

A30 Chiverton to Carland Cross TR010026

6.2 ENVIRONMENTAL STATEMENT CHAPTER 3 CONSIDERATION OF ALTERNATIVES

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**6.2 ENVIRONMENTAL STATEMENT
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Appendix 3.1 Reasonable Alternatives Studied
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3 Consideration of Alternatives

3.1 Introduction

- 3.1.1 This chapter presents a summary of the alternative options which have been considered and the justification for the scheme.
- 3.1.2 Cornwall County Council (now Cornwall Council) started considering improvements between Carland Cross and Chiverton Cross in the 1980s however nothing was implemented. The Highways Agency (now Highway's England) then examined a series of options between 2002 and 2008, however funding was not available to progress the scheme at this time. In 2014, Highways England developed a route strategy for the A30, which led to the scheme being included in the Department for Transport's Road Investment Strategy (RIS) for 2015-2020¹, published in December 2014.

3.2 Alternatives considered

- 3.2.1 Cornwall Council and Highways England conducted extensive studies for the improvement of the A30 between Chiverton and Carland Cross in the past, as summarised in Table 3-1.

Table 3-1 List of alternatives considered

Year	Summary of Alternatives Considered
1980-1990s	<p>Cornwall County Council (now Cornwall Council) considered improvements between Carland Cross and Chiverton Cross in two separate sections:</p> <ul style="list-style-type: none"> • Carland Cross to Zelah was included in the Government's white paper Roads for Prosperity in 1989, but not implemented • Zelah to Chiverton Cross roundabout <p>The Zelah bypass was constructed in 1991 to alleviate the narrow roads through the village of Zelah from the increasing volumes of traffic along the A30.</p>
2002-2006	<p>In 2002 the Highways Agency (now Highways England) reviewed options. A single option was presented to a public consultation in May 2004, following which the Secretary of State for Transport made a preferred route announcement in March 2005. However, the South West Regional Assembly (SWRA) recommended that the scheme should be delivered in the longer term. In July 2006 the Secretary of State for Transport accepted SWRA's advice and indicated that funding was unlikely before 2016 at the earliest.</p>
2006-2008	<p>Following SWRA's assessment that improving the full length to dual carriageway standard was not a priority, the Highways Agency commissioned a safety improvement scheme in December 2006, which could be delivered within the ten year plan. An initial Scheme Assessment Report was produced which:</p> <ul style="list-style-type: none"> • described the options considered • described the impact of those options in terms of traffic, safety, economic and environmental impact • recommended a strategy for improving this section of A30 prior to 2016
2013-2014	<p>Highways England developed a route strategy for the A30, which led to the scheme being included in DfT's Road Investment Strategy (RIS) for 2015-2020 in December 2014.</p>
2015-2017	<p>Subsequent to the RIS publication, Highways England has undertaken:</p> <ul style="list-style-type: none"> • Stage 1 Options Identification, to identify feasible options. • Stage 2 Options Selection, to further investigate those options and carry out a public consultation.

¹ <https://www.gov.uk/government/collections/road-investment-strategy>

3.3 Assessment methodology

Road Investment Strategy

3.3.1 The Road Investment Strategy (RIS) for 2015-2020 sets out the list of schemes to be developed by Highways England over the period from 2015-2020, and includes the A30 Chiverton to Carland Cross.

3.3.2 Possible solutions for schemes named in the RIS were identified by Highways England after collating evidence on network performance issues and from local stakeholders. Following an options assessment, a recommended solution emerged for which an outline and strategic business case was made.

3.3.3 The list of possible solutions was then developed building on the previous options assessment and strategic business case. This included further assessment identifying that a full dual carriageway standard route (either on-line or off-line) would be the only option that would fully address the scheme objectives out of a possible 11 options considered, including improvements to bus and rail services.

