Report on the Design of the Main Alternative For Junction 24

Compiled and researched by the Messing and Inworth Action Group

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1.0 Overview

This report is to discuss the technical aspects of the Main Alternative for Junction 24 as proposed by Messing-cum-Inworth Parish Council. The Main Alternative has been produced to replace the National Highways (formerly Highways England) (NH) proposal for the construction of a new junction 24 connected to the B1023.

It is our belief that the original NH proposal will create increased and unsustainable traffic flows through the narrow lanes leading to Messing and through Inworth village itself. The Main Alternative Proposal seeks to reduce the impact of these changes by moving the connections to the B1023 to outside the limits of Inworth village. This report demonstrates that the provision of the alternative proposal is technically feasible and would achieve the required objectives.

This report is supplementary to the report produced by MAG on the impact of the Junction 24 proposals, and should be consulted for further information.

2.0 National Highways Proposal for Junction 24

The Proposal, from National Highways, (NH) was to 'Construct a New Junction 24 on the A12, south of Inworth Road. (To) Provide slip roads terminating where the Messing Road meets Inworth Road so that all traffic joining or leaving the A12 would use the Inworth Road'. Refer to the map in Appendix A. The technical design of this proposal is the subject of a separate report by MIAG.

3.0 The Main Alternative Proposal

Messing-Cum- Inworth Parish Council have put forward a proposal for an alternative to Junction 24 that joins the B1023 south of Inworth village, and also north of the A12. (Refer to the map in Appendix C). This proposal would divert all traffic away from Inworth and Messing villages, greatly reducing the problems of increased traffic through the villages and rural lanes. The route would for the most part follow the line of the former railway and pass to the west of Inworth village before re-joining the B1023 south of Inworth. This alternative route would have the effect of diverting traffic away from Inworth itself where road widening, surfacing and drainage works would be required under the NH proposal to bring the road up to standard. The roads through Inworth and Messing would therefore only serve local traffic and would be signposted as such.

The Main Alternative Proposal has been the subject of a detailed design review by the Messing and Inworth Action Group (MIAG), and this review is the subject of this report. The proposal is a concept design only to demonstrate that the route is a viable proposal and will need a full design if adopted by NH.

The Main Alternative has the backing of Priti Patel MP, Essex County Council, Colchester District Council and the local Parish Councils.

It is understood that NH have not considered this proposal in any detail at this point in time.

4.0 Assessment of Messing Action Group Alternative Proposal

4.1 Overview

The Main Alternative route would start to the south of Inworth and run west before following the route of the former Tiptree to Kelvedon railway line until it connected with the proposed south roundabout of A12 Junction 24. The route would continue across the proposed Junction 24 to the north roundabout. A further link road from A12 Junction 24 north roundabout connecting to the B1023 would then be necessary. This route could allow for a road alignment which would be compliant with National Highways design standards.

4.2 Detailed Assessment

From a new roundabout junction on the B1023 to the north of Perrywood Garden Centre car park a new link road alignment would run to the west before intersecting with Windmill Hill close to where the entrance to Bunting's Nest and Inworth Hall Farm is currently positioned. At the start of the new link, it would run through an area identified for flood plain compensation works, these works might need to be re-positioned. By using a design speed of 85kph for the whole alignment (since the existing B1023 is currently subject to a 50mph speed limit in this area) a design compliant with DMRB standards could be achieved. The horizontal alignment would be a simple straight of 200m length with a 1% gradient.

Where the proposed alignment would intersect with Windmill Hill, there is an access track which follows the route of a dismantled railway line and provides access to Bunting's Nest and Inworth Hall Farm. The Main Alternative link road could run alongside this track, the access track would need some realignment.

A roundabout at the intersection of the alternative link and Windmill Hill would be useful to change the direction of the alternative link alignment without using sharp horizontal curves. It could also provide for a revised entry to the access track off the roundabout. A short connection to Windmill Hill on the west side of the roundabout would also have to be provided. Windmill Hill to the east of the roundabout could be stopped up.

From the new Windmill Hill roundabout, the alternative link would follow approximately the route of the former railway line until crossing a private road from Inworth Hall. Another junction would be needed at the intersection of the private road from Inworth Hall and the alternative link. A roundabout would provide the best option here since the flows of vehicles along the private road would be considerably less than on the alternative link road. A roundabout would give the best opportunity for vehicles, which would include farm vehicles, from the private road to access gaps in traffic to cross the alternative link road.

The horizontal alignment of the alternative link between Windmill Hill roundabout and the roundabout at the intersection with the private road from Inworth Hall would be straight. The length of this section would be about 725m long and would allow sufficient length for an overtaking section. The existing ground profile is on the crest of a hill but is reasonably flat and

would allow for a Crest curve with K value of 285 or greater to be used which would allow full overtaking sight distance.

