TECHNICAL NOTE 1

DATE:	31 July 2019	**CONFIDENTIALITY:**	Public
SUBJECT:	RIS Scheme SRN Impacts		
PROJECT:	70044944 – ISPA Local Plan SRN modelling	**AUTHOR:**	Lachlan Piper
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INTRODUCTION

WSP have been tasked with providing strategic modelling evidence in relation to the impact of housing and employment growth within the Ipswich Strategic Planning Area (ISPA). The modelling utilises the Suffolk County Transport Model (SCTM) which is a Suffolk-wide SATURN model. The strategic modelling relies on a 2016 base year, with forecast assignments produced for an interim year of 2026, and 2036 representing the end of the Local Plan period for the ISPA Local Planning Authorities (LPAs). The modelling presented focuses on the AM peak hour (0800-0900) and PM peak hour (1700-1800) which are time periods when traffic flows and associated congestion will be highest throughout the day.

The 2026 and 2036 forecast assignments detailed within this technical note relate to the demand adjusted forecasts which are described in detail in the ISPA Methodology Report (August 2019) and for which results focusing on the local highway authority network are presented in the ISPA Forecasting Report (August 2019). A glossary of terms is available within both the ISPA Methodology Report and ISPA Forecasting Report which should be referred to for further explanation of any of the technical terms which are used within this technical note.

This technical note details the performance of the Strategic Road Network (SRN) which is the responsibility of Highways England (HE). The main focus of this report is on the A14 south of Ipswich as this is the location where previous Local Plan modelling has demonstrated the most significant congestion on the SRN. The impacts of potential Road Investment Strategy (RIS) schemes at the A14 Junction 55 (Copdock), A14 Junction 56 (Wherstead) and A14 Junction 57 (Nacton) are discussed. The A14 Junction 58 (Seven Hills interchange) is also focused on, the proposed mitigation which has been modelled at this junction is as per the junction design detailed within the Brightwell Lakes[1] planning permission. Capacity issues are also presented for the remainder of the A14 within Suffolk.

The purpose of this note is to consider the extent to which schemes which may be proposed as part of the Highways England RIS would address impacts identified in the strategic modelling. The potential RIS schemes should be considered as complementing the package of mitigation measures which have been outlined by Suffolk County Council and the LPAs within their Local Plans to address capacity issues associated with future housing and employment growth based on Local Plan growth.

The 2026 and 2036 forecast traffic flows which have been used within this technical note relate to the assignments which have had a demand reduction applied (i.e. targeted reduction in car travel), and is consistent with the modelling which forms the focus of the ISPA Forecasting Report (August 2019). This approach associated with the demand reduction is discussed in detail in the ISPA Methodology Report (August 2019).

[1] Previously known as Adastral Park

Figure 1 highlights the location of the A14 junctions south of Ipswich which form the main focus of this technical note.

Figure 1 – RIS SRN junctions assessed

DO MINIMUM PERFORMANCE

The "Do Minimum" situation will be focused on first. This section details the performance of the road network **without** the potential RIS schemes. The Do Minimum can therefore be defined as the forecast network including local highway improvements and revised junction design at A14 Junction 58 as per the Brightwell Lakes planning permission. The Do Minimum does not include any further mitigation schemes on the SRN.

Volume / Capacity (V/C) percentage plots are presented as per Table 1.

Table 1 – V/C plot key

VOLUME / CAPACITY RATIO	COLOUR CODE
<70%	
70-85%	
85-100%	
100-125%	
>125%	

A14 MAINLINE SOUTH OF IPSWICH – DO MINIMUM

The performance of the A14 corridor is provided in Figure 2.

In the AM peak;

- the eastbound carriageway is over-capacity from Junction 57 (Nacton) back to Junction 56 (Wherstead) in 2026, and extending past Junction 55 (Copdock) in 2036.
- the westbound carriageway is operating close to capacity from Junction 57 (Nacton) to Junction 56 (Wherstead) with a V/C of 85-100%

In the PM peak;

- The eastbound carriageway is operating over capacity on the approach to Junction 55 (Copdock), and close to capacity from Junctions 56 to 57 in 2026, and 56 to 58 in 2036.
- The westbound carriageway operates close to capacity in 2026, and exceeds capacity in 2036 from Junction 56 to 57

