Annex A

The results reproduced here are taken from the conclusions and recommendations of studies commissioned by Highways England (HE) and previously, Highways Agency. We would like to state that they are not the conclusive position of HE. The dynamics of traffic flow on this strategic corridor is influenced by a number of factors that are beyond our control. Hence, the data provided is for information purposes only.

Report Title	Date	Results (Extracts from Report Conclusions)
Technical Note Highways England Spatial Planning Arrangement Package 2 A14 Junction Assessment	30 October 2015	**6. Conclusion and Next Steps** 6.1. This Technical Note has been prepared by AECOM on behalf of Highways England to undertake a review of existing capacity issues on the A14 between Junctions 52 to 58. 6.2. Results of the modelling reveal that all of the junctions are either near or over capacity. Junctions 53, Anglia Parkway roundabout, 55, 56 and 57 are the worst performing junctions; all junctions have an RFC (Reference Flow Capacity) of 0.95 or higher apart from Junction 55 which has a maximum degree of saturation of 103.5%. Extensive queueing is modelled at Junctions 56 on the A137 (S) off-slip and at the Anglia Parkway Roundabout on the A1156 both directions. 6.3. Following this technical note AECOM recommend that the next phase of the assessment process is completed for Junctions 53, Anglia Parkway roundabout, 55, 56 and 57 as there are substantial capacity issues which will only be exacerbated by further development in Ipswich. This will consist of forecasting the future traffic demands on these junctions taking into account background traffic growth and any local committed development. The future year scenarios can then be applied to the existing traffic models to understand any future potential capacity issues. 6.4. Consideration will also need to be given to the root cause of the issues identified in this note, which is the blocking back of traffic not on the Strategic Road Network but on the local network. AECOM recommend that further investigation is invested to determine the main causes of the issues. It will potentially be necessary to consult with the local highway authority to effectively address the issues.
Felixstowe to Midlands Route Strategy	April 2015	This is publicly available: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/416755/Felixstowe_to_Midlands.pdf
A14 Swinford KSI (Killed and Seriously Injured) Safety Briefing Note	Version 1 – August 2014	**Conclusion** Although this is a KSI link, there is no prospect of a viable scheme being developed to treat the problems that have been identified. Due to the improvements being made to M1

		Junction 19, which affect the A14 carriageway, future traffic conditions and driver behaviour along the study length are difficult to predict. Our review of the collision history shows that the most common type of collisions are shunts, many of which occur in heavy traffic. The M1 Junction 19 improvement should relieve some of the peak hour congestion, potentially reducing the risk of collisions on the A14 carriageway during these periods. We therefore recommend no action, but that the link continues to be monitored.
A14 Junction 23 Spittals Circulatory Carriageway & A141 Improvements – Study Report	July 2014	**7. Conclusions** Significant peak hour congestion is occurring at A14 Junction 23 (Spittals) and there are times when there is also off peak queuing. This congestion is caused by strategic traffic using the A14 east and westbound negotiating the circulatory carriageway passing through one or three set of traffic signals. This brings it into conflict with local traffic using the junction to access or egress Huntingdon, creating queues on approach roads. There are regular occurrences when the southbound traffic from the A141 heading towards the A14 westbound does not clear the weaving area adjacent to the eastbound on slip road due to the stacking space in lane 2 of the circulatory carriageway not being used efficiently. This prevents the circulating eastbound traffic joining the on slip road. Increased capacity is needed on the A141 southbound, so it is proposed to widen the southbound approach to three lanes and provide an extra lane on the circulatory carriageway up to the north side of the east bridge will which allow better use of this space approaching the traffic signals with the junction of the A14 westbound off slip road. If the lane markings from the A14 westbound off slip road are followed round the circulatory carriageway it produces a tortuous path which vehicles do not follow. So it is proposed the two lanes for this movement should be moved closer to the central island. This will result in the need to widen the circulatory carriageway approach to the traffic signals and the A14 eastbound entrance to the roundabout. The Highways Agency is processing an application by developers for a scheme related to the Alconbury Airfield Development. This development would generate additional traffic flow at and in the vicinity of the junction that could require improvement works to be undertaken under a Section 278 Agreement as part of the planning approval for the scheme. In the Chancellor of the Exchequer's statement in June 2013 he announced the A14 Major scheme from Ellington to Fen Ditton was planned to start construction in 2016. This would mean that any improvements at the junction would only have a very short design life and any predicted benefits would be significantly reduced. Consequently in order to provide the benefits in advance of the A14 Major scheme an alternative low cost scheme to

