

A12 Chelmsford to A120 widening scheme

TR010060

DEVELOPMENT CONSENT ORDER CHANGE APPLICATION CONSULTATION

Junction 25 Technical Note

RULE 113 and 114
Infrastructure Planning (Examination Procedure)
Regulations 2010

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1 Introduction

1.1 Background

- 1.1.1 An application seeking a development consent order (DCO) for the A12 Chelmsford to A120 widening scheme (the proposed scheme) was submitted by National Highways to the Secretary of State for Transport via the Planning Inspectorate on 15 August 2022 and accepted for Examination on 12 September 2022.
- 1.1.1 The Examination started on 12 January 2023 and is expected to finish on 12 July 2023.
- 1.1.2 Since the DCO application was made, National Highways has continued to engage and refine designs to identify opportunities to further improve the proposals. As a result of this, National Highways are consulting on changes to the proposed scheme during the Examination stage to address interested parties' suggestions and implement improvements to the proposed scheme.
- 1.1.3 This targeted DCO change application consultation reflects design changes to the DCO application that we are proposing. These changes are as a result of the continued design evolution, detailed design progressing in parallel with the application, and continued engagement with stakeholders, interested parties and our delivery partners.
- 1.1.4 Map books have been created to support the consultation which show the key DCO drawings which would be affected by the proposed change.
- 1.1.5 The draft DCO can be found on the Planning Inspectorate's website at the following link
<https://infrastructure.planninginspectorate.gov.uk/projects/eastern/a12-chelmsford-to-a120-widening-scheme/>
- 1.1.6 References to the DCO application or subsequent documents submitted during the Examination will be made in this report, the document reference number will be written in square brackets and all documents with a reference number can be found in the Examination Library on the Planning Inspectorate's website.

1.2 Changes being made

- 1.2.1 National Highways is proposing to change the configuration of junction 25 to remove the signalised crossroads proposed in the design submitted with the DCO application, and implement a partially signalised roundabout design to maximise the use of existing infrastructure and minimise loss of existing trees within the Old Rectory Junction roundabout island. The retention of the roundabout, albeit with its signalisation, requires less land acquisition and has small impacts on the proposals for replacement land in this location. There will also be consequential changes to the utility diversions in this area.

1.3 Reason behind changes

- 1.3.1 In Marks Tey, National Highways has received representations from the Parish Council to request that the existing roundabout remain rather than it being

replaced by a signalised all movements crossroads. Through further design refinement as part of the detailed design process happening in parallel with the DCO examination, the traffic signal phasing for the signalised junction has been refined and an optimal solution has been identified which would allow a partially signalised roundabout design to be implemented. This would also allow the proposals to satisfy the request of Marks Tey Parish Council to retain as many trees within the existing Old Rectory Junction roundabout as possible.

