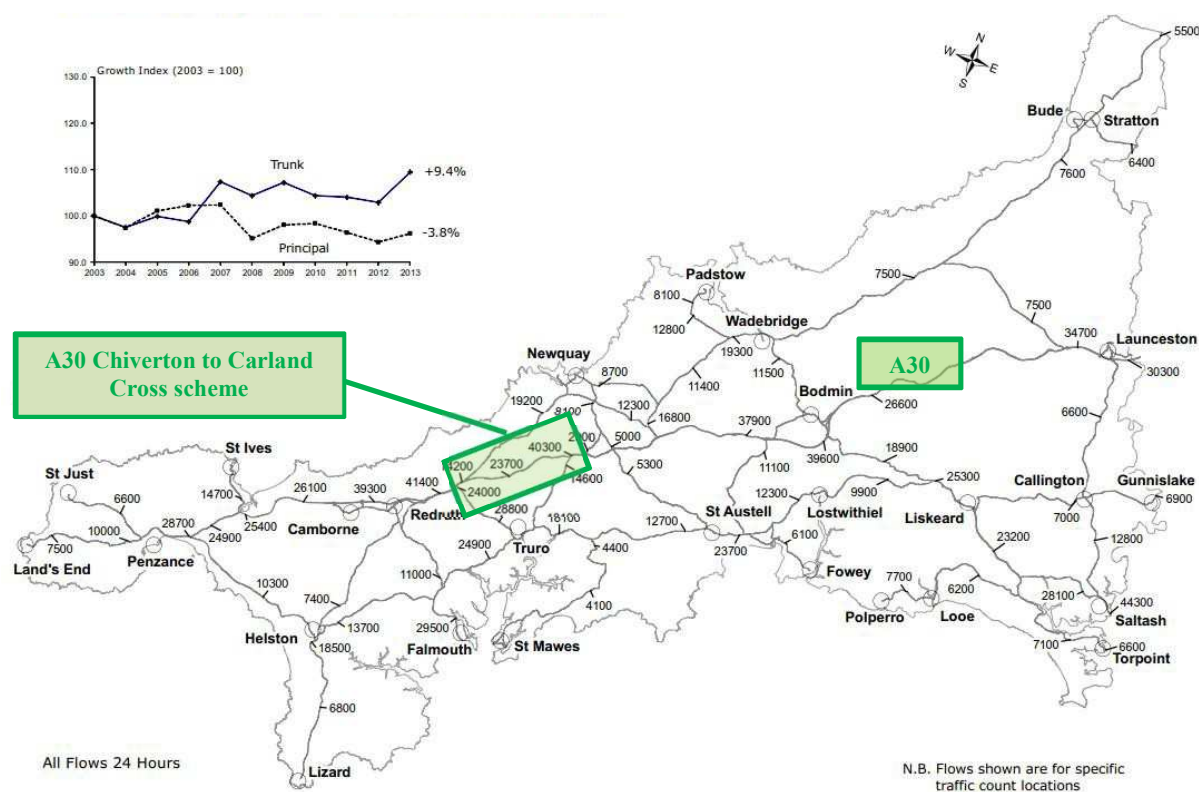
Seasonality

- 2.1.7 Analysis of traffic flows across the year demonstrates the impacts of increased traffic during the summer period in Cornwall on the operation of the A30. Figure 2-1 and Figure 2-2, taken from the Traffic Statistics 2013 – Cornwall Council, show that, in 2013, the A30 section between Chiverton and Carland Cross had an Average Annual Daily Traffic (AADT) volume of 18,100 which rises to 23,700 in the summer. The AADT on the A30 to the east of Carland Cross increases from an average of 31,200 to 40,300 in the summer, a 29% increase in daily traffic in the summer compared to the annual average.
- 2.1.8 The traffic modelling is based on neutral month traffic data. Further information on model time periods is provided in Section 2.5.



Source: Traffic Statistics 2013 – Cornwall Council

Figure 2-1 Average Daily Traffic Flows and Growth 2013



Source: Traffic Statistics 2013 – Cornwall Council

Figure 2-2 Summer Daily Traffic Flows and Growth 2013

Future Conditions

- 2.1.9 The emerging Cornwall Local Plan sets out demand for housing until 2030 and the locations for future development across Cornwall. The Plan seeks to increase housing in Cornwall by 52,500 dwellings and employment by 50,000 jobs. This level of development growth across Cornwall will exacerbate existing poor conditions on the A30, which is a key strategic route for travel across the County, as well as to the rest of the South West and UK. The scheme is located in the centre of the key growth areas of Truro, Newquay, St Austell and Camborne, Pool and Redruth (CPR). Congestion and queues would become more severe, and would be likely to extend to other periods across the day and year. This increased congestion and unreliability would reduce connectivity and the sense of peripherality experienced in Cornwall and would further constrain inward investment.

Traffic Models

- 2.1.10 A traffic model was developed during PCF Stage 1 for use in PCF Stages 1 and 2. This traffic model has been developed to comply with guidance in Highways England's traffic appraisal modelling and economics (Traffic Appraisal, Modelling and Economics team, now renamed TPG) team's Advice Note 1 – RIS Stage 1 Modelling Requirements, issued 9 June 2015. This advice note permits some relaxations to the Department for Transport's transport analysis guidance (WebTAG) in light of the tight programme for PCF Stage 1 and Stage 2.

- 2.1.11 Highways England's Regional Model of the South West was developed between 2015 and 2017 and so was not available during the initial stages of the A30 Chiverton to Carland Cross PCF process.

Traffic Data

- 2.1.12 The Traffic Data Collection Report (HA551502-WSP-GEN-0000-RE-TR-00002-P02) fully details the traffic data that has been used to inform the appraisal of the scheme at PCF Stages 1 and 2.
- 2.1.13 A series of roadside interview surveys and postcard surveys on the A30 and on other key roads in the vicinity of the scheme area were undertaken in October 2015. Each of these surveys was also supported by an automatic traffic count (ATC) for the two weeks before and on the day of the survey.
- 2.1.14 The following existing surveys and national databases were used in the calibration and validation of the PCF Stage 2 A30 Chiverton to Carland Cross SATURN model, which has been used to appraise the scheme:
- Highways England traffic flow data system (Trads) – ATC count data for the A30 and A38
 - Highways England journey time database (JTDB) – Journey time data for the A30
 - Manual classified count (MCC) data from local Cornwall Council sources
 - ATC data from Cornwall Council sources
 - Journey time data from Cornwall Council sources
 - Origin and destination data in the form of roadside interviews conducted in November 2011 in support of the A30 Temple to Higher Carblake scheme
 - Accident data
 - Queue length data
 - Ordnance Survey mapping
- 2.1.15 In addition, the Highways England South West Regional Transport Model (SWRTM) matrices were made available in November 2016. These have been built using demand data derived from mobile phone usage.

2.2 Topic-Related Constraints

- 2.2.1 Constraints are likely to comprise:
- Changes in guidance in WebTAG or from TPG (for example in IANs or other advice notes).

2.3 Scale of Impact

- 2.3.1 The scheme will have a significant impact on travel on the A30 within Cornwall and will significantly reduce current journey times and congestion at key junctions. Due to the improvement in performance, travel patterns in the area will be affected and the improved route will attract traffic from other routes. Truro is a major attractor of trips within Cornwall, and depending on the location, number and design of junctions on the route, travel patterns for traffic using routes across the existing A30, such as from Newquay, Perranporth and other towns to Truro,

will be affected. The traffic model therefore needs to be able to model the impact of travel patterns across a wide area.

2.4 Traffic Data Requirements and Survey Approach

- 2.4.1 It has been assumed that no additional traffic data will be required at PCF Stage 3. The data collection is detailed in the Stage 1 Traffic Data Collection Report. There is a wide range of data available, including origin destination data in the vicinity of the scheme from October 2015, which is considered to be suitable for Stage 3.

2.5 Proposed Methodology

Base Model

- 2.5.1 Our proposed approach for the Stage 3 appraisal work is to update the PCF Stage 1 and 2 base year SATURN model to incorporate data from the Regional Model. The PCF Stage 1 model was based on the Truro SATURN model and updated for the scheme appraisal for Stage 1 and 2. During Stage 1 the level of detail within the model around the A30 was refined and roadside interview data collected in October 2015 was incorporated into the model. This model is considered to be an appropriate model as a basis for the Stage 3 appraisal work; the model has good network coverage in the area of interest, was developed in compliance with WebTAG guidance at the time and has been updated with 2015 roadside interview data collected on key roads in the vicinity of the scheme.
- 2.5.2 Our proposed approach is to validate the PCF Stage 2 model prior matrices with up to date demand data from the South West Regional Transport Model (SWRTM) prior matrices. This approach requires that the base year demand matrices from the Regional Model are available by mid November 2016 to allow them to be used in the validation of the Stage 3 model. It is understood that the base year prior demand matrices are available, but these have not yet been received from Highways England. A key constraint to our proposed approach is the availability of these matrices; therefore if the Regional Model prior matrices are not available, in order to meet the programme, we will continue with the modelling approach set out in sections 2.5.1.1 to 2.5.1.4 of this report without using the Regional Model matrices in the validation process. This approach would allow a Stage 3 model to be developed that would be WebTAG compliant and fit for purpose in supporting the scheme through the DCO process.

Base Year and Time Periods

- 2.5.3 The model base year will be 2015, in line with the PCF Stage 1 and 2 model and the Regional Model. The modelled time periods will be:
- Neutral month AM peak period matrices (the average hour between 7am and 10am)
 - Neutral month Interpeak hour (average hour from 10am – 4pm)
 - Neutral month PM peak period matrices (the average hour between 4pm and 7pm)

Network

2.5.4 The coding of the network will be reviewed and updated where necessary to comply with coding guidance in the Regional Model handbook. This review will include:

- Parameters
- Saturation flows
- Speed flow curves (including a maximum speed for HGVs)
- Gap acceptance values
- Coding of flare lanes
- Coding of merges

2.5.5 The scope of the network will be reviewed and updated for the Stage 3 model. The additional network proposed for the Stage 3 model is shown in green in Figure 2-3. All links shown in the figure will be in the Stage 3 model.

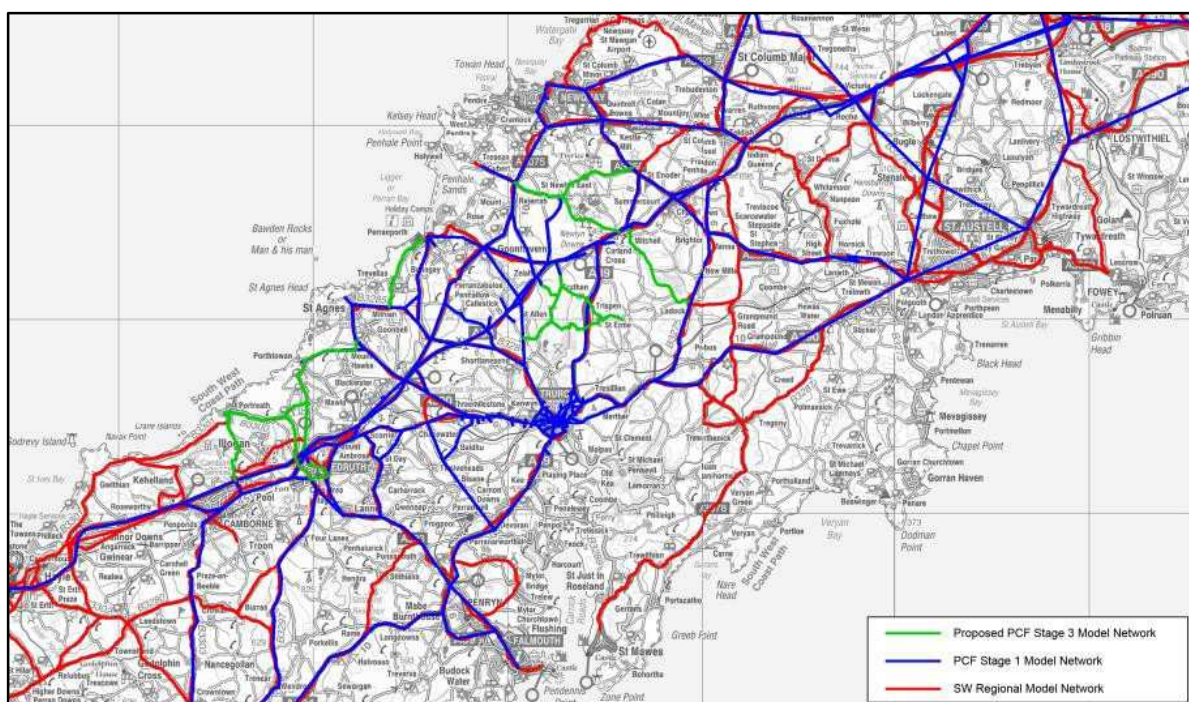


Figure 2-3 Proposed Network

Matrices

2.5.6 The demand data from the Regional Model will be used to validate the Stage 1 and 2 matrix at a sector level and make adjustments to the prior matrix if required.