		provided improvements to the traffic signal timings only could be undertaken. **8. Recommendations** It is recommended that the Highways Agency should investigate if similar improvements to those detailed in this report for the Spittals Roundabout could be funded by the developer of the Alconbury Airfield Development using a Section 278 agreement if they are justified following the A14 Major scheme from Ellington to Fen Ditton which is planned to start construction in 2016. In the short term it is recommended that signal timing improvements are undertaken.
Felixstowe to the Midlands Route Strategy Evidence Report	April 2014	This is publicly available: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/364208/Felixstowe_to_the_Midlands.pdf
Felixstowe to the Midlands Route Strategy Evidence Report Technical Annex	April 2014	This is publicly available: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/365312/Felixstowe_to_Midlands_Technical_Annex.pdf
Technical Note - Area 6 Congestion SIS (Further congestion identification using TomTom Data)	24 March 2014	4. A14 4.1. Barrow to Stowmarket This section considers the A14 from Barrow (between Newmarket and Bury St Edmunds) in the west to Stowmarket in the east, and passes through Bury St Edmunds. 4.1.1. Identified Congestion Hotspots Analysis of the speed data has identified the following sections of congestion along this route: Bury St Edmunds to Barrow (westbound) – Analysis of the speed data along the westbound carriageway shows that average reduce from an average of 56mph in the Base scenario to 44mph in the AM Peak hour for a distance of approximately 2.5 kilometres. *Recommendation – It is recommended that further monitoring is undertaken to determine the severity of congestion at this location, and if needed identify potential improvements that could be made.*

		4.2. Stowmarket to Felixstowe This section considers the A14 from Stowmarket in the West to Felixstowe in the East, and passes to the south of Ipswich. 4.2.1. Identified Congestion Hotspots Analysis of the speed data has identified the following sections of congestion along this route: Junction 55 (A12) to Junction 56 (Wherstead Interchange) (eastbound) – Analysis of the speed data along the eastbound carriageway shows that average speeds upstream of the Merge from the A12, reduce from 60mph in the Base scenario to 45mph in the AM Peak hour for a distance of approximately 1 kilometre. This is likely due to the volume of traffic joining the A14 eastbound from the A12 at Junction 55. *Recommendation – It is recommended that further monitoring is undertaken to determine the severity of congestion at this location, and if needed identify potential improvements that could be made, such as a possible extension to the merge lane.* Junction 56 (Wherstead Interchange) to Junction 57 Nacton Interchange (eastbound) – Congestion has been identified along this section of the route in a previous study. **Junction 56 (Wherstead Interchange) to Junction 57 Nacton Interchange** (eastbound) – Congestion has been identified along this section of the route in a previous study, and this is reported in the Technical Note *Area 6 Congestion SIS* (September 2013). **6. Summary and Conclusions** Some localised areas of congestion where identified on the sections of the A14 routes that were assessed, and recommendations for further assessment and potential mitigation measures were made at two locations.
A14 Girton A14 to A14 & A428/M11 to A14 Merge Improvements **Draft** Study Report	March 2014	**7. Recommendations** Following discussion with the Highways Agency it was decided not to pursue any of the options considered in this report, owing to the need for departures and the lack of downstream capacity between Junction 31 and 32 which would limit the benefits of the improvements. It is recommended that a lane gain drop between Junction 31 and Junction 32 should be promoted as this would provide greater benefits. Options for a lane gain drop are covered