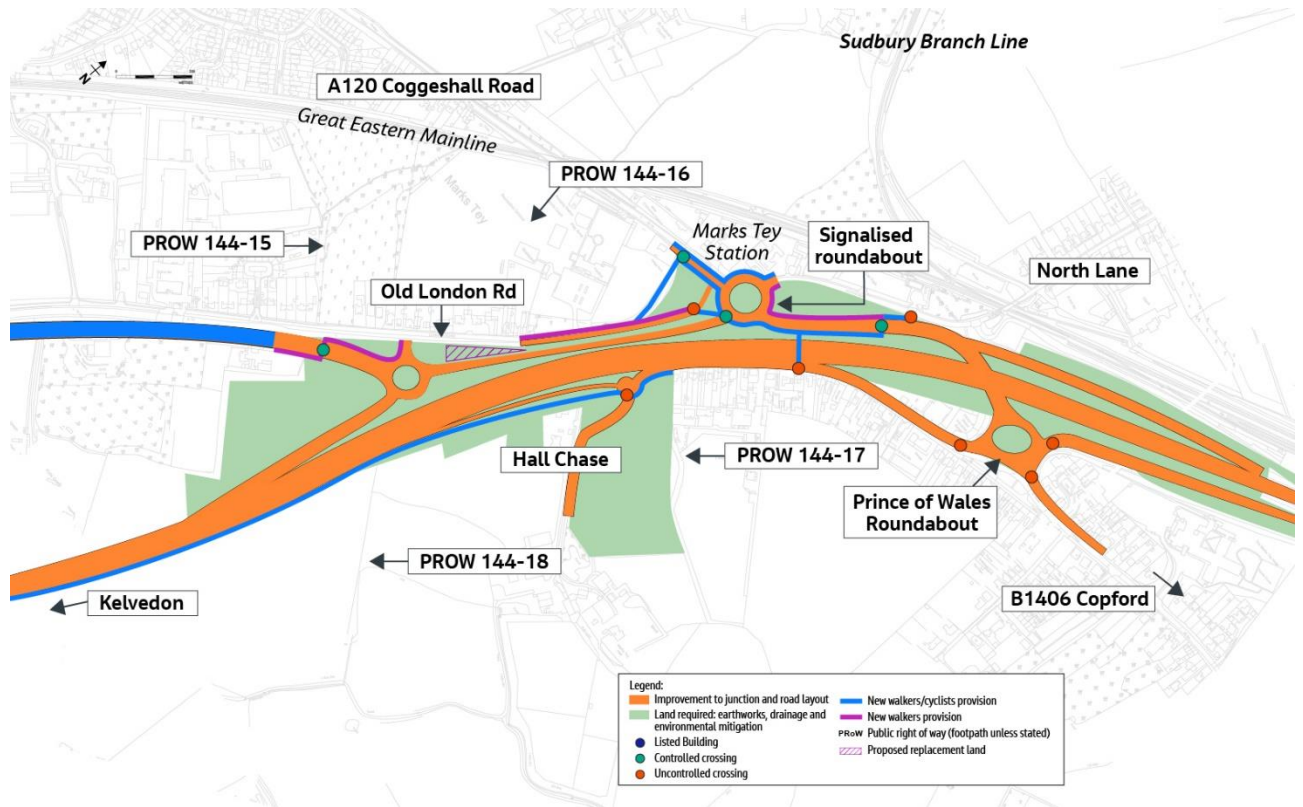


Plate 1.1 Redesign of junction 25 to signalised roundabout

2 Summary of change

2.1 Modelling approach

- 2.1.1 The operational performance of A12 junction 25 in terms of traffic queues and delays was assessed using Vissim junction modelling software, as reported in the Transport Assessment.
- 2.1.2 This partially signalised design has been modelled in Vissim junction modelling software. The results of this assessment in comparison to those presented in the Transport Assessment for the DCO design are provided in section 3.3 of this report.
- 2.1.3 The effect of traffic re-routing due to the proposed design change has also been modelled. The result of this assessment are also presented in section 3.3 of this report. These new traffic figures were used to update the noise and air quality assessments.

2.2 Design principles

The overarching design principle for this change has been to ensure the junction performance presented at the western roundabout (the Old Rectory Junction) of junction 25 in the Transport Assessment - Appendix A: Junction Modelling Results Summary, which was submitted as part of the DCO application [APP-254], is achieved or improved. In addition the new design seeks to improve the U-turn movement onto the northbound A12 carriageway from Marks Tey whilst maximising the use of the existing junction arrangement to retain as many of the trees within the roundabout island as reasonably practicable. The change has sought to maintain the route options available with regards to walking and off-carriageway cycling facilities when compared with the design submitted with the DCO application .

3 Impacts

3.1 Land take

- 3.1.1 There is no change to the proposed land take.
- 3.1.2 The replacement land previously proposed in land plot 18/1v, 19/1h and 19/1i as shown on the Land Plans submitted with the DCO application [APP-018] has now been provided by increasing the replacement land provided by plot 18/1u as shown in Map Book 6. Please see the [Replacement Land Statement] which forms part of the Consultation Materials for further information.

3.2 Drainage design

- 3.2.1 The redesign of junction 25 will have a small reduction in paved area, which may offer opportunities to refine the drainage provision. However, any refinements to the highway drainage elements needed will be the subject of detailed design and will be within the proposed scheme limits of deviation.

3.3 Traffic

- 3.3.1 Traffic models were used to predict how well junction 25 would operate with the proposed changes compared to the design presented in the DCO application .
- 3.3.2 A summary of the predicted junction performance in 2042 is provided below for the changed junction. The table presents the predicted Level of Service, which is based on average vehicle delay and can be used as a guide for how well the junction operates. Level of Service A represents the best possible operating conditions, while Level of Service F is the worst.
- 3.3.3 The partially signalised Old Rectory Junction roundabout is predicted to operate better than the previously planned signalised crossroads. In the AM peak, the Level of Service would improve from a Level of Service D (categorised as ‘approaching unstable condition’) to a Level of Service C (categorised as ‘stable flow condition’).
- 3.3.4 Because traffic would be able to flow more freely through a partially signalised Old Rectory roundabout compared to a signalised crossroads, the adjacent Prince of Wales roundabout would become slightly busier. This would result in a lowering of the Level of Service from a C to a B, although both Levels of Service C and B are still categorised as having ‘stable flow condition’.
- 3.3.5 At quieter times of the day, the change in design means that traffic from non-signalised arms of the Old Rectory Junction (e.g. on the A120 arm approaching from Braintree) would be able to pass through the roundabout without the risk of having to wait at signals.
- 3.3.6 Overall, junction 25 would therefore perform better as a result of the proposed change with fewer locations where the traffic flow is approaching unstable conditions.