Stage 1 Option Identification

3.3.4 Following the RIS publication, Highways England embarked on the Option Identification stage to identify feasible options for a full dual carriageway standard route. This involved the following processes:

- Identify options to be taken to public consultation
- Assess options in terms of environmental impact, traffic forecasts and economic benefits
- Refine the cost estimate of options (including an allowance for risk)

Stage 2 Option Selection

3.3.5 On completion of the Option Identification stage, the Option Selection stage commenced to further investigate a number of mainly offline solutions to achieve the scheme requirements, and to carry out a public consultation to select a preferred route. This involved the following processes:

- Carry out public consultation including exhibitions
- Analyse comments received and select a preferred option
- Refine the cost estimate for preferred option (including allowance for risk)
- Refine the environmental impact assessment, traffic forecasts, and economic benefits
- following public consultation if required
- Produce an outline business case
- Announce the preferred route

3.3.6 During stage 2, the project team undertook the following activities to support the option selection process:

- Traffic modelling and economic appraisal for options
- Engineering design for options
- Environmental surveys
- Environmental assessment and mitigation design for options
- Stakeholder engagement
- Public consultation

- Design and assessment of alternatives emerging from public consultation
- Supplementary consultation on alternatives
- Option refinement
- Assessment and reporting

Assessment of Alternatives

3.3.7 Following public consultation, a number of options at Chiverton Cross, Carland Cross and Marazanvose were identified to address concerns raised during the consultation. The process of assessment of the various scheme options was formed of the following stages:

- Prior to option selection workshop:
 - i. Each alternative for each element of the scheme was developed so that there was like-for-like comparison in terms of scale, quantum, purpose, etc.
 - ii. Each project discipline reviewed each element and summarised the assessed impacts, such that the likely impacts and effects of each element were understood.
 - iii. From analysis of each discipline summary assessment of each option, key risk areas were identified for sharing with the workshop group. The National Policy Statement for National Networks weighting for each generic impact assessed was assigned to the described impact for each discrete alternative.
- At the option selection workshop:
 - iv. The workshop participants reviewed drawings of each assessed alternative and the assessment undertaken. The summarised significant impacts for each alternative were described by relevant specialists to ensure a common understanding of all salient issues.
 - v. When all salient issues were listed for each alternative, a pairwise comparison was undertaken i.e. two alternatives were compared; advantages and disadvantages were listed; and conclusions reached on which alternative to take forward for comparison with any further option. This pairwise comparison process was repeated until a preferred option emerged.

3.3.8 All environmental impacts were assessed during the scheme development, and compared during the route selection process. The impact of the scheme alternatives on the environmental receptors along the corridor is similar - the potentially significant impacts are on landscape, cultural heritage assets and biodiversity receptors. Of these, only the cultural heritage impacts vary with the route option.

3.3.9 The environmental assessment of these alternatives is provided within Chapter 7 of the **Scheme Assessment Report** (Volume 7 Document Ref 7.6)².

² <https://highwaysengland.citizenspace.com/he/a30-chiverton-to-carland-cross-improvement-scheme/results/scheme-assessment-report.pdf>

3.4 Reasonable alternatives studied

3.4.1 As part of stage 1 option identification and stage 2 option selection, a number of alternatives were considered. Appendix 3.1 contains a flow chart illustrating the development process and a location plan of the stage 1 route alternatives.

Stage 1 Option Identification

3.4.2 At stage 1, two options were identified which included:

- **6A**: An on-line option where the route aligned close to the existing road corridor and re-used the corridor occupied by the existing Zelah Bypass; and
- **IM**: a wholly off-line solution (i.e. the route did not affect the existing A30) thus allowing it to be used as a continuous route for local traffic separate from the new dual carriageway.

3.4.3 Options **6A** and **IM** were refined into options **IN** and **6B** respectively.

3.4.4 It was concluded that the off-line option **6B** was the preferable option to be taken forward to consultation for the following reasons:

- reduced air quality and noise impacts to properties alongside the existing road;
- better opportunities for re-use of the existing road for local connectivity, including non-motorised use, as well as part of the Land's End to John O'Groats cycling route;
- less disruption during construction; and
- potentially quicker and cheaper to construct.

Stage 2 Option Selection

3.4.5 At stage 2 off-line option **6B** was investigated further. Two refined versions of option **6B** were taken to consultation called **6BA** and **6BB** respectively.

3.4.6 Route option **6BA** was 'carried forward' with the possible alternative junction layouts considered shown in table 3-2.