2.5.7 Validation will be carried out at a sector level as the SWRTM zone system is more detailed outside of our detailed study area and less detailed near the proposed scheme. If there are any significant discrepancies between the sector movements we would discuss a suitable approach with TPG on the weekly call and will adjust the matrices in line with the SWRTM matrices, if required. Using the SWRTM matrices will ensure that the PCF Stage 3 base year model to be used for the appraisal of the A30 Chiverton to Carland Cross scheme aligns with the base year SWRTM.

2.5.8 In addition, the purpose splits in the PCF Stage 1 and 2 model will be compared to purpose splits in the Regional Model and adjusted if required.

- 2.5.9 In Stage 1 the interpeak matrix was developed by combining and factoring the AM and PM peak Truro model matrices (as detailed in section 4.2.4 of the Stage 1 Local Model Validation Report). Roadside interview data for the interpeak period, in the vicinity of the scheme, was then incorporated into the matrix. At Stage 3, the sector movements and purpose splits will be validated against the SWRTM. The addition of roadside interview data ensures a robust interpeak matrix.

Calibration and Validation

- 2.5.10 The PCF Stage 3 model will then undergo a calibration process. This will involve a direct comparison between a set of observed traffic flow data (identified as calibration counts) and modelled flows. If necessary, matrix estimation will be used during this process to enhance model calibration. It is also likely that modifications may be needed to the modelled network; any modifications will be recorded and reported. Any matrix estimation process will be carried out in line with TPG Advice Note 1 which states that 'the level of changes permissible by the application of matrix estimation should be regarded as being lifted'.
- 2.5.11 Model validation will involve a direct comparison between modelled and observed data, and will include traffic flows (using a set of traffic data identified as validation counts) and journey times. Model validation will be carried out in line with WebTAG guidance using WebTAG validation criteria.

Forecasting

Forecast Networks

- 2.5.12 The forecast networks will include highways schemes that are deemed committed or have secured growth deal funding. Only schemes that fall within the detailed simulation network have been included.
- 2.5.13 The forecast networks that include the scheme will be updated to incorporate any changes to the scheme design during Stage 3.

Forecast Matrices

Reference Case

- 2.5.14 Future year demand matrices will be required for two future years; a scheme opening year (2022) and design year (2037), for all the modelled time periods.
- 2.5.15 The forecast demand matrices will incorporate explicitly modelled development sites and background growth from the trip end model presentation program (TEMPO). The modelling will consider the treatment of uncertainty as outlined in WebTAG Unit M4. The uncertainty log prepared at Stage 1, which classifies the probability of development allocations and transport improvement schemes coming forward, will be updated if required. The core scenario will include 'near certain' and 'more than likely' developments.
- 2.5.16 Trip generation for each development site will be determined using trip rates (either determined from local data or the TRICs database) or development Transport Assessments if available. Development trips will be distributed by adopting the distribution from similar zones in the base model.
- 2.5.17 In line with a standard WebTAG compliant approach, forecasts will be constrained to future year trip end forecasts taken from the TEMPO (trip end presentation

programme) database (using the NTEM 7 dataset). An update to the NTEM 7 dataset is due to be issued by the DfT in February 2017. If NTEM 7.2 is available before the end of February 2017, this will be incorporated into the Stage 3 reference case forecasts. If the NTEM 7.2 is available before the end of March 2017, a sensitivity test will be carried out to determine the impact of the change from NTEM 7 to NTEM 7.2 on the model results.

- 2.5.18 The growth in the number of large goods vehicles and heavy goods vehicles will be applied by using growth factors derived from the national road traffic forecast (NRTF).
- 2.5.19 High and low growth scenarios will also be produced using methodology detailed in WebTAG.

Variable Demand Modelling

Introduction

- 2.5.20 Variable demand modelling will be carried out at Stage 3. The demand model will be an incremental type of model (also known as a “pivot-point” model) as recommended in WebTAG. The demand response in the model will therefore be a function of relative changes in cost between a forecast and comparator scenario.
- 2.5.21 Two separate stages will be required to produce the Do Minimum and Do Something forecasts.
 - Do Minimum – pivot off base model (i.e. demand model will use base year costs as a comparator)
 - Do Something – pivot off Do Minimum (i.e. demand model will use future year Do Minimum costs as a comparator)
- 2.5.22 The Department for Transport’s DIADEM software programme (Version 5) will be used to specify and operate the demand model processes.
- 2.5.23 The PCF Stage 3 model will include the key roads in across Great Britain in order to model full trip lengths as required for variable demand modelling.

Demand Responses - Distribution

- 2.5.24 This is the most fundamental demand response and WebTAG recommends that it is included in all variable demand models.
- 2.5.25 In line with the advice in WebTAG, a doubly-constrained distribution model will be used for the commuting trip purpose. Therefore the total number of commute trips generated by, and attracted to, each zone in the model will remain constant but it will be possible for the relative amount of commute trips between each zone to vary.
- 2.5.26 An origin-constrained model will be used for the other purposes. In this case the total number of trips generated by each zone will not change but the amount of trips attracted to each zone may increase or decrease in response to travel costs.

Demand Responses – Mode Choice

- 2.5.27 WebTAG states that it is desirable to include a representation of mode choice in the demand model but it recommends that the level of detail required for

modelling this response should depend on the importance attached to it in the assessment.

- 2.5.28 There is very low modal competition on the A30 and public transport does not represent a viable alternative mode. This is because long distance public transport alternatives are few, with only rail services providing a public transport alternative for the vast majority of journeys. However, rail journey times are significantly longer than car, and the number and locations of rail stations in Cornwall does not cover much of the population of the County.
- 2.5.29 It is therefore proposed that mode choice will be not be modelled as a separate response in the demand model, however the trip frequency response will be used to act as a proxy for mode choice. This is an approach recommended in WebTAG for cases where mode choice is not a significant factor and it would not be proportionate to fully model mode choice separately.

Demand Responses: Macro Time Period Choice

- 2.5.30 This response relates to the retiming of trips between the broad time periods within the day (i.e. AM peak, inter-peak, PM peak and off-peak). WebTAG suggests that macro time period choice should be considered when strong cost differentials between the modelled time periods are expected to develop or change.
- 2.5.31 It is likely that the relative cost of travel on the A30 across each broad time period will remain similar in the future years as there are no known changes planned in the locality (other than the proposed scheme) which would fundamentally alter the cost of travel in certain time periods only. Therefore it is considered that including macro time period choice in the demand model is not essential to obtain a suitable future year Do Minimum scenario.
- 2.5.32 For the Do Something scenario, the proposed scheme will provide additional highway capacity on the A30 and therefore might be expected to reduce the relative cost of travel in the AM and PM peak periods. However, it is considered that the types of trip made at these times would be more likely to include a higher proportion of essential trips (for example commuting and education) which may have more limited scope to be made during other time periods.
- 2.5.33 Given these considerations, there does not appear to be a strong need to include macro time period choice response in the demand model.

Demand Responses: Micro Time Period Choice

- 2.5.34 This response refers to the re-timing of trips within the peak hours or peak periods (i.e. 'peak spreading') where travellers may choose to travel at times other than their preferred time (within the same overall period) to reduce overall travel costs.
- 2.5.35 It is not proposed that micro time period choice is included as a separate response in the demand model because the traffic models represent average hours in the AM peak (07:00-10:00), Interpeak (10:00-16:00) and PM peak (16:00-19:00) periods.

Demand Responses: Trip Frequency

- 2.5.36 Trip frequency is a minor response which WebTAG states is mainly reflective of the transfer between the active and mechanised modes (if this has not been

modelled separately). However, it can also act as a proxy for other demand responses which are not explicitly represented in the demand model, such as mode choice.

- 2.5.37 In this case, where it is proposed that mode choice will not be modelled separately, the sensitivity of the trip frequency response will be increased to reflect demand response associated with mode choice.
- 2.5.38 The trip frequency response will be calibrated during realism testing so that the journey time elasticity due to this response alone is similar to the illustrative elasticity values in WebTAG.

Realism Testing

- 2.5.39 Realism tests will be carried out to demonstrate that the model has suitable fuel cost and journey time elasticity, in line with elasticity ranges given in WebTAG. Where a model has an elasticity value that is outside of the ideal range, adjustments will be made to the model sensitivity parameters or by introducing and adjusting parameters associated with cost damping.

Summary

- 2.5.40 Variable Demand Modelling will be carried out at Stage 3. Trip frequency and trip distribution demand responses will be modelled. Realism tests will be carried out.

Dependent Development

- 2.5.41 Whilst the A30 Chiverton to Carland Cross scheme will support the delivery of development across Cornwall, it is not considered that any development within Cornwall will be dependent on the scheme. Therefore, no testing of dependent development will be carried out.

2.6 Summary of the Relevant Areas of the Communication Strategy

- 2.6.1 Members of the traffic team will follow Highways England's latest 'One Team' document number MPI-29- 082014 initiative to maximise collaboration and effective working.

2.7 Work Programme

- 2.7.1 The updates to the forecasting are expected to be completed by the end of March 2017. The Stage 3 assessment work is required to be completed by March 2017 to provide information for the environmental assessment. Achieving these dates is critical to the overall delivery programme.

2.8 Risks

- 2.8.1 There are some risks associated with the modelling work:
- Delay in receiving Regional Model demand matrices.
 - Difficulties in model validation causing delays to completion of base model;
 - Tight timescales for forecast modelling work causing delay to completion of modelling work;
 - TUBA reveals illogical results, needing to revisit modelling;
 - Change of scope by Highways England; and
 - Changes to WebTAG

2.8.2 These risks will be monitored during the project.

2.9 Change Log

Table 2-1 Transport Modelling Change Log

Version	Section	Change
1.0 – Original	-	-

2.10 References

- CH2MHill, 2015, A30 Chiverton to Carland Cross Strategic Outline Business Case;
- Parsons Brinckerhoff, 2011, Truro Sustainable Transport Model Local Model Validation Report;
- Cornwall Strategic Economic Plan – Transport Annex; Report 5 – A30 Carland Cross to Chiverton Cross Business Case (2014)
- Chiverton Cross PARAMICS modelling for the Community Infrastructure Fund Round 2 - A30 Chiverton Cross Junction Improvements (2009);
- Hyder Consulting, 2003, Traffic and Economic Assessment Reports;
- WebTAG Units M1 to M5 on transport modelling and the TAG data book;
- Evolving guidance on developing the regional models, for example the network coding manual;
- TPG Advice Note 1 v1.0 (9/6/2015) on Roads Investment Strategy 1 – PCF Stage 1 Modelling Requirements; and,
- The Highways Agency's Major Projects' Instructions "One-Team' delivery approach for Traffic and Environmental Teams" and its associated traffic data template.

3 Economy

3.1 Existing Knowledge and Data

- 3.1.1 An economic appraisal of the scheme was carried out for the Stage 2 work; the methodology used in this assessment and the results are detailed in the scheme *Economic Assessment Report*. The economic appraisal outputs suggest that the scheme would produce large economic benefits and represent high value for money.

3.2 Topic-Related Constraints

- 3.2.1 Constraints are likely to comprise:
- Updating of the Order of Magnitude Estimates (OMEs) for the scheme options;
 - Changes in guidance in WebTAG or from TPG (for example in IANs or other advice notes).

3.3 Scale of Impact

- 3.3.1 The scheme will reduce congestion, improve journey times and provide capacity for additional growth. The scale of impact will be as described in Section 2.1.

3.4 Traffic Data Requirements and Survey Approach

- 3.4.1 Traffic data inputs to the TUBA and COBALT appraisals will be provided from the traffic model.