Table 3.1 Junction 25 Level of Service comparison

	Level of Service for design presented in the DCO application (signalised crossroads)		Level of Service with proposed design change (partially signalised roundabout)	
	Weekday AM peak	Weekday PM peak	Weekday AM peak	Weekday PM peak
Old Rectory Junction roundabout	D	D	C	D
Prince of Wales roundabout	B	B	C	C

- 3.3.7 The change to a partially signalised roundabout is predicted to result in some changes in traffic flows on local roads. This is because of slight changes in how long it takes to travel through the junction from different approach arms.
- 3.3.8 The main predicted change in traffic flows is that more traffic from Copford would use junction 25 (Marks Tey) to access the A12 northbound, instead of

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travelling via B1408 London Road and joining the A12 at junction 26 (Stanway). This is because it is easier to make this movement if the Old Rectory junction was a partially-signalised roundabout than if it was a signalised crossroads. Compared to the design presented in the DCO application, this change would therefore cause a slight increase in traffic travelling around both the Prince of Wales roundabout and the Old Rectory Junction roundabout, and a slight decrease in traffic on the B1048 London Road between Copford and Stanway.

- 3.3.9 The change in traffic flow on these roads is shown below. This shows the predicted change in 2027 traffic flows as a result of the new design. The traffic flows are presented in vehicles per hour in the AM and PM peak, and in vehicles per day (AADT). For example, traffic on the B1408 between Copford and Stanway is predicted to be 65 vehicles per hour lower due to the proposed change than it would have been with the design presented in the DCO application.
- 3.3.10 The impacts that this change in traffic would have on noise and air quality impacts is described in section 3.4 of this report.
- 3.3.11 Although the traffic model also predicts some changes in traffic on other roads, only the changes around Copford and Marks Tey are considered significant enough to report. Any changes on other roads are much lower.

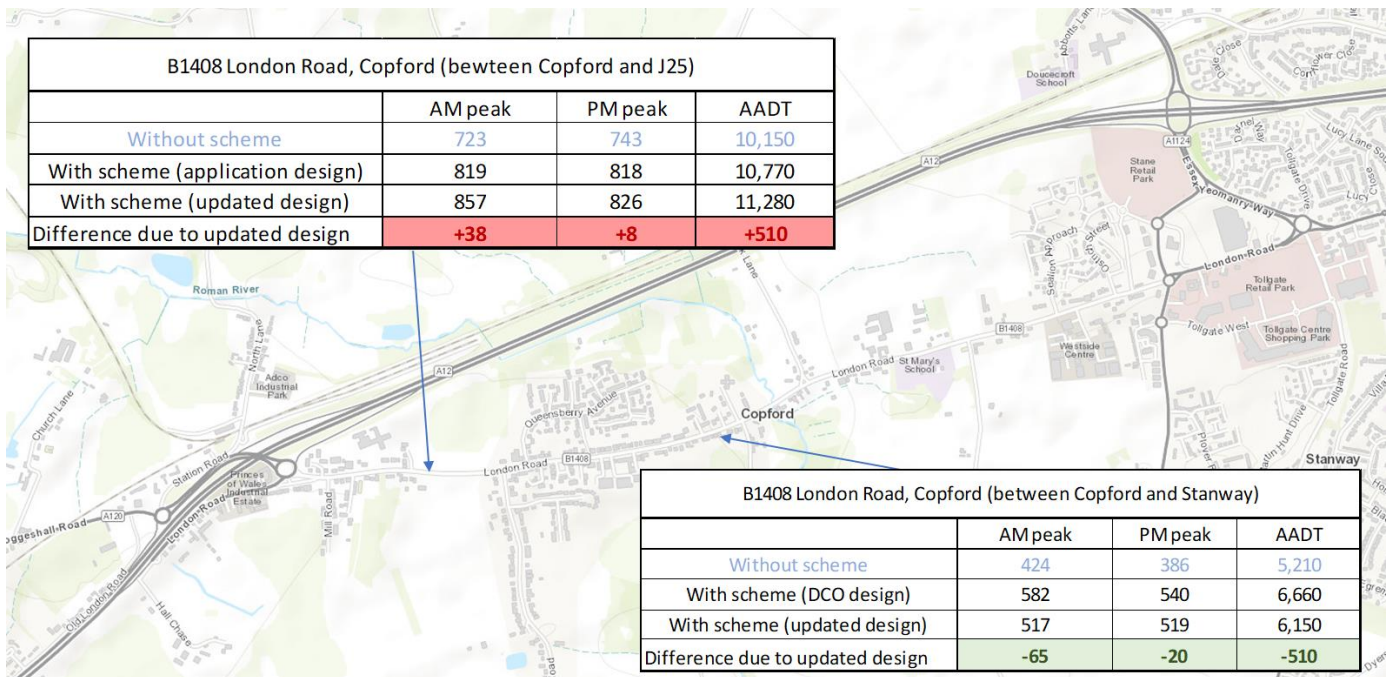


Plate 3.1 Change in traffic flows around Junction 25 (2027 traffic flows)

- 3.3.12 In summary, junction 25 itself would perform better as a result of the proposed change. Traffic flows would decrease on the B1408 London Road through Copford, but would increase slightly around A12 junction 25 itself however not to an extent that this would impact on the operation of any other junction or local road.