Table 3-2 List of alternative junction options

Location	Options	Rejected or Carried Forward
1. Chiverton	At Grade Throughabout (Hamburger) Discarded	Discarded
	At Grade Gyratory Discarded	Discarded
	Dumbell closer to existing roundabout – Location A Discarded	Discarded
	Gyratory at consultation location – Location B Carried forward	Carried forward
	Gyratory – Location C (between Locations A and B) Discarded	Discarded
	NMU provision for the above Carried forward	Carried forward (Opportunity)
2. Chybucca	More southerly realignment at Chybucca with online section	Carried forward
	Reduce separation between the existing A30 and the proposed dual carriageway	Carried forward
3. Marazanvose:	Alignment initially south of existing A30 with online sections to reduce severance in Nancarrow	Carried forward
	Alignment moved north of Marazanvose	Carried forward
	Alignment and side road moved north of Marazanvose	Carried forward
	Northern option, old A30 to south of D2AP (similar to Buildability Workshop Alt 3.)	Discarded
	New junctions either side of Zelah i.e. at Boxheater or Pennycomequick and provide all movements at Twobarrows	Discarded
	Alignment south of Boswellick Farm extending beyond Pennycomequick – a major off-line southern alternative.	Discarded
4. Trevalso	Underbridge to retain connection to the existing A30	Carried forward (Opportunity)
5. Carland Cross	Northern link for existing A30 to remove proposed bridge and existing A30 to allow existing barrows group to be re-connected	Carried forward

3.4.7 A summary of the reasons why those alternatives described in Table 3-2 were discarded is provided in Table 3-3.

Table 3-3 Reasons for discarding alternatives

Location	Options	Reason discarded
Chiverton	Public Consultation Layout	<p>Properties to the north likely to experience increase in noise due to elevated junction, proximity of roundabout and increased traffic speeds.</p> <p>The location of the junction would result in limited space due to residential and commercial services would restrict the junction size to the extent capacity would be insufficient. Limited capacity for future growth.</p> <p>This option offers no additional beneficial advantage to the heritage assets or the landscape setting of either St Peters Church or the Three Barrow when compared with other options.</p>
	At Grade Thoroughabout (Hamburger)	Not grade separated and thus not compliant with RIS. Would reach capacity before design year and would lead to extensive queuing on all approaches. Unacceptable to Cornwall Council.
	At Grade Gyratory	Not grade separated and thus not compliant with RIS. Would reach capacity before design year and would lead to extensive queuing on all approaches. Unacceptable to Cornwall Council.
	Dumbell closer to existing roundabout	A gyratory layout at this location was considered a more efficient use of the constrained space available.
	Gyratory closer to existing roundabout	<p>The location of the junction would result in limited space due to residential and commercial services would restrict the junction size to the extent capacity would be insufficient.</p> <p>This option offers no additional beneficial advantage to the heritage assets or the landscape setting of either St Peters Church or the Three Barrow when compared with other options.</p> <p>Between four and five times less buildable when compared to the other options.</p> <p>The cost of Option A is estimated at £5.98m above that of the original consultation route.</p>
Chybucca	Route north of Callestick Vean	<p>There would be negligible change on noise levels at Callestick Vean compared to the beneficial change predicted at from the preferred route.</p> <p>The consultation layout provides no additional beneficial traits over that of proposed route in terms of air quality, NMUs, traffic capacity, land access and farm severance.</p>
Marazanvose	Northern option, old A30 to south of new dual carriageway	<p>An additional five fields and three landowners would be affected when compared with the preferred route. The route would also create isolated parcels of land, remote from their original farms, although access can be maintained to these severed pieces of fields. Impact on Chyverton cross country equestrian venue. Major impact on Ranger Barn smallholding and a privately held pasture field.</p> <p>The realignment would cause an increase in exposure at Hill House with regards to air quality.</p>