3.5 Proposed Methodology

Transport Economic Efficiency

- 3.5.1 The economic appraisal will use TUBA to convert the model outputs to time and vehicle operating cost savings for business users, disaggregated by freight and those travelling on business trips, by mode and by banded range of time saving. The forecast model will include two future years; TUBA will use the outputs from those two models to extrapolate to a 60 year appraisal.
- 3.5.2 TUBA will use data from the final future year highway assignments as inputs.
- 3.5.3 The annualisation factors will be used within TUBA to factor up the modelled data (representing an average peak period hour of a single day) to represent all typical weekdays in a year. Periods outside of this will be excluded from the assessment and hence benefits calculated from the TUBA assessment will be a conservative estimate of the true scheme benefits.
- 3.5.4 Construction and maintenance impacts will be assessed by using the models to represent the traffic management regime in place during construction and maintenance, and a series of TUBA models to calculate the economic impact.
- 3.5.5 The outputs from the TUBA assessments will be used to complete the TEE tables.

Regeneration and Wider Impacts

- 3.5.6 WebTAG Units A2.1 and A2.2 will be used to consider the need for either or both of a Regeneration Report and a Wider Impacts Assessment. It is considered at this stage that a qualitative assessment of Regeneration and a quantitative assessment of Wider Impacts assessment using WebTAG guidance will be carried out.
- 3.5.7 In Stage 1 Mott MacDonald completed a high level, preliminary assessment of the potential land use and economic development impacts of proposals for highways enhancements along the A30 between Carland and Chiverton Cross. The wider economic impacts of the A30 were assessed and quantified using a Bronze run of their proprietary Transparent Economic Assessment Model (TEAM).
- 3.5.8 The need for further wider economic assessment will be determined at a later on in Stage 3.

Reliability

- 3.5.9 Changes in journey time reliability will be estimated through use of the forecast highway assignment. WebTAG Unit A1.3 provides comprehensive guidance on how this should be carried out, and the methodology used will be consistent with that guidance.

Distributional Impacts

- 3.5.10 A distributional impact assessment of user benefits will be carried out, in line with WebTAG Unit A4.2.

Methodology for Cost Estimates

- 3.5.11 Cost estimates to be used in the Stage 3 work will be developed from the scheme designs which will be produced during Stage 2. These cost estimates will be used for the Outline Business Case and will be produced using guidance in WebTAG Unit A1.2.

Indirect Tax Revenues

- 3.5.12 Indirect tax revenues are calculated by TUBA as part of the economic appraisal of the scheme (as detailed in Section 3.5.1). The outputs from TUBA will therefore be used to complete this section of the AST and associated worksheets.

Appraisal Specification Summary Table

- 3.5.13 The proposed approach detailed above is summarised in the Appraisal Specification Summary Table (ASST) included in Appendix A.

3.6 Summary of the Relevant Areas of the Communication Strategy

- 3.6.1 The traffic modelling and economic assessment will follow Highways England's latest 'One Team' document number MPI-29-082014 initiative to maximise collaboration and effective working.

3.7 Work Programme

- 3.7.1 The economic appraisal will be dependent on the forecast being provided for the scheme options. The forecasting work is programmed for completion by end February 2017 with the draft economic appraisal complete by end March 2017.

3.8 Risks

- 3.8.1 A risk register will be set up which will record all risk associated with the design and construction of the scheme. This register will be regularly reviewed and updated by the Project Team.
- 3.8.2 The Quantified Risk Assessment will be reviewed and updated prior to completion of the Stage 3 work.

3.9 Change Log

Table 3-1 Economic Assessment Change Log

Version	Section	Change
1.0 – Original	-	-

3.10 References

- CH2MHill, 2015, A30 Chiverton to Carland Cross Strategic Outline Business Case;
- WebTAG Units A1 and A2 on cost benefit analysis and economic impacts and the TAG data book;
- Software: TUBA and COBALT.

4 Operational Assessment

4.1 Existing Knowledge and Data

4.1.1 Existing knowledge and data comprises:

- CH2MHill, 2015, A30 Chiverton to Carland Cross Strategic Outline Business Case;
- CH2MHill, 2015, A30 Chiverton to Carland Cross Strategic Options Assessment Report;
- Cornwall Council,
- Exeter and Far South West DaSTS Study Reports;
- Cornwall Strategic Economic Plan – Transport Annex; Report 5 – A30 Carland Cross to Chiverton Cross Business Case (2014)
- Chiverton Cross PARAMICS modelling for the Community Infrastructure Fund Round 2 - A30 Chiverton Cross Junction Improvements (2009);
- Hyder Consulting, 2003, Traffic and Economic Assessment Reports;
- SWARMMS study, 2002.

4.1.2 Existing appraisal and assessment methodology and guidance comprises:

- WebTAG;
- DMRB guidance on highway link and junction design in volume 6.

4.2 Topic-Related Constraints

4.2.1 Constraints are likely to comprise:

- Provision of design information
- Changes in guidance

4.3 Scale of Impact

4.3.1 An operational assessment will be required for the main components of the new scheme, including main carriageway operation; merge and diverge arrangements and slip roads; and junction operation. In addition any existing junctions that would be substantially affected by the scheme with larger or altered traffic flows will be assessed.

4.4 Traffic Data Requirements and Survey Approach

4.4.1 Traffic data will be taken from the forecast model runs to produce forecast AADTs as well as peak flows for design purposes.

4.4.2 Highway layout information will be provided by the design team for proposed new road links and junctions. For existing junctions detailed geometric data will be sought as part of the information gathered to construct the local traffic model.

4.5 Proposed Methodology

4.5.1 The following software will be used for junction assessments:

- ARCADY – roundabouts
- PICADY – priority junctions

- LINSIG – signals

- 4.5.2 The preliminary highway, slip road and junction designs will be assessed making use of the appropriate software tools listed above and in accordance with the DMRB processes (for example for merge / diverge designs). The operational assessment may be used to consider modifications to the scheme design so that an acceptable performance is achieved in terms of minimising queues and delays, for example by adding lanes at junctions.
- 4.5.3 The average peak period flows from the traffic models will be factored to peak hour flows, 50th highest hour flows and 200th highest hour flows for use in the junction assessments.

4.6 Summary of the Relevant Areas of the Communication Strategy

- 4.6.1 The traffic modelling and economic assessment will follow Highways England's latest 'One Team' document number MPI-29-082014 initiative to maximise collaboration and effective working.

4.7 Work Programme

- 4.7.1 The operational assessment will be dependent on the forecasts being provided for the scheme options. The forecasting work is programmed for completion by end February 2017.

4.8 Risks

- 4.8.1 Major risks are delivery of the forecasts and preliminary designs.

4.9 Change Log

Table 4-1 Operational Assessment Change Log

Version	Section	Change
1.0 – Original	-	-

4.10 References

- DMRB Vol 6
- Software: ARCADY, PICADY, LINSIG

5 Environment

5.1 Existing Knowledge and Data

- 5.1.1 Current data set out in the Environmental Scoping Report (ESR) for PCF Stage 3 will be utilised. Publicly available data has been collected during PCF Stages 1-3 from sources including MAGIC and Highways England databases. Some site survey work (ecology surveys, air quality monitoring and geophysical survey) will also be used to inform the appraisal.

5.2 Topic-Related Constraints

- 5.2.1 Environmental Constraints are illustrated on the Figure 1.1 of the Stage 3 Environmental Scoping Report. These constraints are also described in Section 5.5 below.
- 5.2.2 Constraints are likely to comprise:
- Accuracy of traffic flows;
 - Extents of traffic flows;
 - Timing of traffic flows (e.g. slippage in programme);
 - Construction-related information;
 - Availability of topographical data to sufficient level of accuracy;
 - The presence of Noise Important Areas (NIA) along the Scheme; and,
 - Update to DMRB Volume 11, Section 3.
- 5.2.3 A revision to the DMRB assessment methodology is currently in process, and although the publication date is unknown, should this occur during the assessment process, then regard will need to be had to any changes over the existing methodology.

5.3 Scale of Impact

- 5.3.1 It is expected that there will be some adverse impacts as a result of the Scheme options. These are described in detail within each topic in the following sections.

5.4 Traffic Data Requirements and Survey Approach

Noise

- 5.4.1 Requisite traffic data are 18-hour Annual Average Weekday flows (06:00 – 24:00), for the year of opening and for the 15th year after opening (although for this latter requirement if traffic flows are greater in any other year, this should be used instead). For each link, % heavy goods vehicles (HGV) and speed data are also required.
- 5.4.2 DMRB also requires an assessment of night-time noise. This should be based upon either hourly traffic data, traffic data for the period 24:00 - 06:00 or on a conversion from daytime to night-time. The use of hourly data is the DMRB preferred method, although the practicality of this when calculating noise levels at a large number of receptors may preclude its use.
- 5.4.3 Traffic forecasts will need to include speed-band categories for each link, as defined in IAN 185/15.

Air Quality

5.4.4 Traffic data is to be provided as outlined in MPI 28-082014, MPI 29-082014 and Highways England IAN 185/15, which includes:

- Annual Average Daily Traffic (AADT) flows and average flows for the AM (07:00 – 10:00), IP (10:00 – 16:00), PM (16:00 – 19:00) and OP (19:00 – 07:00) period, including % HDVs.
- Average speeds and speed band outputs for the periods above.
- The data should be provided for the base year and for the opening and design year with and without scheme scenarios.

5.4.5 Additional data will be required for the following environmental elements:

Noise and Air Quality

5.4.6 Index Multiple Deprivation (IMD) and Layer Super Output Area (LSOA) data will be required to inform distributional analysis for the noise and air quality assessments. Baseline monitoring surveys will also be undertaken.

5.4.7 Traffic data for all assessment years will be required to input into the noise and air quality models.

Heritage

5.4.8 The cultural heritage assessment will include collection of data from the Historic Environment Record (HER) and the results of any on site survey work completed at the time the appraisal is carried out.

Biodiversity

5.4.9 Biodiversity records search and site surveys will be undertaken to inform the ecology assessment.

Water Quality

5.4.10 During the detailed appraisal of impacts on the water environment, this will be further informed by a site visit, review of Envirocheck Report and consultation with the relevant authorities. No water quality sampling or hydraulic/hydrological analysis is currently proposed. There will be a requirement for AADT data at a later stage.

5.5 Proposed Methodology

5.5.1 The proposed methodology for each topic specific assessment is set out below.

Noise and Vibration

5.5.2 Some sections of the A30 between Chiverton and Carland Cross are designated as DEFRA Noise Important Areas. The designation aims to manage traffic such that noise levels do not deteriorate and potentially improve.

5.5.3 Construction of the scheme could potentially cause noise and vibration disturbance to existing sensitive receptors close to the site. The use of low noise surfacing to mitigate the noise impact of the scheme will be considered.

- 5.5.4 The assessment of noise and vibration impacts will establish the baseline noise level conditions and then identify whether a significant change may occur as a result of the scheme.
- 5.5.5 The noise assessments will use the traffic model to determine the assessment area, which will include an area within 1km of the proposed road, or areas outside of this where traffic flows are predicted to undergo significant change due to the scheme.
- 5.5.6 The appraisal will be based on guidance in WebTAG Unit A3 Section 2 and will form an update to the appraisal carried out in PCF Stage 1. The appraisal will consist of the following 5 steps as specified in WebTAG:
1. Scoping to determine the study area for assessment;
 2. Quantification of noise impacts using the Calculation of Road Traffic Noise methodology as recommended in WebTAG;
 3. Estimation of the change in noise annoyance;
 4. Monetary valuation of the change in noise impact; and
 5. Assessment of the distributional impacts of changes in noise.
- 5.5.7 Step 2 will use the methodology proposed in WebTAG to quantify the noise impact and to determine whether a simple or detailed assessment is required.
- 5.5.8 Steps 3 and 4 will make use of the TAG Noise Spreadsheet as recommended in the guidance.
- 5.5.9 The assessment will require output traffic flows from the traffic models within the area of assessment for the base and each of the future years and scenarios. These flows will be converted from the peak and interpeak hour models to 18hr average weekday traffic flows for use in the noise assessment by using factors derived from ATC data. Average speed and % HGV data will also be required from the traffic models for the base year and future years and scenarios.

Air Quality

- 5.5.10 There are no Air Quality Management Areas (AQMAs) on the A30 around the scheme. However, there is an AQMA within 1km of the scheme on the A390 to the south which will need to be taken into account.
- 5.5.11 The appraisal will consider the effect of the scheme on the surrounding area during the construction and operational phases. It is expected that with the predicted reduction in congestion there will be a potential overall beneficial impact on air quality, although given the potential off-line nature of parts of the scheme route there may be some areas where an impact occurs.
- 5.5.12 The air quality appraisal will use the traffic model to determine the appraisal area, which will include an area within 1km of the proposed road, or areas outside of this where traffic flows are predicted to undergo significant change due to the scheme.
- 5.5.13 The appraisal will be based on guidance in WebTAG Unit A3 Section 3 as an update to the appraisal carried out in PCF Stage 1. The appraisal will follow the 6 steps as follows:
1. Scoping to determine the study area for assessment;
 2. Quantification of air quality impacts;

3. Appraisal of local air quality impacts;
4. Appraisal of regional air quality impacts;
5. Monetary valuation of air quality impacts; and
6. Consideration of the distributional impacts of air quality changes.