From the roundabout at the intersection with Inworth Hall private road the alternative link would follow approximately an existing field boundary and tree line before connecting to the south roundabout of A12 Junction 24. This section would be approximately 350m in length, which would not be long enough to provide an overtaking section. It would also go into cutting so that it could tie in vertically with the NH proposed A12 Junction 24 south roundabout. The alignment would need to use horizontal radii of less than 360m to make it clear it was not an overtaking section. It is usual to reduce the vertical alignment crest curve K values by 1 step for a non-overtaking section but in this case the vertical curve would fall within the "immediate approach" to the junction at either end of this section of the link. In that case the desirable minimum crest K would be needed in order to maintain forward visibility on approaching the junctions.

From the north roundabout of the proposed A12 Junction 24 a new link would be required to connect to the B1023 on the north side of the A12. This should be a relatively simple alignment across open fields. In order to discourage overtaking on this relatively short segment it is proposed to adjust the horizontal alignment by providing a straight, transition (L = √24R), circular curve R = 360m (a 1 step relaxation), transition (L = √24R), straight. Because the R = 360m curve with a 1 step relaxation would not be within the "immediate approach" to the junctions at either end of the alignment a reduction in stopping sight distance of 1 step would also be allowed. The link would have to cross Domsey Brook and therefore need a new structure to carry the link over the brook. A pre-cast box type structure would probably be sufficient for this purpose. To connect to the B1023 at the northern end of this link another roundabout would be required. As the B1023 has a longitudinal gradient of approximately 7% north of where the A12 crosses this would not be a good position for a roundabout. The gradient is flatter where there is an entrance into Threshelfords Rural Business Park. This would be a suitable place to site a new roundabout, which could include an arm providing access into the business park.

5.0 Conclusions

5.1 Design

The Main Alternative Proposal has been assessed and can provide a route that is fully compliant with the required design standards and achieves the objectives of removing through traffic from Inworth and Messing villages. The proposal avoids the problems of the pinch-points of Hinds Bridge and various locations within Inworth itself and avoids impacting local businesses.

5.2 Costs

The cost of the Main Alternative has not been fully evaluated at the time of this report.

This proposal would have a longer alignment than the NH proposed link from B1023 to A12 Junction 24 south roundabout. The NH proposed link would be about 500m long, but the alternative would be about 1435m on the south side of the A12 Junction 24 and a further 685m for the link on the north side. It would also require three more roundabout junctions than the NH proposal. That would increase the cost of a link from B1023 to Junction 24. Additional land would need to be purchased and there could be objections from any land owners affected.

The alternative proposal would remove the requirement for road widening works on the B1023 through Inworth. There is also a large area identified in Inworth village for an attenuation pond and flood plain compensation, which might have to remain in place in order for the proposed drainage design to work.

6.0 List of Appendices

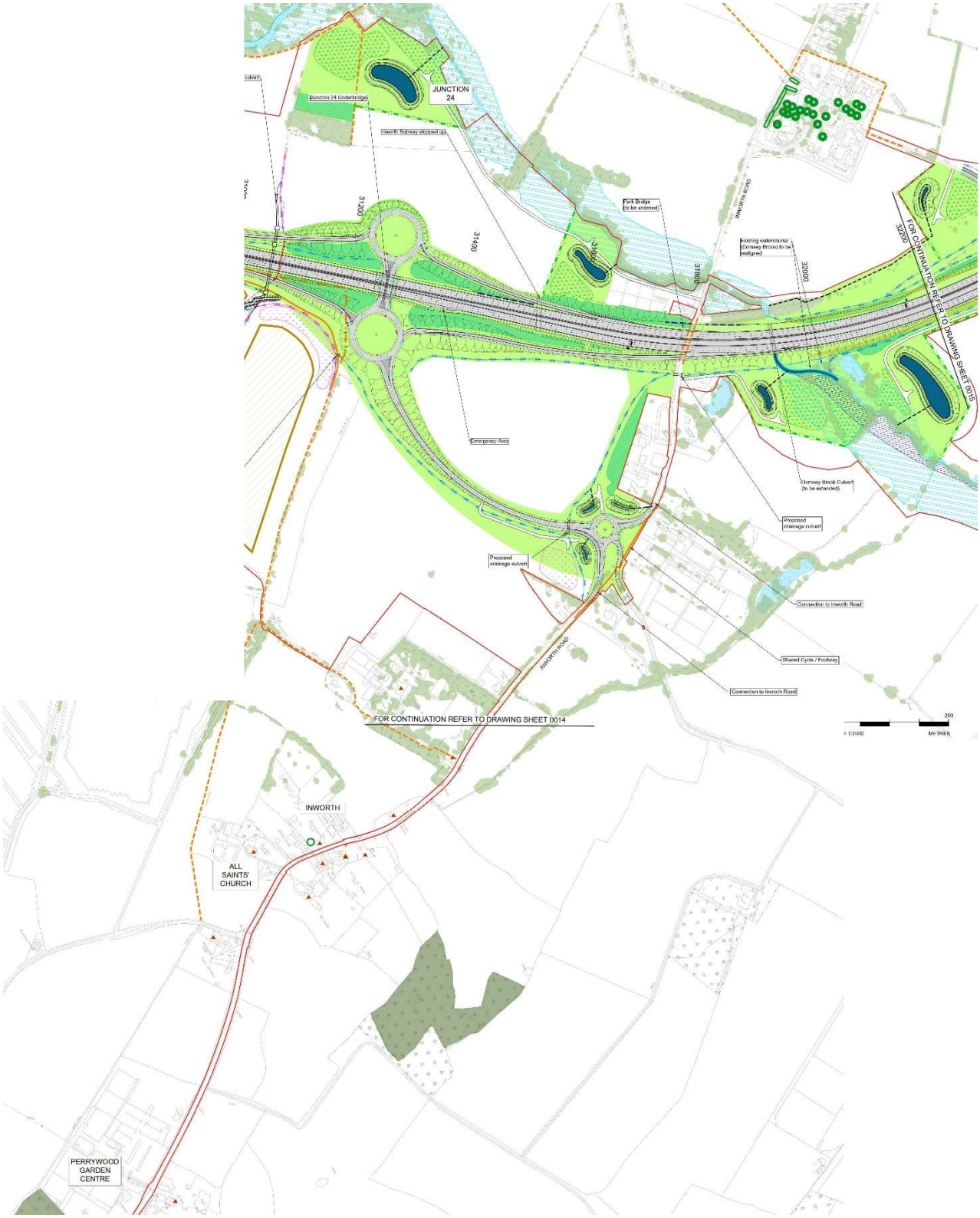
6.1 Map of Area showing National Highways proposal for Junction 24