Location	Options	Reason discarded
		<p>The road alignment is immediately adjacent to Chyverton Registered Park and Garden creating adverse impacts on the setting of the garden and the listed lodge buildings, both through loss of tranquillity and alterations to the permeability of the landscape.</p> <p>There is an expected increase in noise level at Hill House due to decrease in horizontal separation between road and receptor.</p> <p>The cost of this option is assessed to be £0.4m above that of the preferred alignment.</p> <p>The layout provides no additional beneficial traits over that of proposed route in terms of ecology, traffic capacity, open land access or value for money.</p>
	Northern Option (cul de sac)	<p>An additional six fields and three landowners would be affected when compared with the preferred route. Option would also create isolated parcels of land, remote from their original farms, although access can be maintained to these severed pieces of fields. Impact on Chyverton cross country equestrian venue. Major impact on Ranger Barn smallholding and a privately held pasture field.</p> <p>The road alignment is immediately adjacent to Chyverton Registered Park and Garden creating adverse impacts on the setting of the garden and the listed lodge buildings, both through loss of tranquillity and alterations to the permeability of the landscape.</p> <p>The option would server PRoW 314/67/1.</p> <p>The option provides no additional beneficial traits over that of preferred route in terms of ecology, traffic capacity, open land access or value for money.</p>
	New junctions either side of Zelah	The provision of intermediate junctions is contrary to the scheme objectives, as it would result in local traffic using the proposed dual carriageway.
	Alignment south of Boswellick Farm	This alignment significantly widened the route corridor, increased severance to agricultural land and would require the crossing of several steep sided wooded valleys over the River Allen and its tributaries.
Trevalso	Public consultation layout with no crossing	<p>The Consultation layout (with no crossing) has severe impacts on access to Trevalso Farm creating a long detour (3 miles) for lorries and agricultural vehicles accessing the A30 and fields to the north of the A30.</p> <p>The consultation layout provides no additional beneficial traits over that of preferred route in terms of noise, air quality, the historic environment, value for money, land use or PRoWs.</p>
Carland Cross	Public consultation layout of grade separated junction retaining section of A30 south of Warren's Barrow	The public consultation layout provides no additional beneficial traits over that of preferred route in terms of air quality, value for money, buildability, land use or noise and vibration.

3.5 Consultation on options

3.5.1 During stage 2 Option Selection, Highways England held a public consultation from 15 October to 2 December 2016 in the following locations:

- St Erme Community Centre;
- Shortlanesend Village Hall;
- Blackwater Community Primary School; and
- Perranzabuloe Parish Rooms.

3.5.2 The public and other stakeholders were consulted on route options **6BA** and **6BB**. Both were mainly off-line alignment, which included a variation around Chybucca. The consultation aimed to:

- raise awareness and understanding of the need and rationale for the proposed improvements;
- obtain objective feedback to enable the scheme design to be refined and developed; and
- identify any opportunities to improve the proposal.

3.5.3 At the consultation, a single route with two alignment options at Chybucca was presented. The consultation events were well attended, with an average of 208 visitors per event, totalling 835. Approximately 1,400 questionnaires were taken from events and deposit points and 698 questionnaire responses were received, online or in paper form.

3.5.4 Of those who responded to the consultation, 95% support the need for improvements to this section of the A30. This is largely in line with previous consultations; the 2015 events received support from 94% of those who gave feedback. 92% supported the principle of a dual carriageway with grade separated junctions; 86% supported the retention of the existing A30 as a route for local traffic.

3.5.5 The Public Consultation Report³ describes the consultation, highlighting the choices offered and the manner in which the scheme was presented. Feedback from the consultation was analysed, discussed and the findings summarised.

3.5.6 The areas where the public felt the scheme could be improved were:

- Chiverton Cross Junction and a more efficient passage of vehicles from St. Agnes to Truro;
- A more southerly alignment at Chybucca, not separating the properties of Callestick Vean and using more of the existing highway;
- Addition of east facing a slip road at Chybucca to form an all-movements junction; and
- Impact on productive farmland, particularly at NFH.

³ <https://highwaysengland.citizenspace.com/he/a30-chiverton-to-carland-cross-improvement-scheme/results/ropc-report-only.pdf>

3.6 Option development following consultation

3.6.1 Following the public consultation at stage 2 Option Selection, route **6BA** was taken forward. This route was refined with a number of alternative alignments and junction layouts were further assessed. These consisted of the different combinations of link alignments, junction layouts and/or additional structures. These alternatives were named **6C**, **6A** and **7B** respectively and are summarised in Table 3-4.

Table 3-4 Stage 2 option selection alternatives

Option	Option Description
6C	Options 6B with refinements
7A	Options 6C with revised junction layouts at Chiverton (gyratory arrangement) and Carland Cross (dumbbell arrangement) and southern alignments at Marazanvose.
7B	Similar to option 7A with revised layouts at Chiverton and Carland Cross northern alignment at Marazanvose.