- 5.5.14 The assessment will require output traffic flows from the traffic models within the area of assessment for the base and each of the future years and scenarios. These flows will be converted from the peak and interpeak hour models to annual average daily traffic (AADT) flows for use in the noise assessment by using factors derived from ATC data. Average speed and % HGV data will also be required from the traffic models for the base year and future years and scenarios.
- 5.5.15 Air quality will be appraised in relation to the national air quality standards and objectives, established by the Government to protect human health. The 'standards' are set as concentrations below which effects are unlikely even in sensitive population groups, or below which risks to public health would be exceedingly small. The 'objectives' set out the extent to which the Government expects the standards to be achieved by a certain date. They also take account of, and incorporate as appropriate, limit values set by the European Union. The objectives for seven pollutants are prescribed within the Air Quality Regulations, 2000 and the Air Quality (England) (Amendment) Regulations 2002.

Greenhouse Gases

- 5.5.16 The TAG Workbook Greenhouse Gases Worksheet will be used to assess the value of the impact arising from the change in carbon dioxide emissions in conjunction with TAG unit A3.

Landscape and Townscape

- 5.5.17 The landscape and townscape baseline has been established through a site walkover carried out in March 2016. The assessment will establish key viewpoints and provide a description of landscape character features. An assessment of the impact of the removal of any trees will be included.
- 5.5.18 The scheme will introduce new landscape features; the impact of the changes to landscape and townscape will therefore need to be considered in the context of the landscape design for the scheme. So whilst the establishment of the baseline is important, the assessment will confirm whether the scheme has delivered the landscape and townscape elements in accordance with the proposed design.
- 5.5.19 The assessment will be based on WebTAG Unit A3 Part 6 as an update to the appraisal carried out in PCF Stage 1.

Heritage

- 5.5.20 There are a number of Scheduled Ancient Monuments in the vicinity of the site but there are none within the footprint of the scheme. There are a number of listed structures adjacent to the site, some of which may fall within the footprint of the Scheme. There is also a World Heritage Site to the south of Chiverton Cross.
- 5.5.21 The baseline has been established through a desk-based assessment and consultation with Historic England and the County Archaeologist. A detailed Desk-Based Assessment and fieldwork will be used to carry out a qualitative assessment to identify any potential impacts from the scheme.

- 5.5.22 The assessment will be based on WebTAG Unit A3 Part 8 as an update to the appraisal carried out at PCF Stage 1.

Biodiversity

- 5.5.23 Ecology surveys have been undertaken to establish the baseline habitat conditions at the site and its immediate surrounds and detailed surveys will be ongoing until spring 2017. A Desk Study has secured recent biological records from the local Records Centre (this will involve incurring a small third party cost) and a walkover survey has: (i) mapped habitats currently on and in the immediate vicinity of the site; and (ii) noted any other features that may support protected species.
- 5.5.24 Confirmation will be provided of (i) any potential ecological receptors likely to be affected by the scheme; and (ii) any mitigation / enhancement measures that should be included as part of the scheme, e.g. in any landscape areas.
- 5.5.25 The assessment will be based on WebTAG Unit A3 Part 9 as an update to the appraisal carried out in PCF Stage 1.

Water Quality

- 5.5.26 The assessment of potential environmental effects will include surface water and groundwater features surrounding the proposed scheme options and within 1 km in all directions from the proposed scheme options. It also includes the potential impacts of flood risk to the scheme options and to people and property elsewhere as a result of the scheme options.
- 5.5.27 The assessment of potential environmental effects will adopt the following approach:
1. Estimation of the importance of the attribute.
 2. Estimation of the magnitude of the impact.
 3. Assessment of the significance of the impact based on the importance of the attribute and magnitude of the impact.
- 5.5.28 This will be undertaken in accordance with WebTAG Unit A3 Part 10 as an update to the appraisal carried out in PCF Stage 1.

Distributional Impacts

- 5.5.29 A distributional impact (DI) assessment of user benefits will be carried out, in line with WebTAG Unit A4.2.

Appraisal Specification Summary Table

- 5.5.30 The proposed approach detailed above is summarised in the Appraisal Specification Summary Table (ASST) included in Appendix A.

5.6 Summary of the Relevant Areas of the Communication Strategy

- 5.6.1 The traffic modelling and economic assessment will follow Highways England's latest 'One Team' document number MPI-29-082014 initiative to maximise collaboration and effective working.

5.7 Work Programme

- 5.7.1 The environmental appraisal is programmed to be completed by the end of August 2018.

5.8 Risks

- 5.8.1 The environmental risk assessment is included in Appendix B.

5.9 Change Log

Table 5-1 Environmental Assessment Change Log

Version	Section	Change
1.0 – Original	-	-

5.10 References

- CH2MHill, 2015, A30 Chiverton to Carland Cross Strategic Outline Business Case
- DfT WebTAG Unit A3.2 Noise Impacts
- DCLG, 1012. “National Planning Policy Framework.”
- DEFRA, 2010. “The Noise Policy Statement for England.”
- Department of Transport and Welsh Office, 1988. “Calculation of Road Traffic Noise.”
- DMRB, Volume 11, Section 3 Part 7 ‘Noise and Vibration’ (HD213/11).
- National Policy Statement for National Networks, DfT, December 2014.
- HMSO, 2011. “DMRB Volume 11 Section 3 Part 7 HD213/11 Noise and Vibration.”
- National Planning Policy Framework (NPPF) and Noise Policy Statement for England (NPSE);
- DfT WebTAG Unit A3.3 Air Quality sub objective;
- HMSO, 2007. DMRB Volume 11 Section 3 Part 1 HA 207/07 and Section 3 Part 7 HD 213/11;
- National Policy Statement for National Networks, DfT, December 2014;
- Highways Agency AQ Assessment Traffic Data template;
- MPI 28-082014;
- MPI 29-082014;
- Highways Agency Interim Advice Note 170;
- Highways Agency Interim Advice Note 174;
- Highways Agency Interim Advice Note 175;
- Highways Agency Interim Advice Note 185; and,
- EA (2011) Assessing new modifications for compliance with WFD, Environment Agency Doc No 488_10, 2011
- EA (2011a) Detailed Supplementary Guidance note, Environment Agency Doc No 488_10_SD01, 2011
- EA (2013) Climate change allowances for planners, Guidance to support the National Planning Policy Framework, EnvironmentAgency Doc No, NA/EAD/Sept 2013/V12, available online at https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/296964/LIT_8496_5306d_a.pdf; and,

- Highways Agency's Major Projects' Instructions "One-Team' delivery approach for Traffic and Environmental Teams and associated Annex.

6 Social

6.1 Existing Knowledge and Data

- 6.1.1 Data on accidents in the area is available from Cornwall Council; these records will be included in the assessment.
- 6.1.2 A Distributional Impacts Analysis Report (DIAR) will be carried out at PCF Stage 2.

6.2 Topic-Related Constraints

- 6.2.1 Constraints are likely to comprise:
 - Provision of design information;
 - Provision of traffic forecasts;
 - Changes in guidance.

6.3 Scale of Impact

- 6.3.1 The scale of social impact will be considered against the following sub-objectives:
 - Commuting and Other users
 - Reliability impact on Commuting and Other users
 - Physical activity
 - Journey quality
 - Accidents
 - Security
 - Access to services
 - Affordability
 - Severance
 - Option values
- 6.3.2 The scheme will address peak hour congestion and irregularity of journey times; a significant part of the impacts is therefore expected to accrue against the commuting sub-objective, including the reliability of such journeys. A mixture of qualitative and quantitative assessment is planned to measure the full range of social impacts, in a proportionate manner.

6.4 Traffic Data Requirements and Survey Approach

- 6.4.1 Roadside interview data provide data on journey purpose splits to allow the disaggregation of commuting and other time savings.

6.5 Proposed Methodology

- 6.5.1 Methodologies are outlined below for each of the social sub-objectives.

Commuting and Other Users

- 6.5.2 As discussed under the economy objective, the approach will be to use TUBA to convert transport model outputs to calculate time and vehicle operating cost savings for commuting and other users, by mode and by banded range of time

saving. In accordance with WebTAG, this will cover the following bands of time savings:

- Less than -5 minutes;
- -5 to -2 minutes;
- -2 to 0 minutes;
- 0 to 2 minutes;
- 2 to 5 minutes
- Greater than 5 minutes.

- 6.5.3 The geographic distribution of benefits will be plotted. Subject to this screening process, it is planned to disaggregate the distributional impact of non-work time savings only, since work savings are assumed to accrue to employers. This will be in accordance with WebTAG Unit A1.3 Appendix A and will plot origin zone trip benefits against income groupings (from Census), and against the Index of Multiple Deprivation, by car and bus modes.
- 6.5.4 A qualitative assessment is also proposed against the 'improve connectivity' challenge for commuters and 'improve access to leisure' challenge for other users.

Reliability Impact on Commuting and Other Users

- 6.5.5 This will use the same approach as detailed in Section 3.5.3.

Physical Activity

- 6.5.6 The physical activity benefit will be assessed qualitatively using guidance in WebTAG Unit A4.1 Section 3, by considering predicted changes in pedestrian and cycle usage due to the facilities included as part of scheme design.

Journey Quality

- 6.5.7 This will be assessed qualitatively using guidance in WebTAG Unit A4.1 Section 6.

Accidents

- 6.5.8 The impact on accidents will be assessed by using COBALT software, in line with WebTAG Unit A4.1. This calculates the number of accidents within the assessment area for the 'with' and 'without' scheme scenarios, and can therefore determine accident reductions.
- 6.5.9 The assessment area to be included within the COBALT assessment will be determined by analysing traffic flows. Where flows vary by $> \pm 5\%$ between the with and without scheme scenarios, these links will be included within the COBALT network.

Security

- 6.5.10 This will be assessed qualitatively using guidance in WebTAG Unit A4.1 Section 4.

Access to Services

- 6.5.11 A qualitative assessment will be carried out in accordance with WebTAG Unit A4.1 Section 8.

Affordability

- 6.5.12 No significant impacts are anticipated, but a qualitative assessment will be completed in line WebTAG Unit A4.1 Section 9.

Severance

- 6.5.13 A qualitative assessment of severance will be undertaken using guidance in WebTAG Unit A4.1 Section 5.

Option Values

- 6.5.14 A qualitative assessment will be undertaken using guidance in WebTAG Unit A4.1 Section 7.

Distributional Impacts

- 6.5.15 A distributional impact (DI) assessment, in line with WebTAG Unit A4.2, will be carried out for the following impacts:
- User benefits;
 - Accidents;
 - Severance;
 - Security;
 - Accessibility;
 - Personal affordability.
- 6.5.16 Initial screening is likely to eliminate the requirement for full DI appraisal for most of these impacts; a full appraisal is likely to be required for User Benefits and Accidents.

Appraisal Specification Summary Table

- 6.5.17 The proposed approach detailed above is summarised in the Appraisal Specification Summary Table (ASST) included in Appendix A.

6.6 Summary of the Relevant Areas of the Communication Strategy

- 6.6.1 Members of the traffic modelling and economic assessment team will follow Highways England's latest 'One Team' document number MPI-29-082014 initiative to maximise collaboration and effective working.

6.7 Work Programme

- 6.7.1 The social appraisal will be dependent on the forecast being provided for the scheme options. The forecasting work is programmed for completion by end March 2017 with the social appraisal complete by end April 2017.

6.8 Risks

- 6.8.1 There are some risks associated with the social appraisal work:

- Outputs from the traffic modelling work identify that more detailed assessments or assessments over a wider area are required for some of the impacts which would involve more work;
- Initial analysis of the modelling outputs and WebTAG identifies that quantitative assessments are required for some elements;
- Tight timescales for modelling work causing delay to commencement of social assessments;
- Change of scope by Highways England.