3.4 Environment

- 3.4.1 The below sections describe the predicted environmental impacts of the new design of junction 25, with reference to the conclusions in the assessment chapters of the Environmental Statement submitted as part of the DCO application (chapters 6 to 16 of the Environmental Statement, DCO examination library reference [APP-073 to APP-083]).
- 3.4.2 Each section addresses the change in potential impacts, change in proposed mitigation measures, and changes to the assessment of likely significant effects as a result of the new design.

Chapter 6: Air quality

Potential impacts

- 3.4.3 The air quality assessment undertaken for the Environmental Statement is based on modelling impacts to a set of predefined human health, ecological and pollution climate mapping (PCM) receptors (see Environmental Statement Appendix 6.5: Air quality modelling results [APP-104]). The change in design from a crossroads to a partially signalised roundabout affects the road alignment, traffic flows (as an Annual Average Daily Traffic (AADT)) and speeds across the junction.
- 3.4.4 The road sections to be realigned owing to the new design have sensitive receptors nearby, therefore, there would be impacts owing to changes to the receptor distance from the emission source. In addition, the new junction arrangement would result in changes in AADT flow across the junction which would affect vehicle emissions on road links associated with the junction and subsequent pollutant concentrations at sensitive receptors. Changes in traffic data are screened against the Design Manual for Roads and Bridges (DMRB) LA 105 screening criteria. These included $\geq 1,000$ AADT, 200 heavy duty vehicles (HDV), a change in speed band and a change in carriageway alignment by ≥ 5 m. Road links which exceed these criteria determine the Affected Road Network (ARN).
- 3.4.5 The change in AADT would alter the emissions modelled and change the predicted pollutant concentrations at sensitive receptors reported in Environmental Statement Appendix 6.5: Air quality modelling results [APP-104]. It also has the potential to alter the emissions profile of the ARN and thus impact the study area.
- 3.4.6 The potential impact of emissions from construction traffic in the peak construction year 2025 would not change from what was assessed in the Environmental Statement as a result of the new design.
- 3.4.7 Potential impacts from dust during construction would not change.

Design, mitigation and enhancement measures

- 3.4.8 No additional mitigation measures, beyond standard measures for managing dust during construction, have been proposed on the basis that there would be no likely significant air quality effects, in accordance with DMRB LA 105 (see Chapter 6: Air quality, paragraph 6.10.6 [APP-073]). The likely changes in traffic

emissions owing to the partial signalling of the roundabout would have no material effect on this outcome, and therefore no change to mitigation is required.

Assessment of likely significant effects

- 3.4.9 The change in AADT traffic flow data, which included the partially signalised roundabout (DS2), was compared to the traffic data provided for the DCO application (DS1). The outcome showed that the partially signalised roundabout would result in changes in AADT flow across the junction in exceedance of the DMRB screening criteria mentioned above.
- 3.4.10 Given the magnitude and complexity of these changes and the location of sensitive receptors with respect to the junction, the air quality model was re-run for all human health receptors presented in Environmental Statement Chapter 6: Air quality [APP-073] and Appendix 6.5: Air quality modelling results [APP-104]. These receptors were selected to represent worst-case receptors with the potential to be affected by changes in geometry and traffic conditions as a result of the proposed scheme.
- 3.4.11 In summary, the greatest number of changes as a result of the new design relative to the design presented in the DCO application occur for annual mean NO₂ concentrations, where 15 receptors are modelled to experience a decrease in concentrations, and 21 receptors are modelled to experience an increase in concentrations.
- 3.4.12 The greatest changes (i.e. >0.1 µg/m³) are all located in the near vicinity of the revised junction 25 layout. All changes > 0.1 µg/m³ occurred within 1.8km of the partially signalised roundabout.
- 3.4.13 Of the 260 modelled human health receptors, there are modelled changes at 36 receptors for annual mean NO₂ concentrations, nine receptors for annual mean PM₁₀ concentrations and 17 receptors for PM_{2.5} concentrations. While most of these changes are adverse, only three receptors (one for NO₂ and two for PM_{2.5}) resulted in an adverse change in magnitude in accordance with Table 2.91 of the DMRB LA 105 i.e. an impact shifting from imperceptible to small. This is outweighed by five beneficial changes in magnitude between DS1 and DS2 (four for NO₂ and one for PM_{2.5}) i.e. small to imperceptible.
- 3.4.14 Of all the modelled human health receptors, there are no receptors with modelled concentrations above the relevant Air Quality Objective. Therefore, on balance, the impact of the changes for the revised layout for junction 25 can be considered negligible relative to the assessment put forward in the DCO application.
- 3.4.15 The results concluded that there would be no change to the determination of significant effects for human health (see Environmental Statement Chapter 6: Air quality, Section 6.11 [APP-073]).