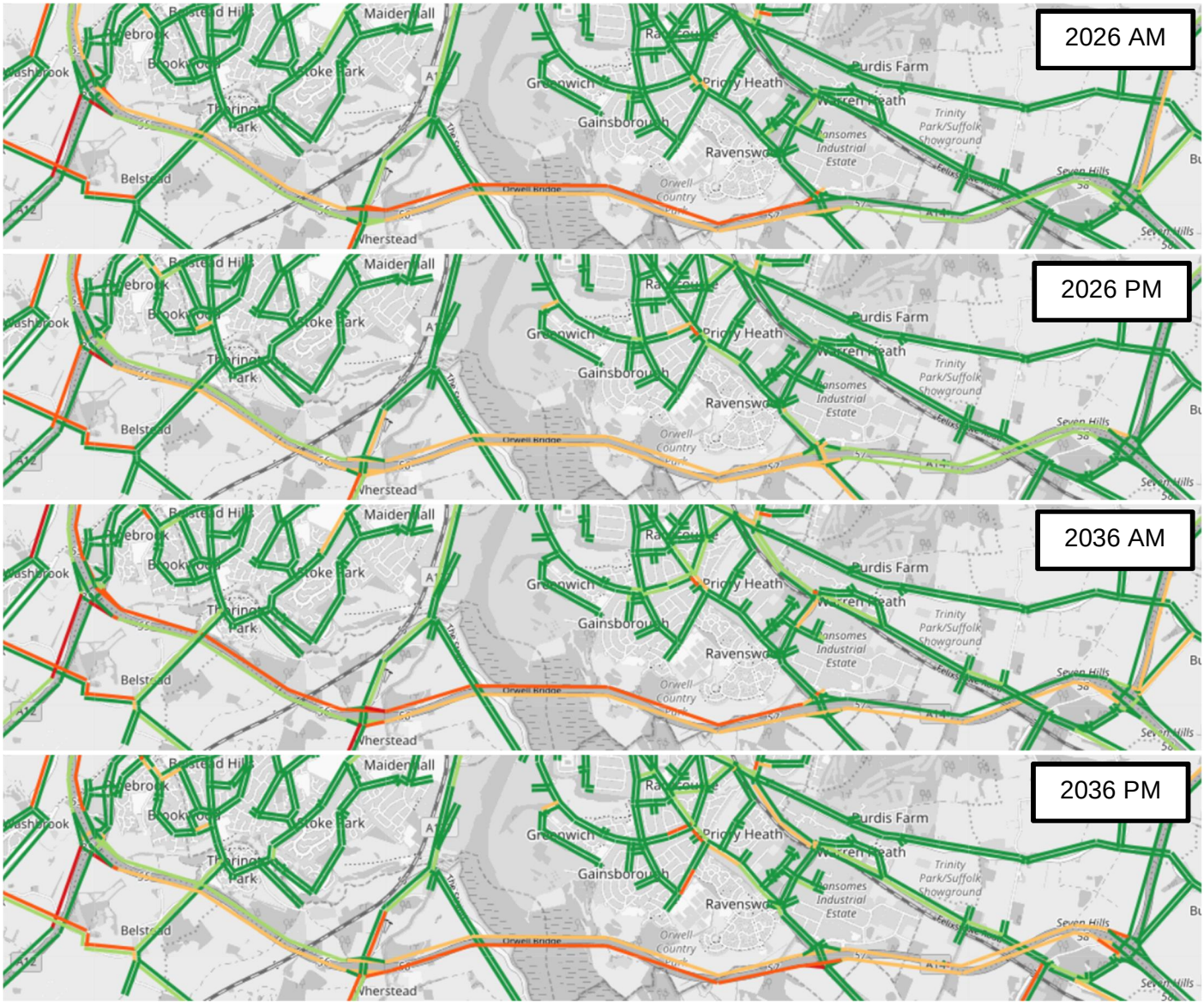


Figure 2 – A14 South of Ipswich modelled V/C Ratio – Do Minimum

JUNCTION 55 COPDOCK – DO MINIMUM

The Junction 55 Copdock interchange has several approaches over capacity as demonstrated in Figure 3.

- The A12 south approach and the westbound off ramp are considerably over capacity in both peaks in 2026 and 2036
- The eastbound mainline prior to the off-slip is approaching or at capacity in all time periods
- Eastbound off slip and on slip are over capacity in the AM peak in 2026/2036
- Eastbound within the junction, the mainline is close to capacity in 2026 AM and over-capacity in 2036 AM prior to the merge with the eastbound on-slip

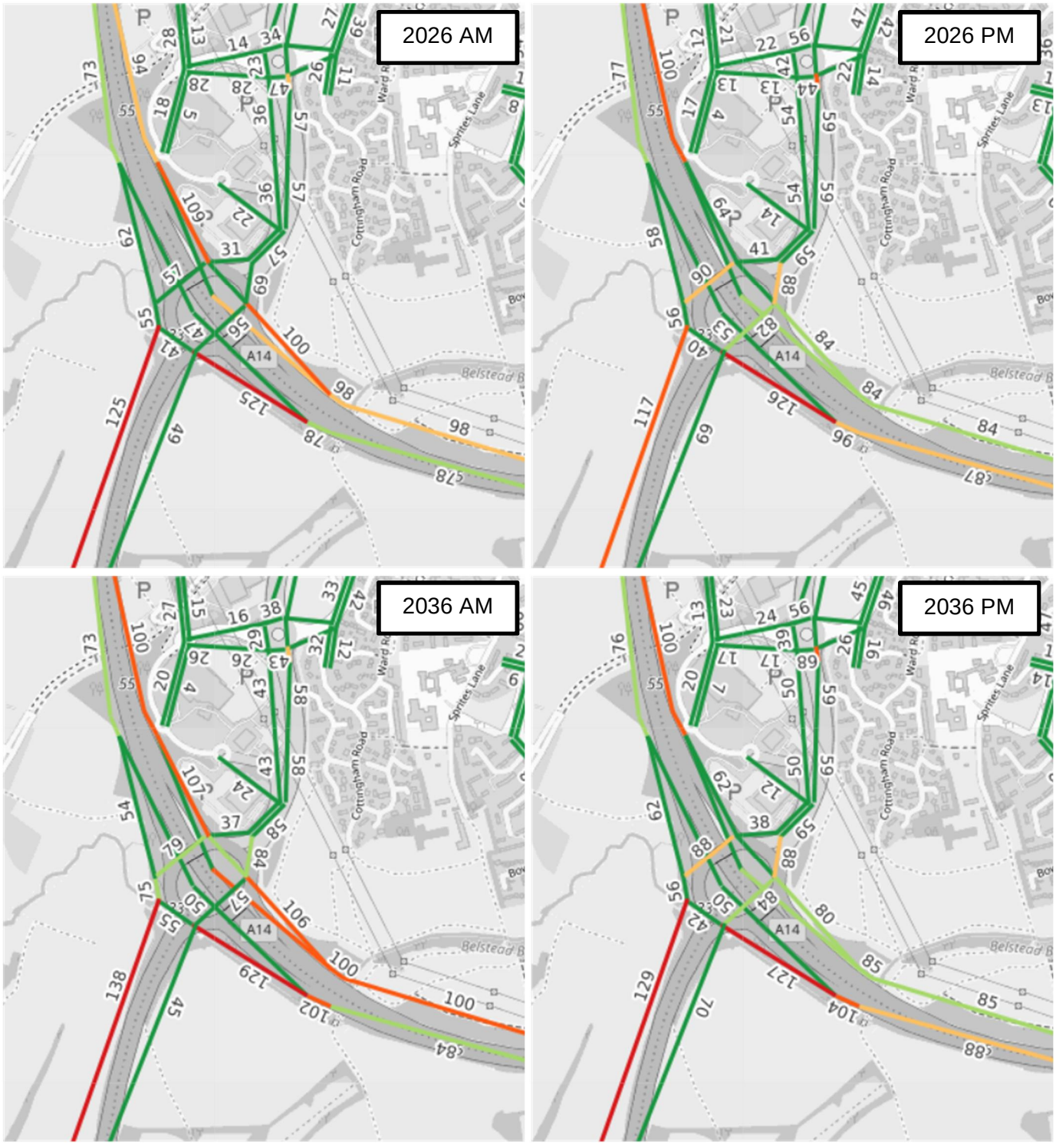


Figure 3 – Junction 55 modelled V/C Ratio – Do Minimum

Wider issues are caused by the capacity issues shown at Junction 55, depicted within Figure 4.

