A3075 Cubert Crossroads

DRAFT Outline Business Case

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1 Introduction

1.1 Cormac Solution's Engineering Design Group was commissioned by Cornwall Council to produce an outline business case report for the proposed junction improvement on the A3075 at Cubert Crossroads.

1.2 The business case will be used by the Council to justify the need for the new junction and to attract external funding.

1.3 3D designs were required to accompany the business case for two separate design options – an online roundabout, predominantly constructed within the public highway; and an offline roundabout, constructed within third part land.

1.4 The following report highlights the key issues arising from the Preliminary Business Case Assessment. WSP Parsons Brinckerhoff has undertaken an analytical study of traffic flows which have been used to support the Benefit-Cost Ratio (BCR) calculation for the scheme.

1.5 Two separate assessments of the scheme have been undertaken. These were to include and exclude the construction of a scheme on the A30 between Carland Cross and Chiverton Cross, which is named as a committed scheme in the governments Road Investment Strategy (2015 to 2020).

2 Report Structure

2.1 The preliminary design drawings for the scheme can be found in Appendices A and B, while the Preliminary Business Case Assessments can be found in Appendices C and D.

2.1.1 **Appendix A** contains a general arrangement drawing and engineering long sections of an online roundabout, with the roundabout being located in the approximate location of the existing crossroads.

2.1.2 **Appendix B** contains a general arrangement drawing and engineering long sections of an offline roundabout, with the roundabout being located in the field to the northeast of the existing crossroads.

2.1.3 **Appendix C** contains a Preliminary Business Case Assessment for the junction excluding the impact of the dualling of the A30 between Carland Cross and Chiverton Cross.

2.1.4 **Appendix D** contains a Preliminary Business Case Assessment for the junction including the impact of the dualling of the A30 between Carland Cross and Chiverton Cross.

3 Summary of Business Case Assessments

3.1 The following table summarises and compares the results of the two business cases for the scheme.

	Excluding A30 Scheme	Including A30 Scheme
Scheme Construction Cost	£4.9m	£4.9m
Scheme Delivery Cost	£5.5m	£5.5m
TUBA Benefits	-£11.022	-£3.271m
TUBA Social Benefit-Cost Ratio (BCR)	-2.76	-0.82
COBA-LT Benefits	£2.303m	£2.066m
COBA-LT Safety Benefit-Cost Ratio (BCR)	0.58	0.52
Combined Economic Assessment Cost	**-£8.719m**	**£-1.206m**
Combined Economic Assessment BCR	**-2.18**	**-0.3**

Table 3.1 – Summary of Business Case Assessments

4 Key Issues Arising from the Assessments

4.1 From reviewing the business cases, the following key issues have been identified:-

4.1.1 Traffic modelling was undertaken from 2015 to 2030 in accordance with the Local Plan.

4.1.2 The traffic modelling has been undertaken using the neutral month AM and PM peak hour matrices, hence the appraisal does not include interpeak, off-peak or seasonal time periods. This therefore covers only 506 hours out of a total 8,760 per year, which does not fully reflect the off-peak dis-benefits which would reduce the BCRs further and complete the study in a similar way to that carried out for major schemes.

4.1.3 Assuming the A30 dualling scheme between Chiverton Cross and Carland Cross does not get built, the anticipated traffic flows on the A3075 will be higher when compared to a scenario where the A30 dualling scheme is built.

4.1.4 The traffic volumes are heavily biased for the A3075, limiting gaps on the side roads for vehicles attempting to turn out onto the main road. This introduces additional delay to traffic on the side arms.

4.1.5 The provision of a roundabout would have an adverse impact on journey times for through traffic on the A3075 (a strategic route) as well as on the side roads.

4.1.6 The junction is ranked 146th in Cornwall on the 2016-2017 accident site listing. Current accident statistics do not present a compelling case for prioritising this junction over other sites within Cornwall.

5 Discussion

5.1 The overall Benefit-Cost Ratio (BCR) for the scheme has been calculated as negative as a result of the impact on journey times for road users. This is mainly on the A3075 as a result of vehicles slowing on the approach to the roundabout and negotiating the central island. This is further impacted as a result of predicted difficulties in exiting the side roads, caused by the biased traffic volume on the A3075.

5.2 In order to achieve a positive BCR, a scheme which would not impact on the A3075 flows, journey times and journey reliability would be required. Of the options investigated and presented in the Options Appraisal Report (November 2015), the single lane dualling and underpass options would achieve this, discounting the roundabout and Traffic Signals designs.

5.3 The underpass option would not impede the north / south A3075 traffic movement; however the cost to construct the scheme at close to £10m would prevent the ability to deliver a positive BCR.

5.4 The single lane dualling option, although cheaper at £3.4m may not deliver the same safety benefits of the roundabout, which would be required in order to achieve a positive BCR.

5.5 The alternative options of the single lane dualling, traffic lights and underpass were previously discounted as part of the Option Appraisal Report, where a WebTAG assessment evaluated all of the options individually against a pre-determined criteria and weighting. Each of the options was assessed for its impact on the environment, economy, accessibility, cost and technical standards, with the roundabout scoring as the most favourable design.

6 Conclusion

6.1 The provision of a roundabout at Cubert Crossroads does not provide a strategic case for the scheme as it does not unlock any significant levels of economic growth, with only limited contributions towards the Council's strategic transport aims.

6.2 The negative BCR for the scheme, both with and without the A30 scheme represents poor value for money and unlikely to attract external funding.

6.3 Alternative schemes, which would have a lesser impact on journey times may still not deliver a positive BCR as a result of higher cost or lower accident savings.

Appendix A – Online Roundabout Design Drawings

Appendix B – Offline Roundabout Design Drawings

Appendix C – Preliminary Business Case Assessment 1

(Excluding A30 Carland Cross to Chiverton Cross Scheme)

Appendix D – Preliminary Business Case Assessment 2

(Including A30 Carland Cross to Chiverton Cross Scheme)