3.6.2 Table 3-5 records the elements included in each option.

Table 3-5 Elements included within the Route Options

Scheme Elements	Scheme Options		
	6C	7A	7B
Chiverton Cross Junction			
Public Consultation (Dumbbell refined)	Y		
Option B (Gyratory – at consultation location)		Y	Y
Chybucca: Ch 2,500 to 6,500			
Online	Y	Y	
Marazanvose: Ch 6,500 to 9,000			
Public Consultation (refined)	Y		
Southern Alternative		Y	Y
North Option 2			Y
Carland Cross Junction			
Public Consultation (refined - underbridge & capacity)	Y		
Alternative		Y	Y

3.6.3 Generally, all three options would similarly enable the objectives of the scheme to be achieved and so more specific and localised environmental, social and economic impacts were critical in the decision on the alignment in the Marazanvose section.

- Chiverton Cross:
 - Grade separated single gyratory junction close to the existing junction
 - Grade separated single gyratory junction replacing dumbbell at consultation location
- Chybucca:
 - optimised online option, developed for comparison, sought to minimise agricultural land severance and make better use of the existing highway land
- Marazanvose to Zelah: (all tying into Twobarrows Bridge on Zelah bypass):
 - Southern Route: developed to reduce impact on agricultural severance;
 - Northern Route Option 1: provides a local route by making the most of the existing roads; and
 - Northern Route Option 2: with new local route to the north of the scheme
- Carland Cross:
 - Alternative route for a northern link to allow an existing barrows group to be reconnected and remove proposed bridge on Newlyn Downs.

3.6.4 An options workshop to compare these was undertaken over two days on 28 February and 2 March 2017.

3.6.5 Following the conclusion of the information event, alternatives at Chiverton, Chybucca, Marazanvose and Carland Cross were developed and assessed to determine the optimum route. Option 6C, the refined public consultation route was compared with Option 7A, the alternative southern alignment for the link through Marazanvose which was compared with Option 7B, the alternative northern alignment for the link through Marazanvose. The elements in Table 3-6 were considered pertinent to this comparison.

Table 3-6 Comparison of option 6C, 7A and option 7B

	Option 6C	Option 7A	Option 7B	Best-Performing Alternative
Land area acquired (non-highway)	10 ha	8 ha	10 ha	7A
Risk of delay/cost due to utility works	Less online construction, lower risk	Route crosses higher section of WPD transmission line with higher headroom, 2 pylons may require support	Route crosses higher section of WPD transmission line with lower headroom, 2 pylons may require support	6C and 7A
Business impacts	Increased adverse impact	Loss of 1 field and reduces size of 6 fields. Adverse	Severs 8 fields and	7A

	Option 6C	Option 7A	Option 7B	Best-Performing Alternative
	on Nancarrow Farm, fields severed, farmyard requires relocating	impact on Nancarrow, possible reduced efficiency of farmyard location due to lost field. Possible impact on wedding business during construction if not screened.	reduces size of 1 field. Adverse impact on Chyverton Park eventing area.	
Landscape	Greater adverse impact, route remote from existing alignment	Adverse impact on listed Nancarrow Farmhouse	Adverse impact on Chyverton Registered Park & Garden	7A
Visual impact	Greater disruption of field pattern & boundary vegetation	Reduced impact, close to existing alignment	Greater disruption of field pattern & boundary vegetation	7A
Noise	Significant adverse impact on Hill House, slight impact at Nancarrow Farm slight reduction at Marazanvose	Adverse impact on 2 residential properties at Nancarrow, can be mitigated	Adverse impact on 5 residential properties at Marazanvose, can be mitigated	7A
Residential demolition	Significant adverse impact on Hill House, slight impact at Nancarrow Farm slight reduction at Marazanvose	Marazanvose Barn & Grooms Cottage, Nancarrow	Marazanvose Barn	6C and 7B
Most likely cost	£294.5m	£291.4m	£301.8m	7A

- 3.6.6 The environmental assessment of these alternatives is provided within Chapter 7 of the **Scheme Assessment Report** (Volume 7 Document Ref 7.6)⁴.
- 3.6.7 In February 2017 there was an additional public engagement event held at Shortlanesend Village Hall to discuss the alignment through Marazanvose with the public and local stakeholders, leading to alternatives being explored.
- 3.6.8 Following this, in 2017, the alignment and junction designs were revisited in a series of multi-disciplinary workshops involving environmental specialists, highways engineers, town planners and transport planners; all working on behalf of or for Highways England. Feedback from the public and other stakeholders, such as Historic England, Natural England and Cornwall Council was also considered.