- As the southern approach to junction 55 is over capacity, alternate routes are coming under increased pressure – this is shown in Church Lane eastbound, and on all approaches to the A1071 / Swan Hill (Beagle) roundabout.

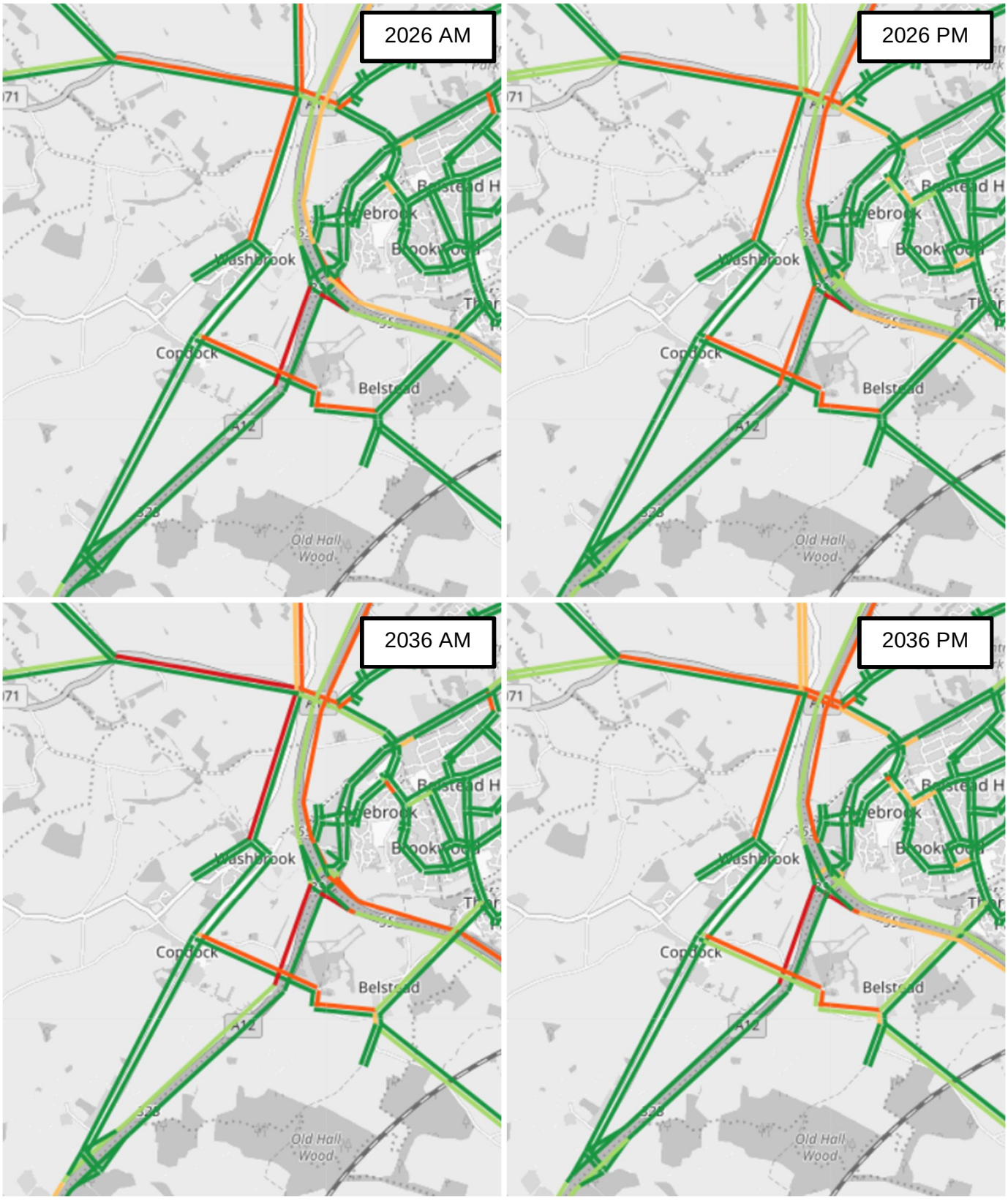


Figure 4 – Junction 55 broader area V/C Ratio – Do Minimum

JUNCTION 56 WHERSTEAD – DO MINIMUM

The Junction 56 Wherstead interchange has multiple approaches which are considerably over capacity, as shown in Figure 5.