Chapter 7: Cultural heritage

Potential impacts

- 3.4.16 The impacts on cultural heritage assets that would be caused by the proposed scheme at junction 25 are considered within the assessment of effects
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presented in Environmental Statement Chapter 7: Cultural heritage [APP-074] and Appendix 7.9: Cultural heritage impact assessment summary tables [APP-117].

- 3.4.17 There are no known archaeological remains within the footprint of the proposed partially signalised roundabout. There are no listed buildings close to the roundabout.
- 3.4.18 The Old Rectory (Asset 918) is a locally listed building assessed to be of low value located approximately 40m north of the roundabout. This was assessed as having a slight adverse effect during construction and operation of the proposed scheme. The impact of constructing the partially signalised roundabout would reduce, as the new design would use more of the existing infrastructure, however, taken in the context of the impact on setting from the wider construction works around junction 25, the impact would not change sufficiently to reduce the significance of effect assessed in Environmental Statement Chapter 7: Cultural heritage [APP-074]. Impacts during operation would not change.
- 3.4.19 The proposed partially signalised roundabout is located within the Communications historic landscape type (HLT 2) defined by the existing A12 corridor. The Environmental Statement concluded that there would be no impact on HLT 2 from the proposed scheme. The impact on HLT 2 from the new design would not change compared to what was assessed in Environmental Statement Chapter 7: Cultural heritage [APP-074].

Design, mitigation and enhancement measures

- 3.4.20 No mitigation measures for cultural heritage have been proposed in this location because no significant effects on cultural heritage assets or their settings have been assessed. No change to mitigation would therefore be required due to the new design as the potential impacts would not change.

Assessment of likely significant effects

- 3.4.21 The potential impacts of the new partially-signalised roundabout design would be similar to that of the signalised crossroads design assessed in the Environmental Statement. The effect of construction and operation of the proposed partially-signalised roundabout would therefore be unchanged from that already assessed in the Environmental Statement.

Chapter 8: Landscape and visual

Potential impacts

- 3.4.22 The landscape effects that would be caused by the proposed scheme at junction 25 are considered within the assessment of effects on local landscape sub area B2A, presented within Environmental Statement Appendix 8.2: Landscape effects schedule [APP-120]. The localised landscape impacts would be slightly reduced when considering the new design, because the roundabout layout would make it possible to retain existing vegetation within the existing roundabout junction. However, the changes would be localised, and the assessment of impacts on landscape sub area B2A within the Environmental Statement considers the full extent of the proposed scheme where it falls within

landscape sub area B2A, including proposals along the A12 mainline and where the offline bypass would tie in with the mainline. As such, the overall conclusions on landscape impacts reported within Chapter 8: Landscape and visual [APP-075] and Appendix 8.2: Landscape effects schedule [APP-120] of the Environmental Statement would not change as a result of the new design.

- 3.4.23 Visual effects have been assessed through the application of representative viewpoints located at publicly accessible viewpoints, a proportionate approach which is supported by the Guidelines for Landscape and Visual Impact Assessment, Third Edition (GLVIA3) and DMRB LA 107 Landscape and Visual Effects, Revision 2. There are no representative viewpoints that would be affected by the new design at junction 25 northern roundabout. Therefore, the visual impacts assessed within Environmental Statement Chapter 8: Landscape and visual [APP-075] and Appendix 8.3 Visual effects schedule [APP-121] would not change as a result of the new design.

Design, mitigation and enhancement measures

- 3.4.24 The new design affects the landscape mitigation presented on sheet 18 of the Environmental masterplan, part 3 [APP-088]. Proposed mitigation planting has been revised to reflect the new layout. The revisions comprise minor adjustments to the proposed mitigation, and do not materially affect the mitigation that would be delivered. The updated sheet of the Environmental Masterplan showing the revised planting forms part of the Consultation Materials (Map Book 6).

Assessment of likely significant effects

- 3.4.25 Consistent with the explanation presented above that the new design would not affect the landscape and visual impacts reported within the Environmental Statement, the landscape and visual effects reported within Chapter 8: Landscape and visual [APP-075], Appendix 8.2: Landscape effects schedule [APP-120] and Appendix 8.3: Visual effects schedule [APP-121] would not change as a result of the new design.