6.8.2 These risks will be monitored during the project.

6.9 Change Log

Table 6-1 Social Assessment Change Log

Version	Section	Change
1.0 – Original	-	-

6.10 References

- WebTAG

Appendix A Appraisal Specification Summary Table

Table 6-1 Appraisal Specification Summary Table

Impacts	Sub-impacts	Estimated Impact in OAR	Level of uncertainty in OAR	Proposed proportionate appraisal methodology	Reference to evidence and rationale in support of proposed methodology	Type of Assessment Output (Quantitative/ Qualitative/ Monetary/ Distributional)
Economy	Business users & transport providers	Significant benefits to users assessed using TUBA	Traffic modelling based in existing 2009 traffic model; no variable demand incorporated.	To be assessed using PCF Stage 1 traffic model (updated with variable demand) and TUBA	Redevelopment of traffic model has been based on WebTAG guidance and TPG Advice Note for Stage 1 work	Quantitative
	Reliability impact on Business users	Not assessed		To be assessed in line with WebTAG Unit A1.3.	Assessment to be based on WebTAG guidance.	Quantitative
	Regeneration	Not assessed		To be assessed in line with WebTAG Unit A2.1.	Assessment to be based on WebTAG guidance.	Qualitative
	Wider Impacts	Benefits assessed using WebTAG guidance and experience from other similar schemes	Traffic modelling based in existing 2009 traffic model; no variable demand incorporated.	To be assessed in line with WebTAG Unit A2.2.	Assessment to be based on WebTAG guidance.	Quantitative
Environmental	Noise	If appropriate mitigation is implemented during construction the	No monitoring data available.	Establish the baseline noise level conditions, evaluating what a significant change might	The assessment will be based on guidance in WebTAG Unit A3 Section 2 and	Qualitative

Impacts	Sub-impacts	Estimated Impact in OAR	Level of uncertainty in OAR	Proposed proportionate appraisal methodology	Reference to evidence and rationale in support of proposed methodology	Type of Assessment Output (Quantitative/ Qualitative/ Monetary/ Distributional)
		impact is likely to be low. Impacts during operation are unlikely to significantly change. The introduction of low noise surfacing may improve levels in the Noise Important Area.		be and then identifying whether a significant change may occur.	DMRB Volume 11, Section 3, Part 7.	
	Air Quality	If appropriate mitigation is implemented during construction the impact is likely to be low. Impacts from emissions during operation are unlikely to significantly change.	No monitoring data available.	Establish the baseline emission level conditions, evaluating what a significant change might be and then identifying whether a significant change may occur.	The assessment will be based on guidance in DMRB (Volume 11, Section 3, Part 1) and WebTAG Unit A3 Section 3.	Quantitative
	Greenhouse gases	Not assessed		To be assessed in line with WebTAG Unit A1.4.	Assessment to be based on WebTAG guidance.	Quantitative
	Landscape	No designated landscape areas within close proximity	No assessment of visual impact undertaken as site visit required.	The scheme will introduce new landscape features and could encourage new	The assessment will be based	Qualitative

Impacts	Sub-impacts	Estimated Impact in OAR	Level of uncertainty in OAR	Proposed proportionate appraisal methodology	Reference to evidence and rationale in support of proposed methodology	Type of Assessment Output (Quantitative/ Qualitative/ Monetary/ Distributional)
		of the site. The scheme will require some permanent loss of verges, trees and hedgerows but these are not nationally designated features and this loss can be compensated for.		development. The impact of the changes to landscape and townscape will therefore need to be considered in the context of the landscape design for the scheme.	on Volume 11, Section 3, Part 1 of DMRB and WebTAG Unit A3 Part 6.	
	Townscape	N/A				
	Heritage of Historic resources	The scheme is likely to be in conflict with national policy as works are likely to affect heritage assets. This could be either directly (in which case the rating would be high) or indirectly (in which case the rating would be moderate)	No data on buried archaeology available and no setting assessment of known assets undertaken.	The baseline will be established through a Desk Based Assessment and consultation with Historic England and the County Archaeologist. This will identify if further field work is required.	The assessment will be based on Volume 11, Section 3, Part 2 (HA 208/07) of DMRB.	Qualitative
	Biodiversity	The scheme is likely to	The ecological baseline for	An ecology survey will be	The methodology will follow	Qualitative

Impacts	Sub-impacts	Estimated Impact in OAR	Level of uncertainty in OAR	Proposed proportionate appraisal methodology	Reference to evidence and rationale in support of proposed methodology	Type of Assessment Output (Quantitative/ Qualitative/ Monetary/ Distributional)
		require the removal of areas which are designated as a UK BAP Priority Habitat and therefore conflicts with national policy.	the study area is not yet known; therefore current assessment is based upon the likely outcome of ecological surveys based on previous experience in Cornwall.	undertaken to establish the baseline habitat conditions at the site and its immediate surrounds comprising a Desk Study and a walkover survey	that required for a detailed assessment in DMRB guidance for Ecology and Nature Conservation, DMRB Volume 11, Section 2 Part 5 and Interim Advice Note 130/10 and the Chartered Institute of Ecology and Environmental Management (IEEM, 2006).	
	Water Environment	The scheme is likely to be compliant with national policy and is unlikely to be at risk of flooding. The nearby watercourses and waterbodies are unlikely to be directly affected, although some culverting may be required.	No baseline data or Envirocheck available.	A desk study and site walkover will be carried out.	An assessment will be carried out in accordance with WebTAG Unit A3 Section 10 and DMRB Volume 11 Section 3 Part 10.	Qualitative
Social	Commuting and Other users	Significant benefits to users assessed using TUBA	Traffic modelling based in existing 2009 traffic model; no variable demand incorporated.	To be assessed using PCF Stage 1 traffic model (updated with variable demand) and TUBA	Redevelopment of traffic model has been based on WebTAG guidance and TPG Advice Note for Stage 1 work	Quantitative

Impacts	Sub-impacts	Estimated Impact in OAR	Level of uncertainty in OAR	Proposed proportionate appraisal methodology	Reference to evidence and rationale in support of proposed methodology	Type of Assessment Output (Quantitative/ Qualitative/ Monetary/ Distributional)
	Reliability impact on Commuting and Other users	Not assessed		To be assessed in line with WebTAG Unit A1.3.	Assessment to be based on WebTAG guidance.	Quantitative
	Physical activity	Not assessed		To be assessed in line with WebTAG Unit A4.1 Section 3.	Assessment to be based on WebTAG guidance.	Qualitative
	Journey quality	Not assessed		To be assessed in line with WebTAG Unit A4.1 Section 6.	Assessment to be based on WebTAG guidance.	Qualitative
	Accidents	Not assessed		To be assessed using COBALT in line with WebTAG Unit A4.1.	Assessment to be based on WebTAG guidance.	Quantitative
	Security	Not assessed		To be assessed in line with WebTAG Unit A4.1 Section 4.	Assessment to be based on WebTAG guidance.	Qualitative
	Access to services	Not assessed		To be assessed in line with WebTAG Unit A4.1 Section 8.	Assessment to be based on WebTAG guidance.	Qualitative
	Affordability	Not assessed		To be assessed in line with WebTAG Unit A4.1 Section 9.	Assessment to be based on WebTAG guidance.	Qualitative

Impacts	Sub-impacts	Estimated Impact in OAR	Level of uncertainty in OAR	Proposed proportionate appraisal methodology	Reference to evidence and rationale in support of proposed methodology	Type of Assessment Output (Quantitative/ Qualitative/ Monetary/ Distributional)
	Severance	Not assessed		To be assessed in line with WebTAG Unit A4.1 Section 5.	Assessment to be based on WebTAG guidance.	Qualitative
	Option values	Not assessed		To be assessed in line with WebTAG Unit A4.1 Section 7.	Assessment to be based on WebTAG guidance.	Qualitative
Public Accounts	Cost to Broad Transport Budget	High level cost estimates produced		Cost estimates including optimism bias to be produced in line with WebTAG. Assessment and construction and maintenance costs to be carried out using highway assignment models and TUBA software.	Assessment to be based on WebTAG guidance.	Quantitative
	Indirect Tax Revenues	Assessed using TUBA	Traffic modelling based in existing 2009 traffic model; no variable demand incorporated.	To be assessed using outputs from the TUBA models.	Assessment to be based on WebTAG guidance.	Quantitative

Appendix B Environmental Risk Assessment

B.1 Stage 1: Environmental Risk Assessment Update – Comparison between Option 1 and Option 6 (HA551502_WSP_EGN_0000_RE_EN_00002)

A30 Chiverton to Carland Cross Forms, Advice and Information:

Part 1: Scheme & Surrounding Area

Table 6-2 Part 1: Scheme & Surrounding Area

1.1 Description of project (including alternatives)	Improvements to the A30 to dual carriageway standard (expressway) between Carland Cross and Chiverton in Cornwall, with junctions at Carland Cross as a minimum Chiverton Cross. Options to be considered include: On and off line improvement to D2AP standard with grade separated junctions at Chiverton Cross and Carland Cross. Off line improvement to D2AP standard with grade separated junctions at Chiverton Cross and Carland Cross.
1.2 Scheme / options length & area (ha) of improvement element of project (if known)	The project is approximately 14km in length.

<p>1.3 Description of sensitivity or value of local environment, including statutory and non-statutory designations</p>	<p>Statutory designations within the study area include Cornwall and West Devon Mining Landscape World Heritage Site, directly adjacent to the site (south-west) at the Chiverton Cross junction, and numerous statutory Listed Buildings within 500 metres and directly adjacent to the highway.</p> <p>These include several milestones. Chyverton Park statutory Registered Park and Garden is directly adjacent (north) to the highway at Marazanvose. There are also a number of statutory designated Scheduled Monuments within close proximity to the highway, particularly at Carland Cross.</p> <p>The following statutory ecological designations are within 500 metres (north) of the site: the Newlyn Downs Special Area of Conservation (SAC) and Site of Special Scientific Importance (SSSI); and Carrick Heaths SSSI. There are also a number of Deciduous Woodland UK BAP Priority Habitats within 500 metres and directly adjacent to the site.</p> <p>The site and surrounding immediate landscape are classified (non- statutory) as Grade 3 Agricultural Land (there is insufficient data for the location to distinguish between Grade 3a and 3b).</p> <p>All of the above of the features identified above are considered to be of high value and sensitivity at this stage.</p> <p>There are no statutory designated landscape areas within the study area. The character of the existing road corridor is undulating with long distance views to the north and south (including views of the North Cornwall coast).</p>
---	--

B.2 Part 2: Environmental / Policy Baseline Summary

Table 6-3 Part 2. Environmental/Policy Baseline Summary

<p>2.1 Air Quality & Greenhouse Gas</p>	<p>National & Highways England policy</p> <p><u>National Policy Statement for National Networks (NPSNN)</u></p> <p>The NPSNN only applies to Nationally Significant Infrastructure Projects (NSIPs). Please see Section 4.1 for further details.</p> <p>Where the impacts of the project (both on and off-site) are likely to have significant air quality effects in relation to meeting EIA requirements and/or affect the UK's ability to comply with the Air Quality Directive, paragraph 5.6 of NPSNN requires the applicant to undertake an assessment of the impacts of the proposed project as part of the Environmental Statement (ES). Paragraph 5.12 accords air quality considerations substantial weight where, after taking into account mitigation, a project would lead to a significant air quality impact in relation to EIA and/or where they lead to deterioration in air quality in a zone/agglomeration.</p> <p><u>National Planning Policy Framework (NPPF)</u></p> <p>The NPPF is relevant to NSIPs where the NPS is silent on a particular matter.</p>
---	--