⁴ <https://highwaysengland.citizenspace.com/he/a30-chiverton-to-carland-cross-improvement-scheme/results/scheme-assessment-report.pdf>

3.7 Justification for chosen option

- 3.7.1 The environmental assessment undertaken for the options presented at stage 2 Option Selection led to a preferred option. The reasoning for the preferred option is set out in the **Scheme Assessment Report** (Volume 7 Document Ref 7.6), which was published in June 2017 and provides a full description and assessment of the alternative options, including the public consultation and the recommendations of option **7A** as the preferred route.
- 3.7.2 A **Route Selection Report** (Volume 7 Document Ref 7.7) was published in May 2017. This report explains the methodology and rationale for selecting the preferred option from a range of alternative options that emerged from informal public consultation events held in autumn 2016 and the information event in February 2017. It supports the summary information presented in the Scheme Assessment Report.
- 3.7.3 The reasoning for the preferred option is set out below and is split into route locations for clarity. The main alignment was designed to minimise the impacts of farm holdings where possible and avoid impacts on statutorily protected assets such as Scheduled Monuments.

Chiverton Cross

- 3.7.4 At Chiverton Cross a single gyratory grade-separated junction east of the existing junction was chosen out of three possible options for the following reasons:
- 3.7.5 Increased capacity on the gyratory junction.
- The location at Chiverton is limited by the presence of businesses and dwellings. The proposed location of the junction (east) allows for the larger gyratory (additional 6100m² of carriageway and sidewalks);
 - Properties to the south (e.g. Roscarnick Farm) may experience a decrease in noise levels due to increased distance from the A30 and landscaping which may provide some screening effects;
 - The proposed route would cost an additional £3m than the consultation base estimate. However, the recouped benefits for the increased size would be £3.6m.

Chybucca

- 3.7.6 Two options for the route alignment at Chybucca were considered and the alignment to the south of Callestick Vean was chosen for the following reasons:
- In regard to noise and vibration there is likely to be a beneficial effect at Callestick Vean as the A30 will be further from the property than the northern route.
 - The route limits the disruption to the existing field pattern.
 - Disruption to private access would be minimised with the online route.

Marazanvose

- 3.7.7 Three possible options for the alignment at Marazanvose were considered and the southern option closest to the existing carriageway was chosen for the following reasons:

- The preferred route to the south would move the carriageway further from the Chyverton Registered Park and Garden, reducing the impact on landscape and the historic setting.
- The preferred route would require between 6200 and 17500m² less carriageway and side roads compared with the consultation and northern options. This reduction in hardstanding reduces the overall land take required by up to 31,100m².
- The chosen option would avoid Marazanvose hamlet becoming an island in between the new and old A30 carriageways.

3.7.8 An additional crossing point at Trevalso was added following public consultation for the following reasons:

- Sight decrease in pollutant exposure at Herver Cottage and Herver Lane House due to increased distance to the roadside.
- The addition of the underbridge, which lies near to bat maternity roosts, is likely to be of benefit at this location; a large number of lesser and greater horseshoe bats have been recorded in this area. The crossing point may provide additional mitigation in this area.
- This option creates no adverse harm to designated heritage assets.
- No Public Rights of Way (PRoW) or open access land will be affected by the crossing.

Carland Cross

3.7.9 The layout of the junction at Carland Cross was chosen for the following reasons:

- The route alignment bisects the remnant section of heath to the south of the current A30. This option allows reconnection of an ancient barrow landscape at Warrens Barrow, currently severed by the existing A30.
- The layout would receive additional cost benefits of £3.8m.
- The alternative route would result in reduced earthwork requirements.
- No PRoW or areas of open access land are impacted.