Chapter 9: Biodiversity

Potential impacts

- 3.4.26 The new partially signalised roundabout design of junction 25 would not change the assessment of effects with respect to sensitive ecological receptors assessed within Environmental Statement Chapter 9: Biodiversity [APP-076] and Appendix 9.15: Assessment of air quality impacts on ecology receptors report [APP-139]. No ecological impacts were associated with the crossroads design at junction 25, and this would remain the case for the new design.
- 3.4.27 Ecology receptors close to junction 25 which were assessed for potential effects due to nitrogen deposition included Marks Tey Local Wildlife Site (LWS) and potential veteran trees T744 and T792. Effects on T744 and T792 were discounted in the assessment of the original design on the basis that any change in nitrogen deposition would not affect the features for which they are designated, and therefore (as per paragraph 9.11.301 of Chapter 9: Biodiversity [APP-076]) there would be no effect on the integrity of the trees. This

assessment would not change even if nitrogen deposition were to increase as a result of the new design as the integrity of the trees would still be unaffected.

3.4.28 Marks Tey LWS was outside of the 200m buffer around the ARN assessed within Chapter 9: Biodiversity [APP-076]. As detailed within the air quality section above, the new junction arrangement would result in changes in AADT flow across the junction which has the potential to alter the emissions profile of the ARN. However, due to the distances between Marks Tey LWS and the nearest roads, it is not feasible that even with a change to the ARN that Marks Tey LWS would be affected through nitrogen deposition as it would be well outside the 200m buffer around the ARN.

3.4.29 Changing the design from signalised crossroads to a partially signalised roundabout means it would be possible to retain existing vegetation within the existing roundabout junction. As such, there would be a greater retention of vegetation with the new design than previously identified as part of the signalised crossroads. Although a benefit, this would not change the effects reported in the Environmental Statement.

Design, mitigation and enhancement measures

3.4.30 No new effects on sensitive receptors have been identified from the new design of junction 25, and as such there are no changes to the mitigation proposed within Section 9.10 of Environmental Statement Chapter 9: Biodiversity [APP-076].

Assessment of likely significant effects

3.4.31 Given the potential impact from the new design of junction 25 would be the same as the design assessed in the Environmental Statement, the effects of construction and operation would remain consistent with the findings presented within Section 9.11 of Chapter 9: Biodiversity [APP-076].

Chapter 10: Geology and soils

Potential impacts

3.4.32 The new junction design does not affect agricultural land take as the junction is located on non-agricultural land.

3.4.33 While there is a minor land quality constraint on the boundary of the junction (Nursery land) this is not considered to have an effect upon the proposed scheme as no soil disturbance within the constraint area is planned.

3.4.34 There are no geological receptors in this location.

3.4.35 The new design does not result in any changes to the potential impacts reported in Section 10.9 of Environmental Statement Chapter 10: Geology and soils [APP-077].

Design, mitigation and enhancement measures

3.4.36 The new design does not necessitate any changes to be made to the design, mitigation and enhancement measures reported in Section 10.10 of Chapter 10: Geology and soils [APP-077]. No specific mitigation measures were identified

for junction 25, beyond standard measures for managing soil during construction, and therefore no change to this is required with the new design.

Assessment of likely significant effects

- 3.4.37 There is no change to the likely significant effects reported in Section 10.11 of Chapter 10: Geology and soils [APP-077] as there are no changes to the potential impacts associated with junction 25.

Chapter 11: Material assets and waste

Potential impacts

- 3.4.38 The new design does not result in any changes to the potential impacts reported in Section 11.9 of Environmental Statement Chapter 11: Material assets and waste [APP-078]. This aspect does not assess the impacts associated with specific design elements at a local level, and instead focuses on assessing the impacts of materials consumption, minerals sterilisation and waste disposal in absolute terms.

Design, mitigation and enhancement measures

- 3.4.39 The new design does not necessitate any changes to be made to the design, mitigation and enhancement measures reported in Section 11.10 of Chapter 11: Material assets and waste [APP-078]. No additional mitigation measures were identified for this aspect in relation to junction 25, and therefore no change to this is required with the new design.

Assessment of likely significant effects

- 3.4.40 While the new design is likely to result in negligible, yet indeterminate, changes to the total materials consumption, minerals sterilisation and waste disposal reported in Section 11.11 of Chapter 11: Material assets and waste [APP-078], any changes are considered insignificant in the context of the entire proposed scheme.
- 3.4.41 The changes from the new design would not be at a level that would generate any new or different likely significant effects to those already reported for the proposed scheme, and there is therefore no change to the reported residual significance of effects for the material assets or waste matters of this aspect.

Chapter 12: Noise and vibration

Potential impacts

- 3.4.42 The closest construction receptor to the proposed works is R42, which is representative of receptors along London Road (this is shown on sheet 4 of Environmental Statement Figure 12.3 [APP-230]). During certain construction activities (see paragraph 12.9.16 of Environmental Statement Chapter 12: Noise and vibration [APP-079]), the noise level was predicted to be above the significant observed adverse effect level (SOAEL), indicating the potential for likely significant adverse effects if the temporal threshold is exceeded, as defined in paragraph 12.5.27 of Chapter 12: Noise and vibration [APP-079]. However, none of the identified activities likely to exceed the SOAEL were from works associated with the changing of the roundabout to a crossroads. The

works involved in partially signalling the roundabout would not generate noise levels above those from the activities to change the junction to a crossroads, and hence there would be no change in the impacts from these works.