	<p>Paragraph 124 of the NPPF requires compliance with EU limit values or national objectives for pollutants, taking into account the presence of Air Quality Management Areas (AQMA) and the cumulative impacts on air quality from individual sites in local areas.</p> <p><u>Road Investment Strategy Policy Paper (RIS)</u></p> <p>Highways England will work with its partners to make progress on reducing the negative impacts on air quality which will support wider Government initiatives targeted at improving air quality. It will also need to demonstrate that it is playing its part in helping reduce carbon dioxide, and other greenhouse gas emissions, in line with current and future government targets. No KPIs or PIs have been set for air quality at present.</p> <p>Physical Environment</p> <p>Neither of the options fall within an AQMA. However, there is an AQMA within 1km, on the A390 (south east of Chiverton Cross). There are a number of detached isolated residential dwellings and farm holdings (more than 15) along and directly adjacent to the existing highway that could be sensitive receptors, as well as ecological receptors identified below. Zelah is the only adjacent settlement, which is approximately 100 metres from the existing A30. There are also a number of small businesses within close proximity to the options, including Chiverton Services, Town and Country Motor Centre, Marazan Farm Campsite and The Hawkins Arms public house.</p>
2.2 Cultural Heritage	<p>National & Highways England policy</p> <p><u>NPSNN</u></p> <p>Paragraph 5.126 states that where the development is subject to EIA the applicant should undertake an assessment of any likely significant heritage impacts of the proposed project as part of the EIA and describe these in the ES. The applicant should describe the significance of any heritage assets affected, including any contribution made by their setting.</p> <p><u>NPPF</u></p> <p>In assessing the impact of a proposed development on the significance of a designated heritage asset, paragraph 132 requires significant weight to be given to the conservation of the asset and (paragraph 134) notes that where development will lead to less than substantial harm to the significance of a designated heritage the harm should be weighed against the public benefits of the proposal. Paragraph 137 states that opportunities for new development within World Heritage Sites and within the setting of heritage assets to enhance or better reveal their significance. A proposal that preserve those elements of the setting that make a positive contribution to or better reveal the significance of the asset should be treated favourably.</p> <p><u>RIS</u></p> <p>There are no relevant policies, KPIs or PIs within the RIS for this topic area.</p>

	<p>Physical Environment</p> <p>The Cornwall and West Devon Mining Landscape World Heritage Site is south west of the Chiverton Cross Junction. There are numerous Listed Buildings within 500 metres and directly adjacent to the existing highway. These include several milestones which are located on the northern highway verge and therefore any proposed works to the north of the existing carriageway have the potential to affect the setting of these heritage assets. Chyverton Park registered Park and Garden is directly adjacent (north) to the site at Marazanvose. There are a number of Scheduled Monuments within close proximity to the site including Four Barrows which is located adjacent to the highway at the western end. The baseline information is relevant to both options.</p>
2.3 Landscape	<p>National & Highways England policy</p> <p><u>NPSNN</u></p> <p>Paragraph 5.144 states where the development is subject to EIA the applicant should undertake an assessment of any likely significant landscape and visual impacts in the EIA and describe these in the ES. Paragraphs 5.146-148 require that the applicants assessment to consider any relevant national and local development policy; significant effects during construction and operation and; visibility and conspicuousness, would need to comply with the respective duties in section 11A of the National Parks and Access to Countryside Act 1949 and section 85 of the Countryside and Rights of Way Act 2000.</p> <p><u>NPPF</u></p> <p>Paragraph 109 states that the planning system should contribute to and enhance the natural and local environment by protecting and enhancing valued landscapes, geological conservation interest and soils.</p> <p><u>RIS</u></p> <p>There are no relevant policies, KPIs or PIs within the RIS for this topic area.</p> <p>Physical Environment</p> <p>The options both fall within the Cornish Killas National Character Area and Newlyn Down (CA14) Landscape Character Area. They are not in, or within close proximity to, a statutory designated landscape area, although the existing road corridor may be visible from long distances. The existing A30 alignment is not within 500 metres of any landscapes classified as an Area of Great Landscape Value or Area of Great Historic Value. The surrounding landscape is largely agricultural. The highway is flanked by grass verges, trees and hedgerows.</p>
2.4 Nature Conservation / Biodiversity	<p>National & Highways England policy</p> <p><u>NPSNN</u></p> <p>Paragraph 5.22 requires that where the project is subject to EIA the applicant should ensure that the ES clearly sets out any likely significant effects on sites designated as ecological or geological conservation importance on protected species and on habitats and other species identified as being of principal importance for the conservation of biodiversity and that the</p>

	<p>statement considers the full range of potential impacts on ecosystems. Paragraph 5.24 requires the applicant to show how the project has taken advantage of opportunities to conserve and enhance biodiversity conservation interests. Paragraph 5.36 should include appropriate mitigation measures as an integral part of their proposed development. Paragraph 4.22-23 states prior to granting a Development Consent Order, the Secretary of State must, under the Habitats Regulations, consider whether it is possible that the project could have a significant effect on the objectives of a European site, or on any site to which the same protection. Applicants are required to provide sufficient information with their applications for development consent to enable the Secretary of State to carry out an Appropriate Assessment if required.</p> <p><u>NPPE</u></p> <p>Paragraph 117-119 requires development to minimise impacts on biodiversity and that it should aim to conserve and enhance biodiversity, adequately mitigation impacts, or, as a last resort use compensation measures. Proposed development on land within or outside that which is designated (distinction between the hierarchy of international, national and local designations should be considered) should be as ecologically sensitive as not favoured. The presumption in favour of sustainable development (Paragraph 14) does not apply where development requires Appropriate Assessment under the Birds or Habitats Directive is considered, planned or determined.</p> <p><u>RIS</u></p> <p>Highways England will aim to deliver a net gain across its broader range of works. Its Performance Indicator regarding biodiversity has already been met by the publication of the Biodiversity Action Plan.</p> <p>Physical Environment</p> <p>The Newlyn Downs SAC and SSSI, and Carrick Heaths SSSI are within 500 metres (north) of the existing highway at the eastern end. There are a number of Deciduous Woodland Priority Habitats within 500 metres and directly adjacent to the highway, including two within the footprint of both options between Chiverton Cross and Marazanvose. There are no Local Nature Reserves or National Nature Reserves within close proximity to both options.</p>
2.5 Noise & Vibration	<p>National & Highways England policy</p> <p><u>NPSNN</u></p> <p>Paragraph 5.189 states where a development is subject to EIA and significant noise impacts are likely to arise from the propose development, the applicant should produce a noise assessment, which includes Noise and Vibration baseline, sensitive receptors, predictions of changing in baseline with the proposed development and mitigation measures. Paragraph 5.193 requires developments to be undertaken in accordance with the statutory requirements for noise. Paragraph 5.199 states that most national network projects, the relevant Noise Insulation Regulations will apply.</p> <p><u>NPPE</u></p>

	<p>Paragraph 123 requires that development should: avoid noise giving rise to significant adverse impacts on health and quality of life as a result of new development; mitigate and reduce to a minimum other adverse impacts on health and quality of life arising from noise from new development; and identify and protect areas of tranquillity which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason.</p> <p><u>RIS</u></p> <p>Through Highways England's assets, such as low noise road surfaces and barriers there is capacity to improve noise levels. Investigating and mitigating at least 1,150 Noise Important Areas, as identified through the Defra Noise Action Plan, Highways England will help deliver a better quality of life to around 250,000 people as noise exposure is reduced. All new and improved roads use low noise surfacing. This target is identified in the KPI for noise in the Performance Specification.</p> <p>Physical Environment</p> <p>There are a number of detached isolated residential dwellings and farm holdings (more than 15) along and directly adjacent to the existing alignment of the A30 which are potential noise sensitive receptors. Zelah is the only adjacent settlement, which is approximately 100 metres from the existing A30 alignment. There are also a number of small businesses within close proximity to the options, including Chiverton Service Station, Town and Country Motor Centre, Marazan Farm Campsite and The Hawkins Arms public house.</p> <p>There are six Noise Important Areas (NIAs), as designated by DEFRA, along the existing alignment and an additional NIA on the A390 south of Chiverton Cross. In this location people are exposed to noise levels above 55 dB(A) Lden and 50 dB(A) Lnight from the A30. The aim of the Environment Noise (England) Regulations 2006 is to manage this noise find ways to reduce it if possible. The baseline is relevant to both route options.</p>
<p>2.6 Road Drainage & the Water Environment</p>	<p>National & Highways England policy</p> <p><u>NPSNN</u></p> <p>Applications for projects in the following locations should be accompanied by a flood risk assessment (FRA): Flood Zones 2 and 3, medium and high probability of river and sea Flooding and; Flood Zone 1 (low probability of river and sea flooding) for projects of 1 hectare or greater, projects which may be subject to other sources of flooding (local watercourses, surface water, groundwater or reservoirs), or where the Environment Agency has notified the local planning authority that there are critical drainage problems. Paragraph 5.96 advises that applicants for projects which may be affected by, or may add to, flood risk to seek sufficiently early pre- application discussions with the Environment Agency, and, where relevant, other flood risk management bodies such as lead local flood authorities, Internal Drainage Boards, sewerage undertakers, highways authorities and reservoir owners and operators. Paragraph 5.97 states that surface water flood issues need to be understood and then account of these issues can be taken.</p>

	<p><u>NPPF</u></p> <p>Paragraph 100 requires that inappropriate development in areas at risk of flooding should be avoided by directing development away from areas at highest risk, but where development is necessary, making it safe without increasing flood risk elsewhere (Paragraph 103).</p> <p><u>RIS</u></p> <p>There are no relevant policies, KPIs or PIs within the RIS for this topic area.</p> <p>Physical Environment</p> <p>Both options fall within Flood Zone 1, which is land assessed as having a less than 1 in 1,000 annual probability of river or sea flooding (<0.1%).</p> <p>However, there is the possibility that either of the options could result in increased flood risk downstream without appropriate mitigation. The River Kenwyn (south-west) and River Allen (south) are the two main watercourses within 500 metres of the site. There is also a number of small waterbodies within close proximity to the options – likely to be ponds. The nearby watercourses and waterbodies are unlikely to be directly affected. The highway largely falls within an area classified as a Nitrate Vulnerable Zone. It is unlikely that the options are at risk of surface water flooding.</p>
2.7 People & Communities	<p>National & Highways England policy</p> <p><u>NPSNN</u></p> <p>Paragraphs 3.2-3 recognise that for the development of the national road networks to be sustainable they should be designed to minimise social and environmental impacts to improve quality of life. When delivering new schemes, the Government expects applicants to avoid and mitigate environmental and social impacts in line with the principles set out in the NPPF and the Government's planning guidance. Applicants should also provide evidence that they have considered reasonable opportunities to deliver environmental and social benefits as part of schemes.</p> <p>Paragraph 5.184 notes that public rights of way, National Trails, and other rights of access to land (e.g. open access land) are important recreational facilities for walkers, cyclists and equestrians. Applicants are expected to take appropriate mitigation measures to address adverse effects on coastal access, National Trails, other public rights of way and open access land and, where appropriate, to consider what opportunities there may be to improve access.</p> <p><u>NPPF</u></p> <p>Paragraph 19 states that the government is committed to ensuring that the planning system does everything it can to support sustainable economic growth. Paragraph 75 requires the protection and enhancement of public rights of way and access, seeking opportunities to provide better facilities for users; for example by adding links to existing rights of way networks.</p> <p><u>RIS</u></p>

	<p>Busy roads can sever access in towns and villages, impeding cyclists and walkers. Highways England will do more to deliver improved outcomes for those living and working near the network, for example through new crossings. There are no relevant policies, KPIs or PIs within the RIS for this topic area.</p> <p>Physical Environment</p> <p>The Sustrans National Cycle Route passes over and adjacent to the existing A30 between Marazanvose and Zelah, and at the A30/B3285 junction. There are a small number of public footpaths adjacent to the road, although none of them appear to cross it.</p> <p>It is important to note that the A30 is the main highway leading from the M5 at Exeter, which is used by thousands of tourists every year commuting to Cornwall. The A30 has a very important role to play in the tourism industry for Cornwall.</p> <p>The local community is made up of isolated dwellings and farmhouses, as well as some small settlements. Without additional baseline information is not possible to comment on what community facilities are available or how they are used. Both options have the potential to affect these receptors.</p>
<p>2.8 Geology, Soils & Materials</p>	<p>National & Highways England policy</p> <p><u>NPSNN</u></p> <p>Paragraph 5.117 requires where necessary, land stability should be considered in respect of new development, as set out in the NPPF and supporting planning guidance. Specifically, proposals should be appropriate for the location, including preventing unacceptable risks from land instability.</p> <p><u>NPPF</u></p> <p>Paragraph 109 states that the planning system should contribute to and enhance the natural and local environment by protecting and enhancing valued landscapes, geological conservation interest and soils.</p> <p><u>RIS</u></p> <p>There are no relevant policies, KPIs or PIs within the RIS for this topic area.</p> <p>Physical Environment</p> <p>The route options are both within land classified as Grade 3 Agricultural Land. There are two historic landfill sites within 500m of the existing A30. It is not known if there are any land stability issues associated with mining. This information will be obtained during PCF Stage 2.</p> <p>There are no Regionally Important Geological Sites (RIGS) or geological SSSIs within the study area.</p>

B.3 Part 3: Preliminary Risk Assessment

B.3.1.1 The following table summarises the methodology which has been applied to this Preliminary Environmental Risk Assessment in order to provide the individual topic areas with an overall qualitative environmental appraisal score.