		in a separate report undertaken for the Highways Agency. *Please note that Highways England considers this report finalised. It was prepared for the Highways Agency and CarillionWSP (our previous Managing Agent Contractor for our administrative Area 8 and whose contract ended on 31/03/2014).* *As part of the Targeted Improvement Programme (TIP) and Pinch Point Programme (PPP) an additional lane in both eastbound and westbound directions of the A14 between junctions 31 and 32 were added. We also improved the existing westbound slip roads at the Girton Interchange, junction 31 of the A14, in order to increase their capacity.* *This was completed in September 2015:* http://www.highways.gov.uk/roads/road-projects/a14-junction-31-to-32-eastbound-and-westbound-improvements/
A14 Junctions 31-32 Eastbound Lane Gain Lane Drop – Study Report	February 2014	**8.0 Recommendations** It is recommended that Option 1, the Type E, Lane Gain, be introduced at Junction 31 and Departure submissions be made for this proposal plus the reduced cross section through the overbridges. In order for the introduction of the Lane Gain to be possible, it is recommended that the lay-by be removed and not be replaced. It is recommended that crossing facilities be provided for cyclists at the new merges to improve safety for Non-Motorised Users, in particular cyclists. If the central reserve VRS [Vehicle Restraint System] between the two junctions has not been repaired as per the corrective actions given within the TRL [Transport Research Laboratory] Survey Report, prior to commencement of the scheme it is recommended that this work be completed as part of this scheme and in accordance with TD19/06*. It is recommended that gantry signs be used for the Advance Direction Signs and the Final Direction Sign. *TD19/06 is the standard “Requirement for Road Restraint Systems”, part of the Design Manual for Roads and Bridges http://www.standardsforhighways.co.uk/dmrb/vol2/section2/td1906.pdf

Technical Note - Area 6 Congestion SIS (Congested Links)	28 March 2013	**6. Summary and Conclusions** As part of the Area 6 Route Congestion Studies, various junctions along the key trunk roads throughout the region have been assessed in terms of annual journey times which have been obtained using the Highways Agency HATRIS database between 1st June 2011 and 30th April 2012. TomTom data has also been obtained along the A14 only between junctions 50 to 60 in both directions, for the neutral months of May, June, October and November 2012. All bank holidays, weekends, Mondays and Fridays have been omitted from the results. Six separate time periods were selected including the peak hours and shoulder peaks. There is congestion eastbound along the A14 between junctions 44 to 47 in the AM peak, however, as the HATRIS segment is longer than the assessment area and continues to junction 47, the congestion could be occurring here, rather than between junctions 44 to 46. It is recommended that further analysis is undertaken in the form of TomTom data, to identify the precise location of the flow breakdown. As no major congestion is evident, monitoring of the area should be continued. The HATRIS data for the A14 between junctions 53 and 55, showed congestion, however, the TomTom data showed that the congestion was actually occurring at junction 55, with no evidence of congestion between junctions 53 and 54. It is therefore recommended that further investigation and assessment be undertaken at junction 55. Turbulence was evident on the A14 between junctions 56 and 57, in the AM and PM peaks in both directions, both from the HATRIS data and TomTom data. However, the data showed that vehicles were still travelling at an average speed of above 50mph. A possible reason for this turbulence has been identified as the steep inclines at the bridge approaches causing HGVs to travel slower and combined with the higher traffic flows during the peak hours, causing turbulence and delays for vehicles. Again further investigation along the section of the A14 is recommended to find a suitable solution.
Technical Note - Area 6 Pinch Point Programme (A14 J52 to J53 Claydon Journey Time Assessment)	14 March 2013	**3. Summary and Conclusion** The A14 eastbound between J52 and J53, situated to the east of Ipswich, is perceived to experience congestion in the AM and PM peak periods. As part of the Area 6 Route Congestion Studies, this area has been highlighted to potentially benefit from the implementation of an auxiliary lane. In order to determine the extent of the issues, journey times from J51 to J53 of the A14 have been obtained using the Highways Agency HATRIS [Highways Agency Traffic

		Information System] database over a 5 year period from 2008 to 2012 for the AM (0800-0900) and PM peak (1700-1800) periods. Speed profile comparison graphs were prepared to identify the percentage of vehicles travelling slower than 30mph which would suggest congestion occurred. The graphs showed that during the AM and PM peaks, no vehicles travelled below 30mph in the 5 years assessed. In 2010 in the AM peak, a very small percentage of vehicles travelled between 32mph and 50mph, while in 2012 a smaller percentage travelled between 35mph and 50mph. In the PM peak in 2012 a fraction of vehicles travelled between 40mph and 50mph. Therefore, the HATRIS database results have shown that the majority of vehicles travelled at speeds of 50+mph between J51 and J53. Given this there would not appear to be any significant flow breakdown in this section, however, the speeds could be smoothed by the longer distance. Therefore, it is recommended that further analysis should be undertaken based upon data derived from TomTom just the stretch of the A14 between J52 and J53.