- The A137 south approach is significantly over capacity in both peaks in 2026 and 2036
- During the AM peak, the eastbound on slip is over capacity in 2026 and 2036
- In 2026, the westbound off slip is close to capacity during the PM peak. In 2036, the westbound off ramp is over capacity in both peaks

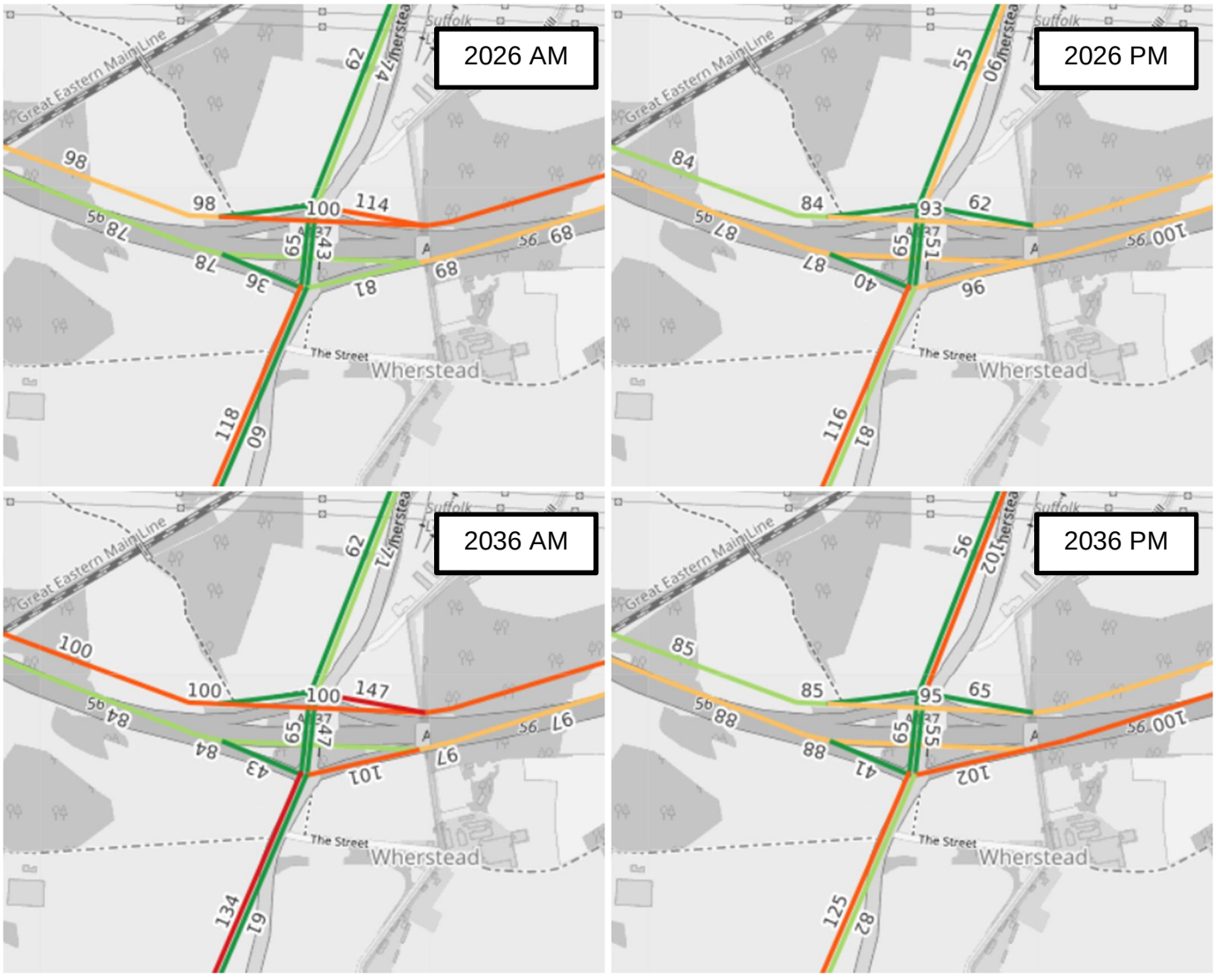


Figure 5 – Junction 56 modelled V/C Ratio – Do Minimum

JUNCTION 57 NACTON – DO MINIMUM

The Junction 57 Nacton interchange has capacity issues at multiple parts of the junction, shown in Figure 6.

- The north approach is over capacity in the AM peak in 2026 and 2036
- The Ransomes Industrial Estate exit is nearing capacity in the AM peak in 2026 and 2036
- The westbound on slip is approaching capacity in 2026, and significantly over capacity in 2036. In 2026, there is congestion southbound on Nacton Road between the northern roundabout and southern teardrop gyratory during the PM peak – this is not present in 2036. This is because the A14 mainline is at capacity westbound by 2036, meaning the westbound off-slip has minimal gaps to enable traffic to join the main carriageway leading to very significant delays. Traffic opts to re-route and avoid this delay leading to a decrease in demand on Nacton Road between the northern roundabout and southern teardrop gyratory.

Figure 6 – Junction 57 modelled V/C Ratio – Do Minimum

JUNCTION 58 SEVEN HILLS – WITH BRIGHTWELL LAKES MITIGATION

The Junction 58 Seven Hills interchange has been modelled to include the mitigation associated with the Brightwell Lakes planning permission. This consists of signalisation of the A12 northern approach, westbound off-slip and A1156 southern approach, as well as widening of the roundabout gyratory.

The Seven Hills interchange operates approaching or exceeding capacity on specific approaches, as shown in Figure 7

- The southbound A12 approach is approaching capacity during the AM peak in 2036, but operates within capacity in all other time periods modelled. In 2036, the minor Bucklesham Road approach and westbound on slip are also approaching capacity.
- The eastbound off slip is approaching capacity in 2026 during the PM peak, and over-capacity in 2036. The westbound on slip is over capacity in during the PM peak in 2036.