3.8 Preferred Route

3.8.1 The preferred option (southern alternative at Marazanvose) was taken forward for inclusion in the proposed route because for almost all pertinent issues, it emerged as the best performing option. In particular, it reduces the area of agricultural land required, has a lower environmental impact especially on landscape, despite the loss of some private properties, and is significantly cheaper, whilst still meeting the objectives of the scheme.

3.8.2 The preferred option was therefore most likely to comply with the policy and legal framework provided by the National Policy Statement for National Networks (NPSNN) and relevant legislation, including an appropriate balance of social, environmental and economic outcomes.

3.8.3 In June 2017, a preferred route and site for the two junctions at Chiverton and Carland Cross, as well as an area of land to be protected from further development in order that the scheme can be delivered, was identified.

3.8.4 On 3rd July 2017 the preferred route for the A30 Chiverton to Carland Cross scheme was announced as a modified version of the route presented at consultation.

3.9 Amendments to the preferred route

3.9.1 Since the Preferred Route Announcement, the following amendments to the design have been made as part of the stage 3 Preliminary design development:

General

- Tie-ins updated for the more accurate stage 3 terrain model.
- Three WCH underbridges have been included at Chiverton, Church Lane and Newlyn Downs to retain and improve local connectivity.
- The green bridge has been designed collaboratively with the environmental, highways and structural teams to retain and improve the local bat flight path. The ramped access has also been designed to accommodate WCHs and provide local farm access.
- A number of WCH routes have been included to retain and improve local connectivity, including two new links at Chiverton roundabout to avoid WCH's needing to navigate the junction.
- Eight CCTV camera stations have been included as part of the scheme to obtain 95% coverage of the route.
- Eleven additional multi-species crossings have been included.
- Two additional drainage culverts have been included at Ch6+050 and Ch13+600.
- A number of private laneways and access tracks have been included in response to ongoing landowner engagement, to maintain safe access for landowners and WCH users with some also proposed as bridleways.
- Proposed construction compound locations have been included.
- Cuttings and embankments have been amended to be between 1:2 and 1:2.5. The earthworks slope is also informed by the associated landscaping works with slacker slopes required where woodland planting is proposed.
- One rest area with picnic benches has been included off the B3277 close to the existing filling stations and Starbucks to be retained.
- Mainline and side road verge widths have been amended as required to accommodate WCH routes and environmental mitigation (eg. Cornish hedges) and as agreed with Cornwall Council.

Mainline

- The proposed mainline was extended by 170m at the eastbound extent to ensure the vertical alignment tied into the alignment of the existing A30.
- Minor refinements to the horizontal alignment to include standard transitions, remove Departures from Standards and accommodate the pinch points where directly adjacent to the existing A30.
- The vertical alignment has been amended in two main areas at Marazanvose and Pennycomequick to improve the earthworks balance on the scheme and minimise the need to import any material, improve the environmental impacts of the route and address severance concerns from the adjacent landowners.
- Nine public lay-bys were added (5 westbound and 4 eastbound) as safe stopping places for road users and twenty-six maintenance lay-bys (12 westbound and 12 eastbound, as well as two co-located with east and westbound public lay-bys) were included to make it safer to maintain the road and associated assets.
- 4m verge widths have been provided on the mainline corridor, to provide adequate space for minor civil works. Verge widths of 2.5m have been

provided at Chybucca and Zelah to assist with environmental mitigation and minimise land take.

- A number of drainage attenuation ponds have moved location or changed size, most notably at the western tie-in and Pennycomequick, as a result of changes to low points and confirmation on whether outfalling to groundwater or to adjacent watercourses
- Three eastbound and westbound gated Emergency Access Points have been included to assist with the operation of the route and response to major incidents.

Junctions

- The slip roads at Chiverton Junction, Chybucca Junction and Carland Cross Junction have been updated to provide full standard geometry and forward visibility.
- The Chiverton junction was moved 100m East to avoid/minimise impact on the businesses adjacent to the existing roundabout junction.
- The size of the Chiverton Junction gyratory carriageway has increased to avoid the need for retaining structures and also provide the additional entry and circulatory lane widths required for the updated forecast traffic levels.
- The size of the Chybucca junction roundabouts have increased to provide entry path deflection and the southern roundabout has moved 6m south east to improve the approach gradients.