- 3.4.43 The impact of the new design has no change within the immediate area of junction 25. Along London Road (i.e. east from junction 25 towards Copford) there is predicted to be a reduction in traffic flow. Within Chapter 12: Noise and vibration [APP-079], in paragraph 12.9.65, there is reported to be a minor increase (1 – 3 dB(A)) in noise along London Road. With the new design of junction 25, this increase in noise is now negligible (< 1 dB(A)).

Design, mitigation and enhancement measures

- 3.4.44 No specific construction mitigation measures beyond standard mitigation measures were identified for the works to change the roundabout to a crossroads, and no change to this is required with the new design.
- 3.4.45 No noise mitigation around junction 25 or along London Road in Copford was proposed in the Environmental Statement. There is no noise mitigation now proposed with the new design of junction 25.

Assessment of likely significant effects

- 3.4.46 No significant adverse effects were identified from the construction works involved with changing the roundabout to a crossroads. There is no change to this with the works associated with partially signalling the roundabout. The conclusions on construction effects in the Environmental Statement do not change as a result of the new design.
- 3.4.47 The Environmental Statement predicted significant adverse effects at seven dwellings along London Road in Copford. These are reported in the Environmental Statement at paragraph 12.11.55 of Chapter 12: Noise and vibration [APP-079]. These significant adverse effects were caused by an increase in traffic flow, resulting in a minor increase in noise. These seven dwellings were predicted to experience an absolute noise level above the SOAEL and were therefore concluded to be significant adverse effects, in accordance with DMRB LA 111.
- 3.4.48 With the new design of junction 25, the increase in traffic flow is less along London Road and there is now a negligible increase in noise at these dwellings. These are therefore no longer significant adverse effects at the seven receptors along London Road. The conclusions of the Environmental Statement would now be that there are 116 significant adverse effects across the proposed scheme as opposed to the 123 reported in the Environmental Statement (paragraph 12.13.4 of Chapter 12: Noise and vibration [APP-079]).

Chapter 13: Population and human health

Potential impacts

- 3.4.49 The nature of the impact of the new design on walkers and cyclists is different from that in Table A.20 of Environmental Statement Appendix 13.3: Land Use and Accessibility Assessment Tables [APP-155], where the signalised cross roads junction arrangement is described as an operational impact. However, there would be no overall change in magnitude of impact from changing the

design to a partially signalised roundabout, as the new design would still offer improved provision for pedestrians and cyclists, and therefore would still be assessed as a minor beneficial impact.

3.4.50 No notable change in impact is identified from the new design on private property and housing, community land and assets, development land and business or agricultural land use as these types of land use would not be directly affected by the new design in this location.

3.4.51 No change in impact on human health is anticipated from that assessed within the Environmental Statement on the basis that there is no change in health determinants impacted on from the new design.

Design, mitigation and enhancement measures

3.4.52 The new design does not affect the proposed mitigation set out in Environmental Statement Chapter 13: Population and human health in relation to walkers and cyclists because the predicted impact would still be beneficial, and therefore no mitigation is required.

3.4.53 There would be no change in mitigation for other matters within Chapter 13: Population and human health [APP-080], as there would be no change to the potential impacts.

Assessment of likely significant effects

3.4.54 There would be no change in the conclusion on significance of effects set out in section 13.20 of Chapter 13: Population and human health [APP-080] as the new design introduces no notable change in impacts on land use, accessibility or human health determinants from that previously assessed in the Environmental Statement.

Chapter 14: Road drainage and the water environment

Potential impacts

3.4.55 The new design does not result in any changes to the potential impacts reported in Section 14.9 of Environmental Statement Chapter 14: Road drainage and the water environment [APP-081].

Design, mitigation and enhancement measures

3.4.56 The new layout does not necessitate any changes to be made to the design, mitigation and enhancement measures reported in Section 14.10 of Chapter 14: Road drainage and the water environment [APP-081], as there is no change to the potential impacts.

Assessment of likely significant effects

3.4.57 The changes from the new layout would not be at a level that would generate any new or different likely significant effects to those already reported for the proposed scheme, and there is therefore no change to the reported residual significance of effects for the water environment reported in Section 14.11 of Chapter 14: Road drainage and the water environment [APP-081].

Chapter 15: Climate

Potential impacts

- 3.4.58 The proposed changes to the junction would not substantially influence the quantities of materials required to construct the proposed scheme, nor substantially affect traffic flows with the proposed scheme in place. As such, the proposed changes would not have a material impact on the magnitude of estimated changes in greenhouse gas (GHG) emissions associated with the proposed scheme.
- 3.4.59 Furthermore, the proposed changes would not alter the vulnerability of the proposed scheme to future changes in climate.