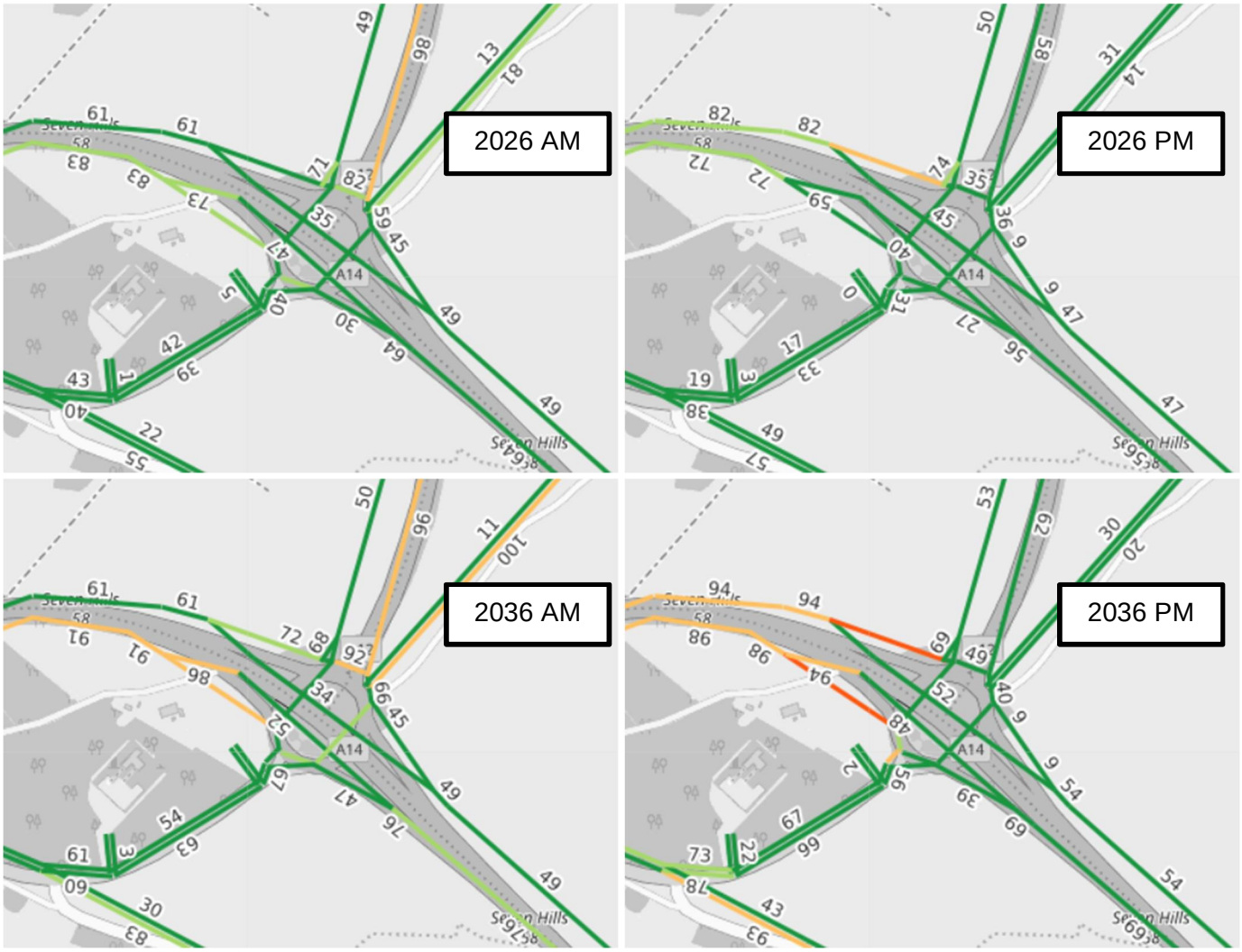


Figure 7 – Junction 58 modelled V/C Ratio – with Brightwell Lakes mitigation

Wider issues are caused by the capacity constraints at junction 58. In 2036 PM, the westbound on ramp is over capacity. This is increasing pressure on alternate routes, with decreased performance in the 2036 PM peak on the Felixstowe Road approach to the A14, the Felixstowe Road approach to the A1156 and on The Street south approach to the A1156.

An overbridge has been modelled between Innocence Lane and the east-west access route parallel to the A14 between Felixstowe Road and Trimley St. Martin. This represents a possible solution in relation to the access strategy for the Innocence Farm development. The overbridge and existing left out movement onto the A14 eastbound at Innocence Farm are shown to be near capacity in 2036 PM. The A14 westbound approach onto the A14 via Felixstowe Road near Innocence Farm is shown to be over capacity.