Table 6-4 Environmental Assessment

Qualitative Appraisal	Threshold Description
Red	Loss of resource and/or quality and integrity of resource; severe damage to key characteristics, features or elements which result in a high level of impact.
Amber	Some measurable change in attributes, quality or vulnerability; minor loss of, or alteration to, one (maybe more) key characteristics, features or elements which will result in a moderate level of impact.
Green	Very minor loss or detrimental alteration to one or more characteristics, features or elements which will result in a low level of impact.

	Policy Conflicts & Environmental Risks	RAG Rating
3.1 Air Quality & Greenhouse Gas	National & Highways England policy During the construction and operation phases, associated dust and emissions have the potential to cause adverse impacts on adjacent properties and Newlyn Downs SAC and SSSI. If appropriate standard mitigation measures are implemented it is likely that the options will comply with paragraph 5.12 of the NPSNN and therefore the impact is likely to be low and therefore the RAG rating is green. There is unlikely to be any discernible difference in effects between the two options, although Option 1 is slightly closer to the SAC than the Option 6.	Green
	Physical Environment Air quality impacts on the physical environment during construction should be mitigated through the implementation of a Construction Environmental Management Plan (CEMP), which is likely to include dust suppression measures and construction traffic access points. As part of either option appropriate locations for compound areas would be identified away from properties where practicable. During operation the air quality impacts have the potential to remain the same or decrease as the options should provide more flowing traffic and reduce congestion.	Green

	Policy Conflicts & Environmental Risks	RAG Rating
	<p>If appropriate mitigation is implemented during construction the impact is likely to be low and therefore the RAG rating is green. Impacts from emissions during operation are unlikely to significantly change.</p> <p>There is unlikely to be any difference in effects between the two options.</p> <p>Opportunities</p> <p>It may be possible to reduce the impacts on existing properties adjacent to the roadside if the alignment of either option results in the road being moved further away from those properties. No further opportunities identified.</p>	
3.2 Cultural Heritage	<p>National & Highways England policy – designated assets</p> <p>During the construction phase there is the potential for heritage assets and their settings to be adversely affected by both options, namely the World Heritage Site, listed milestones and nearby listed buildings, and Four Barrows Scheduled Monument. Works directly affecting or resulting in the loss of heritage assets will not support national policy. Works which affect the setting of assets and therefore have an indirect impact will also not support national policy, although to a lesser extent. Mitigation such as screening/fencing ensures the risk of damage is minimised. Where enhancement measures are appropriate they should be incorporated as part of the design stage.</p> <p>Best Practice for works that have the potential to significantly affect heritage assets is to consult with Historic England at the earliest opportunity. The relevant Historic Environment Record (HER) has been consulted and the heritage assets assessed using appropriate expertise in the Environmental Study Report.</p> <p>The options are unlikely to support paragraph 134 of the NPPF as works are likely to affect heritage assets. This could be either directly (in which case the rating would be high) or indirectly (in which case the rating would be moderate). It has been assumed that some of the impacts could be mitigated but that some adverse impacts on existing assets will occur. The RAG rating is therefore amber.</p> <p>There is unlikely to be any significant difference in effects between the two options, as both would result in effects on heritage assets.</p>	Amber
	<p>Physical Environment – unknown buried archaeology</p> <p>Potential impacts on unknown heritage assets should be mitigated appropriately, using measures that may include an Archaeological Watching Brief and intrusive evaluation.</p>	

	Policy Conflicts & Environmental Risks	RAG Rating
	<p>If archaeologically sensitive materials are found during construction the project programme may be delayed whilst recording and/or excavation of the findings is undertaken.</p> <p>The options are likely to adversely impact the setting and physical heritage assets. It is very likely that the site contains buried archaeologically important materials due to the number of Schedule Monuments in the area.</p> <p>It has been assumed that some of the impacts could be mitigated but that some impacts on existing assets will occur. The RAG rating is therefore amber.</p> <p>There is unlikely to be any difference in effects between the two options as both are likely to affect buried archaeology.</p> <p>Opportunities The Listed milestones directly adjacent to the existing alignment could be incorporated into the design which would continue the intended and original use of the heritage assets.</p>	Amber
3.3 Landscape	<p>National & Highways England policy Significant effects during construction and operation, and visibility and conspicuousness, would need to comply with the respective duties in section 11A of the National Parks and Access to Countryside Act 1949 and Section 85 of the Countryside and Rights of Way Act 2000. Both of the proposed alignment options include offline sections from the existing A30 Chiverton to Carland Cross, therefore will require the use of greenfield land which is not the preferred approach required by paragraph 111 of the NPPF. However, no brownfield land is available in this location. The options will not support paragraph 109 (bullet point 1) of the NPPF with the permanent loss of grass verges, trees and hedgerows. However, this loss can be mitigated and this loss will not include any nationally designated landscapes or features.</p> <p>The options are likely to be compliant with national policy as there are no designated landscape areas within close proximity of the site. Therefore the impact of the options will be low and the RAG rating is green.</p> <p>There are likely to be more significant landscape and visual effects caused by the offline option than the on/offline option.</p>	Green

	Policy Conflicts & Environmental Risks	RAG Rating
	<p>Physical Environment</p> <p>Landscape and historic landscape assessments have been carried out and exist for the whole of Cornwall (Cornwall Council, May 2007, Cornwall and Isles of Scilly Landscape Character Study and Historic Environment Service, Cornwall County Council, 1996, Cornwall Historic Landscape Character). Landscape mitigation will be incorporated into the design.</p> <p>Both options will require some permanent loss of verges, trees and hedgerows but these are not nationally designated features and this loss can be compensated for therefore the impact will be low and the RAG rating is green.</p> <p>There are likely to be more significant landscape and visual effects caused by Option 6 than Option 1 due to the increased land take and intrusion into the countryside.</p> <p>Opportunities</p> <p>The options are likely to require landtake of greenfield land and loss of trees, hedgerows and grass verges. The design stage will provide the opportunity to amend the options to incorporate as much as the existing alignment and brownfield land as possible. The landscape proposals could include opportunities to incorporate new grass verges and planting of trees and hedgerows, replacing those which have been lost as a result of the options as well as opportunities for enhancement.</p>	Green
3.4 Nature Conservation / Biodiversity	<p>National & Highways England policy</p> <p>The options have the potential to adversely affect nearby ecologically designated sites and result in the removal of areas of Deciduous Woodland. The options will need to conserve and enhance biodiversity, adequately mitigate, or, as a last resort use compensation measures to mitigate for the loss of habitats. An Appropriate Assessment may also be required.</p> <p>Removal of areas likely to be UK BAP priority habitats and ecologically designated sites would not support paragraph 117 to 119 of the NPPF and the Highways England Biodiversity Plan. This could be mitigated through replacement and enhancement.</p> <p>However, it is not possible to identify the extent of the impact at this stage and it has been assumed there will therefore be a moderate adverse impact and the RAG rating is amber.</p> <p>There is unlikely to be any difference in effects between the two options as both are likely to affect designated sites.</p>	Amber

	Policy Conflicts & Environmental Risks	RAG Rating
	<p>Physical Environment</p> <p>European Protected Species Licences are identified by Natural England under The Conservation of Habitats and Species Regulations 2010 (as amended). Appropriate surveys will need to be carried out in order to ascertain the baseline of habitats and species. Potential adverse impacts on sensitive habitats should be mitigated appropriately, whether specific species or targeted measures and/or landscape design is required.</p> <p>If protected species are found during surveys or construction it is likely that this may delay the project programme, as mitigation measures or translocation of species may be required.</p> <p>The ecological baseline for the study area is not yet known; therefore this rating is based upon the likely outcome of ecological surveys based on previous experience in Cornwall. It is expected that there will be protected species present.</p> <p>The amber rating is identified due to the proximity of the SAC as the impacts on this European designated site have the potential to be significant.</p> <p>There is unlikely to be any difference in effects between the two options as both have the potential to affect protected species.</p> <p>Opportunities</p> <p>As detailed in the Highways England Biodiversity Plan to protect and increase biodiversity, detailed assessments and comprehensive mitigation to limit the harm to wildlife should be undertaken for large projects, as far as practical. Therefore, this project provides the opportunity to comply with Highways England policy and protect and enhance the surrounding environment in order to minimise impacts on biodiversity.</p> <p>Translocation of prospected species where appropriate could also be required. Habitat creation should be considered in line with landscape mitigation and proposals.</p>	Amber
3.5 Noise & Vibration	<p>National & Highways England policy</p> <p>The options will need to be undertaken in accordance with the statutory requirements for noise. The options should adhere to the relevant Noise Insulation Regulations. Consent determined by the Environmental Health Department at Cornwall Council under Section 61 of the Control of Pollution Act 1974 prior to operation. If appropriate mitigation measures are implemented it is likely that the options will comply with paragraph 5.193 of the NPSNN.</p>	Green

	Policy Conflicts & Environmental Risks	RAG Rating
	<p>If appropriate mitigation is implemented during construction the impact is likely to be low and therefore the RAG rating is green. Impacts during operation are unlikely to significantly change.</p> <p>There is unlikely to be any discernible significant difference in effects between the two options, although Option 6 is likely to result in a beneficial effect for a slightly higher number of residential properties.</p>	
	<p>Physical Environment</p> <p>Adverse noise and vibration impacts on sensitive receptors during construction are likely to increase due to construction vehicles and associated construction works. Potential adverse impacts during construction should be mitigated through the implementation of a CEMP in accordance with best practice measures.</p> <p>Noise effects during operation are unlikely to change and could be reduced with the use of low noise surfacing. Therefore the impact is likely to be low and therefore the RAG rating is green. It is possible that some sensitive receptors could be beneficially or adversely affected if the road alignment is moved closer or further away than the existing A30. However, it is not possible to identify the magnitude of the impacts at this stage.</p> <p>There is unlikely to be any discernible significant difference in effects between the two options, although Option 6 is likely to result in a beneficial effect for a slightly higher number of residential properties.</p> <p>Opportunities</p> <p>The introduction of low noise surfacing may improve the noise levels in the NIAs along the A30.</p>	Green
3.6 Road Drainage & the Water Environment	<p>National & Highways England policy</p> <p>National policy requires that surface water drainage and flood issues need to be fully understood, therefore the appropriate assessments will be required in order to comply with these.</p> <p>A Flood Risk Assessment will be undertaken and design features implemented in accordance with best practice the options are likely to be compliant with paragraph 5.96 of the NPSNN and is unlikely to be at risk of flooding.</p> <p>The nearby watercourses and waterbodies are unlikely to be directly affected, although some culverting may be required. Therefore, the impact of the options is likely to be low and the RAG rating is green with the application of standard mitigation.</p>	Green

	Policy Conflicts & Environmental Risks	RAG Rating
	<p>There is unlikely to be any significant difference in effects between the two options.</p> <p>Physical Environment The options are unlikely to be at significant risk of fluvial flooding. The nearby watercourses and waterbodies are unlikely to be directly affected, although some culverting may be required. Pollution control measures will be required in those areas. Therefore, the impact of the options is likely to be low and the RAG rating is green with the application of standard mitigation.</p> <p>There is unlikely to be any significant difference in effects between the two options.</p> <p>Opportunities No opportunities identified. Design standards have improved since the A30 was originally built. Therefore, a new drainage system could improve pollution control from surface water.</p>	Green
3.7 People & Communities	<p>National & Highways England policy The options are intended to enhance the strategic highway network in order to support sustainable economic growth in Cornwall, with reduced congestion increased certainty in journey times and fewer accidents. The options are compliant with the relevant national policy relating to sustainable economic growth.</p> <p>The options are likely to be compliant with paragraph 19 of the NPPF as it seeks to support strategic economic growth.</p> <p>Therefore, the impact of the options is likely to be low and the RAG rating is green.</p> <p>There is unlikely to be any significant difference in effects between the two options as both options will result in similar economic outcomes.</p>	Green
	<p>Physical Environment There are likely to be adverse impacts on Public Rights of Way (PRoW) and cycle paths during the construction stage, as works may require temporary closure and diversions to some routes. Appropriate diversions will need to be put in place prior to construction works which would be identified in the Development Consent Order.</p> <p>There are unlikely to be any adverse effects during operation.</p>	Amber