Design, mitigation and enhancement measures

- 3.4.60 The mitigation measures presented in Environmental Statement Chapter 15: Climate [APP-082] are considered to remain valid, and therefore no changes to the measures presented in the Environmental Statement are required.

Assessment of likely significant effects

- 3.4.61 As neither emissions of GHGs nor the vulnerability of the proposed scheme to climate change are considered likely to be affected by the proposed changes, then the conclusions set out in Chapter 15: Climate [APP-082] remain unchanged.

Chapter 16: Cumulative effects assessment

Potential impacts

- 3.4.62 In accordance with Environmental Statement Chapter 16: Cumulative effects assessment [APP-083], material assets and waste and climate have been scoped out of the assessment of cumulative effects.
- 3.4.63 The remaining individual topic sections above have been reviewed in order to identify any changes to individual topic effects before then considering how any such changes may contribute to changes in cumulative effects. The findings of this review are shown in Table 3.2.

Table 3.2 Cumulative effects

Topic	Potential for cumulative effects
Air quality	There would be no change to the significant effects reported in Environmental Statement Chapter 6: Air quality [APP-073]. Therefore, there would be no change to the cumulative effects reported in Environmental Statement Chapter 16: Cumulative effects assessment [APP-083].
Cultural heritage	There would be no change to the significant effects reported in Environmental Statement Chapter 7: Cultural heritage [APP-074]. Therefore, there would be no change to the cumulative effects reported in Environmental Statement Chapter 16: Cumulative effects assessment [APP-083].

Topic	Potential for cumulative effects
Landscape and visual	There would be no change to the significant effects reported in Environmental Statement Chapter 8: Landscape and visual [APP-075]. Therefore, there would be no change to the cumulative effects reported in Environmental Statement Chapter 16: Cumulative effects assessment [APP-083].
Biodiversity	There would be no change to the significant effects reported in Environmental Statement Chapter 9: Biodiversity [APP-076]. Therefore, there would be no change to the cumulative effects reported in Environmental Statement Chapter 16: Cumulative effects assessment [APP-083].
Geology and soils	There would be no change to the likely significant effects reported in Chapter 10: Geology and soils [APP-077]. Therefore, there would be no change to the cumulative effects reported in Environmental Statement Chapter 16: Cumulative effects assessment [APP-083].
Noise and vibration	<p>There would be no change to the construction-phase effects reported in Environmental Statement Chapter 12: Noise and vibration [APP-179].</p> <p>During operation, there would be a reduction in the number of receptors significantly affected by noise associated with increases in traffic flow. Seven properties along London Road would no longer experience significant adverse effects.</p> <p>Environmental Statement Chapter 16: Cumulative effects assessment [APP-083] identified no noise receptors shared with other developments, and hence no potential for cumulative effects. Therefore, the reduced number of properties that would experience significant noise effects does not lead to any new or different cumulative effects.</p>
Population and human health	There would be no change to the significant effects reported in Environmental Statement Chapter 13: Population and human health [APP-080]. Therefore, there would be no change to the cumulative effects reported in Environmental Statement Chapter 16: Cumulative effects assessment [APP-083].
Road drainage and the water environment	There would be no change to the significant effects reported in Environmental Statement Chapter 14: Road drainage and the water environment [APP-081]. Therefore, there would be no change to the cumulative effects reported in Environmental Statement Chapter 16: Cumulative effects assessment [APP-083].

Design, mitigation and enhancement measures

- 3.4.64 No new or different cumulative effects are predicted from the new design, hence no design, mitigation and enhancement measures are required.

Assessment of likely significant effects

- 3.4.65 There is no change to the reported assessment of cumulative effects in Chapter 16: Cumulative effects assessment [APP-083] due to the new design.

Overall environment conclusion

- 3.4.66 Changing the junction 25 signalised crossroads to a partially signalised roundabout would result in a beneficial change in noise impacts. This is due to a reduction in traffic flows along London Road from what was predicted as

occurring from the design submitted with the DCO application. This would remove significant adverse effects above the SOAEL for seven receptors in Copford. The new design would also allow trees in the centre of the existing roundabout to be retained, as the new design would make use of the existing infrastructure. However, retaining the trees would not change the significant effects reported in the Environmental Statement.

4 Conclusion

- 4.1.1 By changing the Old Rectory Junction from a signalised cross roads as proposed within the original DCO application to a partially signalised roundabout, there is expected to be an overall improvement to the performance of the junction in the project's design year of 2042. This overall improvement forecasts a reduction of the traffic using the B1408 between Copford and Stanway. The impacts of this new design and amended traffic model has been assessed from an environmental perspective; regarding noise. there are no longer significant adverse effects at seven receptors along London Road, the effects of construction and operation of the scheme would remain consistent with the findings presented within the remaining chapters of the Environmental Statement..