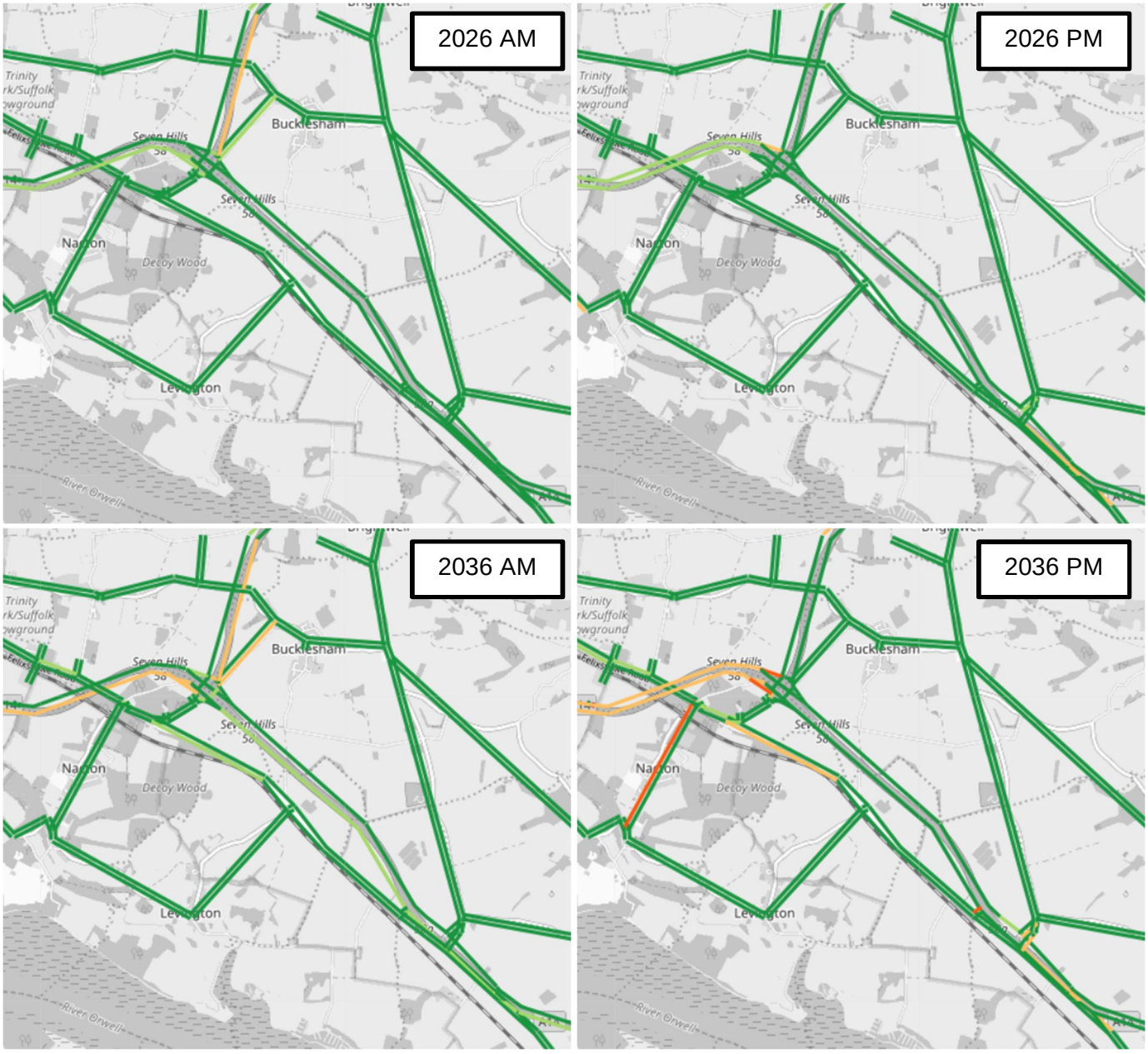


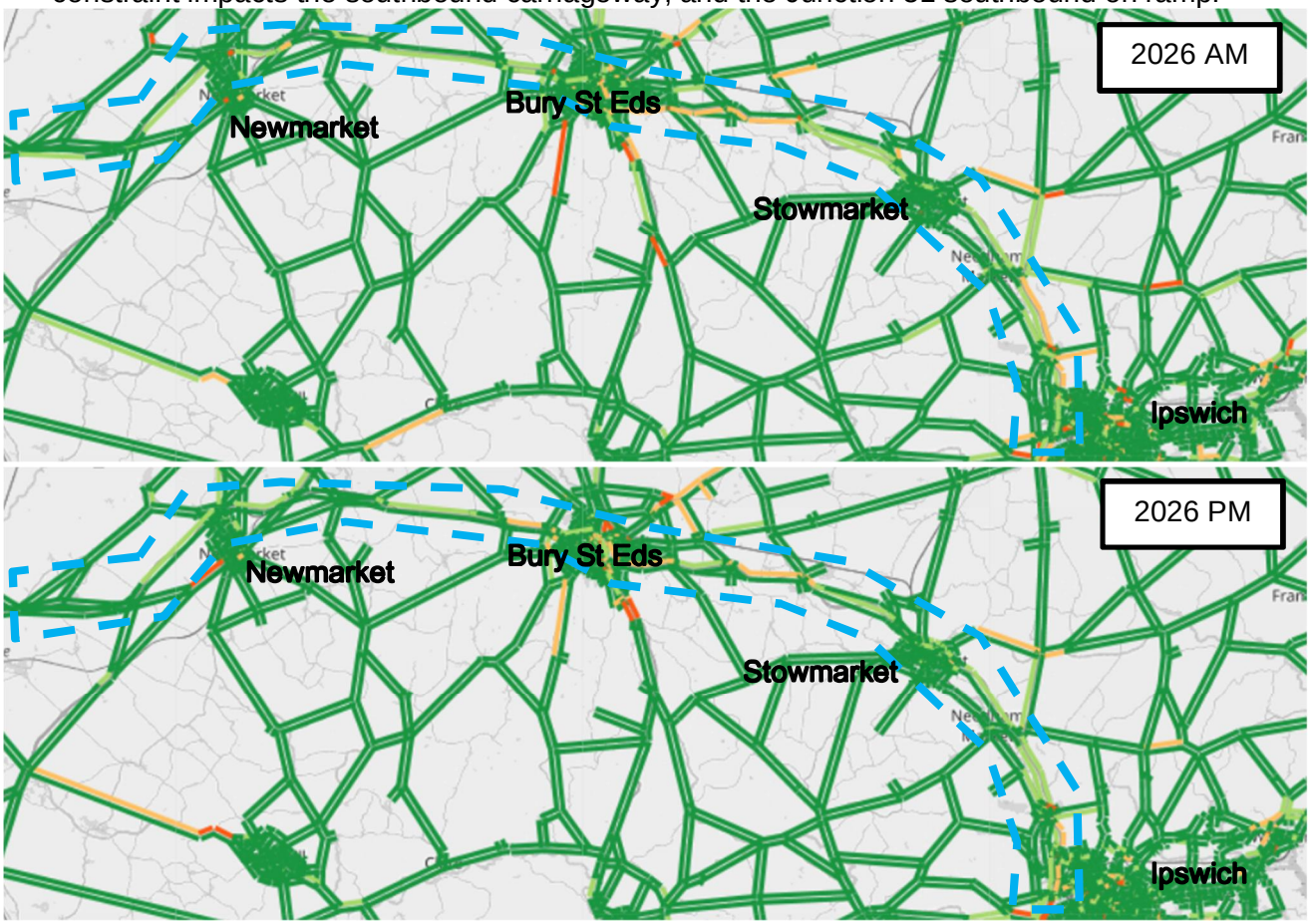
Figure 8 – Junction 58 broader area V/C Ratio – Do Minimum

WIDER NETWORK – DO MINIMUM

Figure 9 shows the A14 Corridor between Ipswich and Newmarket, with the corridor outlined in blue. This is shown to demonstrate the wider context of capacity issues on the A14 beyond Ipswich into West Suffolk. The traffic growth associated with the ISPA will predominantly influence congestion and capacity issues within Babergh, Mid Suffolk, Ipswich and East Suffolk. However, some of this traffic will be longer distance travelling to / from these LPAs and will therefore have some influence on the performance of the A14 west of Ipswich. The strategic model also includes wider background growth in areas outside of the ISPA.