Side roads

- Highways cross sections for the realigned local side roads have been updated to match the existing road and verge widths as agreed with Cornwall Council.
- Verge widths have been increased where required to provide standard visibility on the side roads and to and from associated junctions.
- At Shortlanesend, the new junction out of Zelah with the realigned existing A30 has been moved west to approximate Ch8+000 to maximise the visibility to and from the junction.
- Gated emergency access points have been added in the vicinity of a number of the side road crossings, providing access between the new mainline and the side roads for emergency incidents.
- Trevalso culvert crossing was increased from a mammal crossing to a combined vehicular/mammal crossing to accommodate the associated agricultural business. Subsequently Henvor Lane has been realigned to create the new junction with the realigned Trevalso Lane.
- The vertical clearances were increased at Tolgroggan overbridge and Carland Cross underbridge to provide the required headroom.
- A number of additional drainage attenuation ponds have been included to pick up surface water flows from the side roads, prior to outfall to adjacent watercourses.

3.10 Amendments to the scheme since consultation

- 3.10.1 Since the 29 January – 12 March 2018 consultation, the following changes to the design have been made as part of the preliminary design development:

General

- A number of WCH routes have been included to retain and improve local connectivity, including two new links at Chiverton roundabout to avoid WCH's needing to navigate the junction.
- The ramped access to the Greenbridge has been amended to accommodate WCHs and provide local farm access.
- An additional multi-species crossing has been included at Trevalso, in the form of a culvert at Ch9+700.
- A multi-species crossing has been enlarged to mitigate for bats at Ch12+000.
- A private laneway has been included at Chybucca in response to ongoing landowner engagement, to maintain safe access for landowners and WCH users
- A private laneway and WCH link has been included between Mitchell and Carland Cross in response to ongoing landowner engagement, to maintain safe access for landowners and WCH users.
- Reconfiguration of the proposed construction compound at Trevalso.
- One rest area with picnic benches has been included off the B3277 close to the existing filling stations and Starbucks to be retained.
- Mainline and side road verge widths have been amended as required to accommodate WCH routes and environmental mitigation (eg. Cornish hedges) and as agreed with Cornwall Council.
- Integration of noise mitigation at Chiverton in the form of Cornish Hedges (earth-filled stone wall) into the landscape and visual mitigation design.
- Integration of noise mitigation at Marazanvose/NFH area in the form of noise fencing.

Mainline

- Minor refinements to the horizontal alignment to include standard transitions, remove Departures from Standards and accommodate the pinch points where directly adjacent to the existing A30.
- The vertical alignment has been amended in two main areas at Marazanvose and Pennycomequick to improve the earthworks balance on the scheme and minimise the need to import any material, improve the environmental impacts of the route and address severance concerns from the adjacent landowners.
- An additional public lay-by has been added and 4 have been moved to provide safe stopping places for road users
- Two maintenance lay-bys have been moved to co-locate with public lay-bys to make it safer to maintain the road and associated assets.
- A number of drainage attenuation ponds have moved location or changed size, most notably at the western tie-in and Pennycomequick, as a result of changes to low points and confirmation on whether outfalling to groundwater or to adjacent watercourses.

Junctions

- The size of the Chiverton Junction gyratory carriageway has increased to provide the additional entry and circulatory lane widths required for the updated forecast traffic levels.
- The size of the Chybucca junction roundabouts have increased to provide entry path deflection and the southern roundabout has moved 6m south east to improve the approach gradients.

Side Roads

- Highways cross sections for the realigned local side roads have been updated to match the existing road and verge widths as agreed with Cornwall Council.
- Some verge widths have been increased where required to provide standard visibility on the side roads and to and from associated junctions.
- At Shortlanesend, the new junction out of Zelah with the realigned existing A30 has been moved west to approximate Ch8+000 to maximise the visibility to and from the junction.
- There has been a minor realignment to Herver Lane and the inclusion of an increased visibility splay to make the junction with Trevalso Lane safer.
- The vertical clearances were increased at Tolgroggan overbridge and Carland Cross underbridge to provide the required headroom.
- A number of additional drainage attenuation ponds have been included to pick up surface water flows from the side roads, prior to outfall to adjacent watercourses.

If you need help accessing this or any other Highways England information, please call **0300 123 5000** and we will help you.