	Policy Conflicts & Environmental Risks	RAG Rating
	<p>Both options are likely to require temporary diversion of PRow's and cyclepath during construction. Therefore, there will be some temporary adverse impacts on the local community and the RAG rating is amber.</p> <p>There is unlikely to be any significant difference in effects between the two options as both will affect PRow's.</p> <p>Opportunities</p> <p>Once completed the options would provide Cornwall with a more efficient road network, which will be used by thousands of tourists each year that visit the county, as a result boost the local economy. It could also incorporate improved facilities for pedestrians and cyclists.</p>	
3.8 Geology, Soils & Materials	<p>National & Highways England policy</p> <p>As part of the design and construction stages the options will need to protect and, where possible, enhance valued landscapes, geological conservation interest and soils.</p> <p>Provided appropriate mitigation and best practice measures are implemented during the design and construction stages the options are both likely to comply with national policy.</p> <p>The options are likely to comply with paragraph 19 of the NPPF. Therefore the impacts of the options are likely to be low and the risk assessment in green.</p>	Green
	<p>Physical Environment</p> <p>The options will require the permanent loss of Grade 3 Agricultural Land – good to moderate. Further assessment would be required to identify Best and Most Versatile (BMV) Agricultural Land, which includes Grades 3a and above. Grade 3b is of moderate value. Where development on Agricultural Land is demonstrated to be necessary, the design should seek to use lower quality land where possible. The worst case scenario would be that all of the land required is Grade 3a and the therefore would result in BMV land which would not support national policy.</p> <p>Where the historic landfills are situated there is potential for the surrounding geology and soils to be unstable.</p> <p>No other constraints have been identified. However, after appropriate surveys and assessments have been completed it may be concluded that mitigation measures are required.</p>	Amber

	Policy Conflicts & Environmental Risks	RAG Rating
	<p>Ground Investigation surveys can often be a cause for delay in project programme.</p> <p>The geological baseline for the study area is not yet known; therefore the amber rating is based upon the likely outcome of ground investigation assuming that there may be some ground instability which would have a moderate impact. The impact of Option 6 is likely to be more significant than for Option 1.</p> <p>Opportunities No opportunities identified.</p>	

B.4 Part 4: Summary

Table 6-5 Summary

4.1 Is a statutory Environmental Impact Assessment (EIA) likely to be required?	<p>Both options will result in the construction of some sections of new road. The options therefore falls within the 'construction' category in the National Infrastructure Planning (Highways and Rail) Order 2013. A construction project requires Development Consent if it is more than 12.5 ha in area, the Secretary of State for Transport is the Highway Authority and the speed limit exceeds 50mph. Therefore the A30 Chiverton to Carland Cross scheme meets these criteria and is likely to be an NSIP.</p> <p>The options fall within Schedule 2 Part 10 of Infrastructure Planning (Environmental Impact Assessment) Regulations 2009. Both options are expected to be more than 1 hectare in area and is therefore likely to require EIA under the Regulations. A Screening Opinion from the Secretary of State would be required to confirm this or Highways England would issue a Record of Determination concluding that EIA is required at the end of Project Control Framework (PCF) Stage 2.</p>
4.2 Is an Assessment of the Implications on European Sites (AIES) likely to be required?	An AIES is likely to be required due to the proximity of the Newlyn Downs SAC and has been completed for Stage 1.
4.3 Limitations, uncertainty & gaps in information	<p>It should be noted that this Risk Assessment is based on publically available desk top information and some site visits. Appropriate site surveys will be required to identify the baseline and sensitive receptors for each specialist topic area to inform the EIA to be carried out at PCF Stage 3, as well as the Environmental Study Report (EAR) to be prepared for PCF Stage 2.</p>
4.4 Summary of National & Highways England Policy Risk	<p>Summary</p> <p>During the construction and operation phases, associated dust and emissions have the potential to cause adverse impacts on adjacent properties and Newlyn Downs SAC and SSSI. There is the potential for heritage assets and their settings to be adversely affected. Both of the proposed alignment options include offline sections from the existing A30 Chiverton to Carland</p>

	<p>Cross; therefore will require the use of greenfield land. The options will result in the permanent loss Agricultural Land and grass verges, trees and hedgerows. The options have the potential to adversely affect nearby ecologically designed sites and result in the removal of areas of Deciduous Woodland. The RAG rating applied is based on the worst case scenario identified in Section 3. There are limited significant differences in impacts between the options, mainly related to landscape and materials.</p> <p>Overall RAG Rating</p> <p>Amber</p>
<p>4.5 Summary of Physical Environment Risk</p>	<p>Summary</p> <p>During operation the air quality impacts have the potential to decrease as the options should provide more flowing traffic. Any potential works have the potential to significantly affect the setting of the World Heritage Site, a Registered Park and Garden, a Scheduled Monument, and nearby listed buildings. If archaeologically sensitive materials are found during construction the project programme may be delayed whilst recording and/or excavation of the findings is undertaken. Potential adverse impacts on sensitive habitats, species and ecologically designated areas should be mitigated appropriately. If protected species are found during ecological surveys or construction it is likely that this may delay the project programme. There are likely to be adverse impacts on PRow and cycle paths during the construction stage, as works will require temporary closure and diversions. The proposed development may require the permanent loss of Grade 3 Agricultural Land – good to moderate. The RAG rating applied is based on the worst case scenario identified in Section 3. There are limited significant differences in impacts between the options, mainly related to landscape and materials.</p> <p>Overall RAG Rating</p> <p>Amber</p>

B.5 Quality Criteria

B.5.1 Guidance for completion of general preliminary environmental risk assessment

Table 6-6 General

General	<p>The purpose of the preliminary environmental risk assessment is to identify and summarise key policy conflicts and environmental risks/opportunities in a concise manner, at the first opportunity within the project lifecycle (PCF 0: pre project). The risk assessment is intended to establish whether a scheme/route will meet barriers to delivery within programme and budget.</p> <p>It is acknowledged that there may be limited design detail available at this stage, therefore this product does not intend to assign magnitude / significance to potential effects or identify mitigation. The purpose is to identify potential barriers to scheme delivery as early as possible to inform decision makers.</p> <p>Professional judgement should be the driver for assigning the environmental risk rating (RAG rating) based on available design information and known baseline policy / environmental constraints, whilst being mindful of the limitations, uncertainty & gaps in available information at this stage of the project lifecycle.</p> <p>Readily available information should be used to compile the form. A general walkover of the scheme / route can be undertaken where this is deemed to be beneficial. However, no detailed surveys should be undertaken at this stage.</p>
---------	---

B.5.2 Guidance for completion of part 1 preliminary environmental risk assessment

Table 6-7 Part 1 – Scheme & Surrounding Area

Part 1	Scheme & Surrounding Area
1.1	As much known scheme information as possible should be provided. Avoid incorporating detail that may be brought forward at a later stage of the design process.
1.2	Scheme/route length and area to be added where known.
1.3	The description of the surrounding area should outline the land use in each direction of the scheme/route and should also highlight the location of key landmarks i.e. rivers. Topography should also be described along with the location of businesses, communities and public amenities i.e. public rights of way.

B.5.3 Guidance for completion of part 2 preliminary environmental risk assessment

Table 6-8 Part 2 – Environmental/Policy Baseline

Part 2	Environmental/Policy Baseline
2.1	<p>National & Highways England Policy: relevant policies contained in the National Planning Policy Framework (NPPF), National Networks National Policy Statement (NNNPS), Roads Investment Strategy and associated Highways England licence / key performance indicators should be identified.</p> <p>Physical: Air Quality Management Areas (AQMA's), DEFRA compliance links and sensitive human / ecological receptors within and adjacent to the scheme/route should be identified. Professional judgement should be exercised to determine if constraints in the wider area are relevant and should be considered.</p>
2.2	<p>National & Highways England Policy: refer to 2.1</p> <p>Physical: Historic landscape designations, historic buildings / assets (scheduled monuments & listed buildings) and potential for buried archaeology within and adjacent to the scheme/route should be identified. Professional judgement should be exercised to determine if constraints in the wider area are relevant and should be considered.</p>
2.3	<p>National & Highways England Policy: refer to 2.1</p> <p>Physical: Landscape designations and sensitive visual receptors within and adjacent to the scheme/route should be identified. The landscape character area should also be identified and summarised. Professional judgement should be exercised to determine if constraints in the wider area are relevant and should be considered.</p>
2.4	<p>National & Highways England Policy: refer to 2.1</p> <p>Physical: Designated sites and protected / priority species within and adjacent (& within 30km where bats are a qualifying interest) to the scheme/route should be identified. Professional judgement should be exercised to determine if designations and protected / priority species in the wider area are relevant and should be considered.</p>

Part 2	Environmental/Policy Baseline
2.5	<p>National & Highways England Policy: refer to 2.1</p> <p>Physical: DEFRA noise important areas and sensitive human / ecological receptors within and adjacent to the scheme/route should be identified. Professional judgement should be exercised to determine if constraints in the wider area are relevant and should be considered.</p>
2.6	<p>National & Highways England Policy: refer to 2.1</p> <p>Physical: Watercourses / bodies, flood zones, underlying aquifer status and source protection zones within and adjacent to the scheme/route should be identified. Professional judgement should be exercised to determine if constraints in the wider area are relevant and should be considered.</p>
2.7	<p>National & Highways England Policy: refer to 2.1</p> <p>Physical: Communities, properties, public rights of way and land use within and adjacent to the scheme/route should be identified. Professional judgement should be exercised to determine if constraints in the wider area are relevant and should be considered.</p>
2.8	<p>National & Highways England Policy: refer to 2.1</p> <p>Physical: Geological designated sites, landfills/historic landfills and quality of soils/agricultural land classification (where applicable) within and adjacent to the scheme/route should be identified. Professional judgement should be exercised to determine if constraints in the wider area are relevant and should be considered.</p>

B.5.4 Guidance for completion of part 3 preliminary environmental risk assessment

Table 6-9 Part 3 – Preliminary Risk Assessment

Part 3	Preliminary Risk Assessment
3.1 – 3.8	<p>The information identified in Parts 1 & 2 should be considered to identify (using professional judgement) what the risks are to scheme delivery. As a guide, the RAG ratings should be attributed at follows;</p> <ol style="list-style-type: none"> 1. Red: policy conflicts and environmental constraints that cannot be addressed using established and readily deliverable design solutions or mitigation thereby posing a threat to scheme delivery; 2. Amber: policy conflicts and environmental constraints that, whilst potentially significant, can likely be resolved / mitigated with potential implications for program and budget; and 3. Green: policy compliant and environmental constraints that can likely be resolved / mitigated within program and budget. <p>For each topic area, a concise summary of the key issues should be provided and a RAG rating (for policy & physical constraints) allocated based on the above guidance. For each policy conflict / environmental constraint identified, the risk on program and budget should be identified. In addition, opportunities where a scheme/route can provide benefits from the existing baseline scenario should be identified.</p>

B.5.5 Guidance for completion of part 4 preliminary environmental risk assessment

Table 6-10 Part 4 - Summary

Part 4	Summary
4.1	Based on the information considered in Parts 1, 2 & 3, the conclusion of 4.2 (and either the criteria outlined in the Highways (Environmental Impact Assessment) Regulations 2007 or the Infrastructure Planning (Environmental Impact Assessment) Regulations 2008 (as amended)) as applicable, is the scheme/route likely to require a statutory EIA?
4.2	Based on the information considered in Parts 1, 2 & 3, does the scheme/route require further assessment under the Conservation of Habitats and Species Regulations 2010?
4.3	The limitations, uncertainty and gaps in information should be identified. Subsequently, a statement should be made of how the availability / development of information later in the project lifecycle may influence the conclusions drawn at this stage.
4.4	Considering the information in parts 1, 2, 3 & 4.1- 4.3, a concise summary of the national and Highways England policy risks / opportunities should be provided and an overall RAG rating should be assigned. This should not be an aggregation of RAG ratings across the topic areas. Rather, professional judgement should be used to consider the weighting of each specific risk in relation to the scheme/route and an overall RAG rating should be attributed accordingly.

Part 4	Summary
4.5	Considering the information in parts 1, 2, 3 & 4.1- 4.3, a concise summary of the environmental risks / opportunities should be provided and an overall RAG rating should be assigned. This should not be an aggregation of RAG ratings across the topic areas. Rather, professional judgement should be used to consider the weighting of each specific risk in relation to the scheme/route and an overall RAG rating should be attributed accordingly.
Figure 1	The figure should be clear, concise, easy to interpret (when printed at A3 size) and contain the relevant constraints associated with each topic area.

Appendix C Environmental Constraints Plan

2 PDF FILES TO GO HERE

Figure 1: Environmental Constraints Plan