The following conclusions are of relevance to the ISPA:

- The A14 is approaching capacity along much of its length in both directions in the AM and PM peaks. The total amount of highway near capacity increases between 2026 and 2036.
- The southbound off ramp at Junction 52 (Claydon) is over capacity in the 2036 AM peak. This capacity constraint impacts the southbound carriageway, and the Junction 51 southbound on ramp.



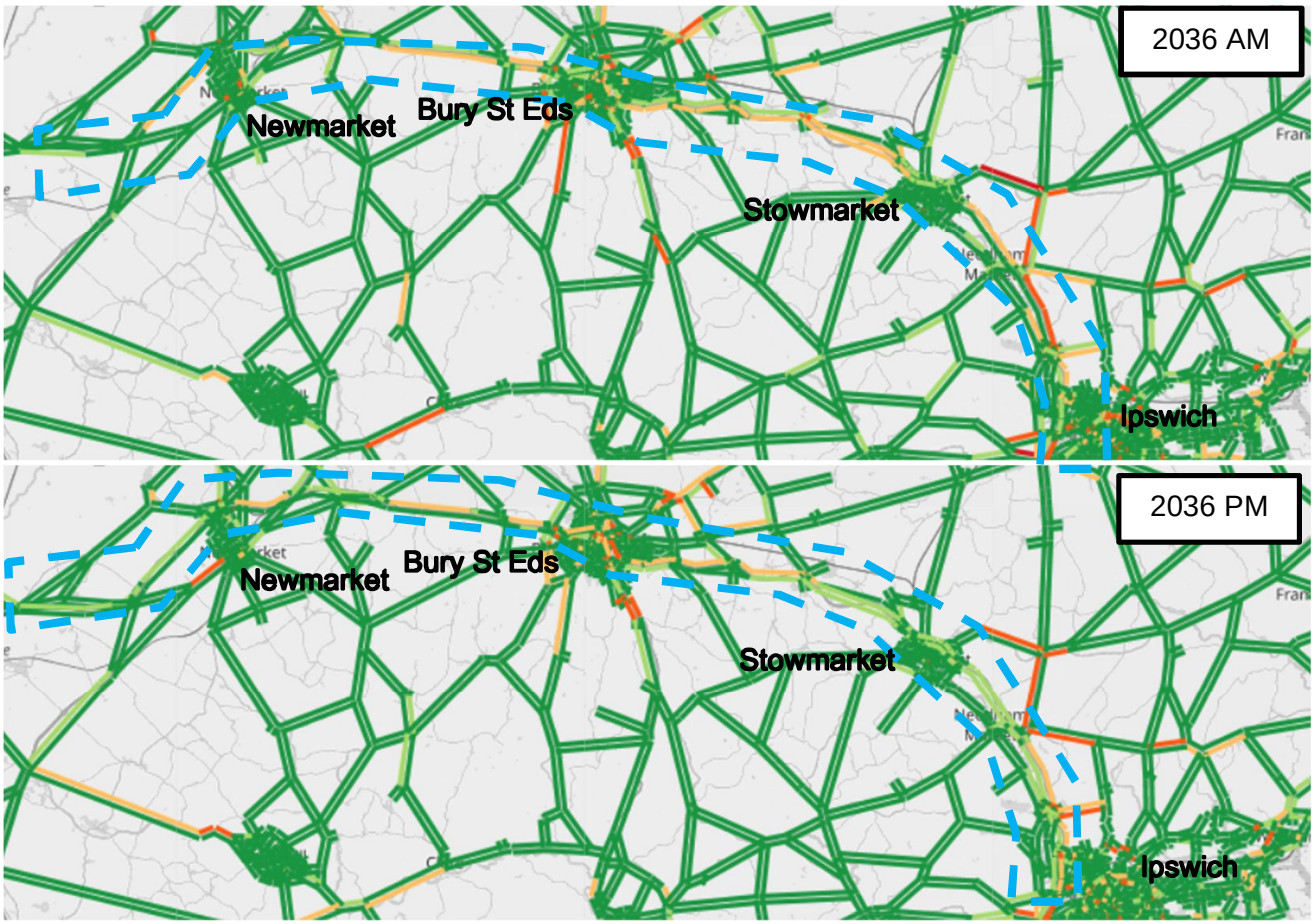


Figure 9 – A14 Newmarket to Ipswich V/C Ratio – Do Minimum

FELIXSTOWE – DO MINIMUM

Figure 10 presents the V/C performance within Felixstowe. This shows that in all time periods for the A14 SRN within Felixstowe operates within capacity. The exception to this is the eastern A154 Candlet Road approach to the A14 Dockspur roundabout which is close to capacity in 2026, and at capacity in 2036. This is despite the inclusion of the Walton High Street link road. It is considered issues affecting the SRN at this location will be mitigated as part of the developments associated with Felixstowe Garden Neighbourhood