6.2 Map of Inworth showing National Highways for road improvements

6.3 Map of Area showing the alternative proposal

6.1 Appendix A

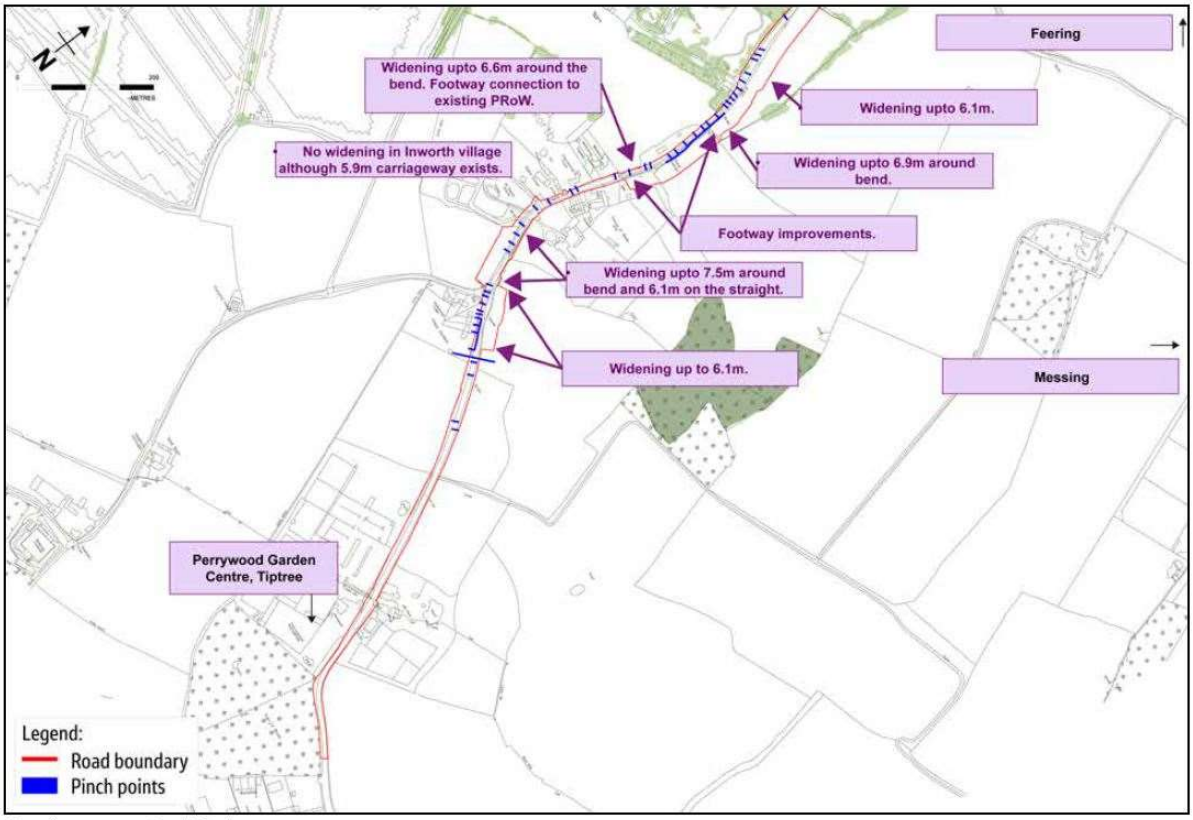
Map of Area showing National Highways Proposed Junction 24



6.2 Appendix B

Map of Inworth showing National Highways proposed road widening

Supplementary consultation November 2021



Intervention measures on Inworth Road

6.3 Appendix C

Map of area showing Main Alternative Proposal

1). Main Alternative north of A12

2). Main Alternative south of A12