Figure 10 – Felixstowe V/C Ratio – Do Minimum

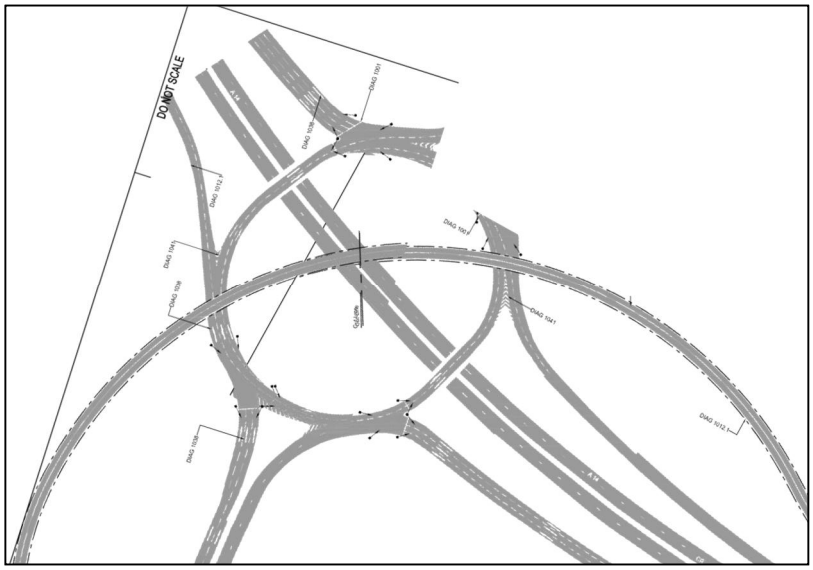
SCHEME DESIGN

In 2014, central government launched the first Road Investment Strategy (RIS1) for a period of 2015 to 2020 focusing on modernising and investing in the SRN. Following on from this there will be further five-year RIS cycles covering investment in the operation, maintenance, renewal and enhancements of the SRN as well as enhancements. Previous studies have focused on junction enhancements for the A14 junctions south of Ipswich with the intention for these schemes to be included within a future RIS funding period. The recommended option from previous studies of the A14 south of Ipswich has been included within the SCTM, tested using the 2026 and 2036 traffic forecast traffic demand previously detailed in the Do Minimum section of this note.

The potential RIS scheme designs which have been modelled are presented below

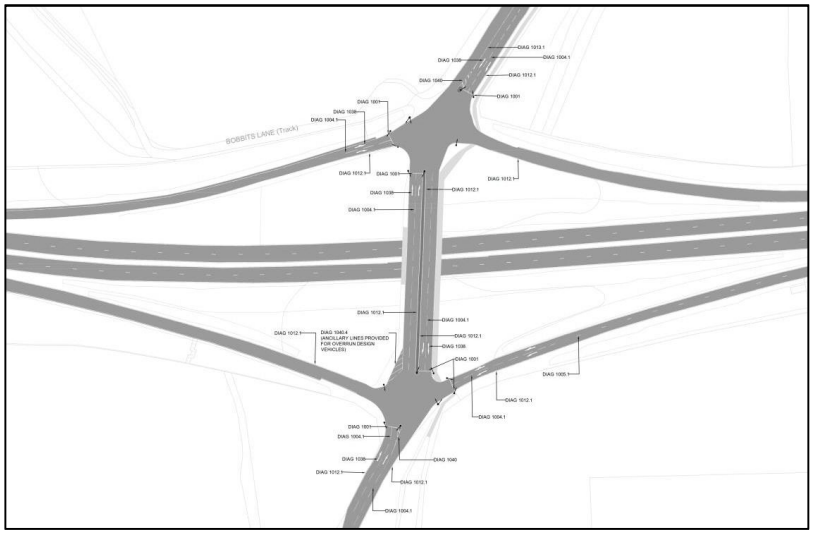
A14 JUNCTION 55, COPDOCK INTERCHANGE, IPSWICH

Based on “Option 3” junction design, providing a grade separated flyover for movements from the A12 south to the A14 east, and roundabout markings changed on the circulating carriageway to optimise other traffic flow movements. Note that the A1214 north arm is not shown in the image.



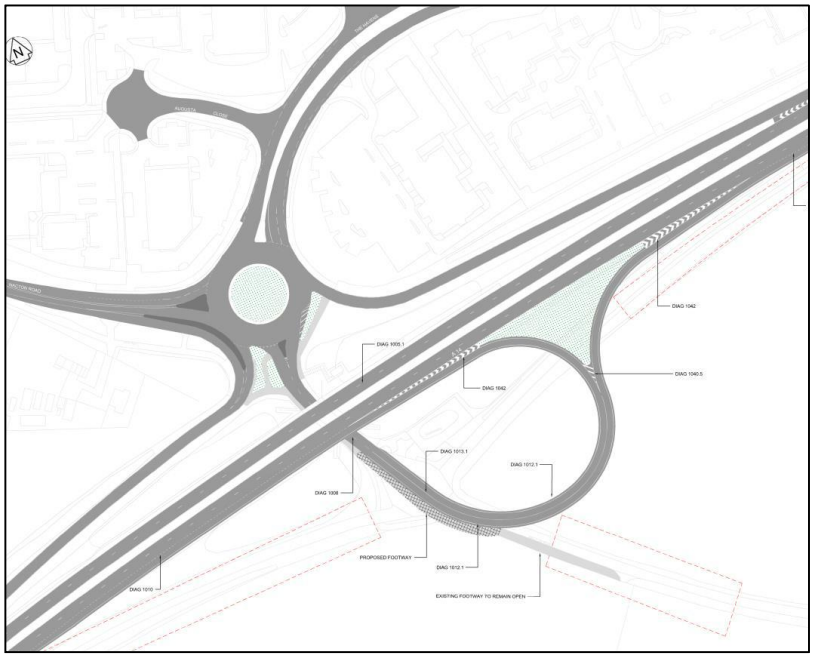
A14 JUNCTION 56, WHERSTEAD, IPSWICH

Based on “Option 3” junction design which involves standard signalisation of the junction, with bridge widening to accommodate two northbound and two southbound lanes on the link road.



A14 JUNCTION 57, NACTON, IPSWICH

Based on “Option 1” junction design which involves altering the southern roundabout to a “Trumpet” arrangement and closure of the Nacton Road south arm.



SCHEME PERFORMANCE

A14 MAINLINE SOUTH OF IPSWICH – WITH J55-J57 SCHEMES

With the RIS schemes in place there is generally an increase in traffic on the A14, with the exception of the 2026 PM Peak which sees a moderate decrease to traffic westbound from Junction 57 (Nacton) to Junction 56 (Wherstead), this is associated with the removal of the southern approach from Nacton Road at the former junction. The increase in traffic is reflected in an increase in the V/C. While the figures indicate significant changes in the 2036 PM this is due to both carriageways operating near 100% capacity with and without the scheme.

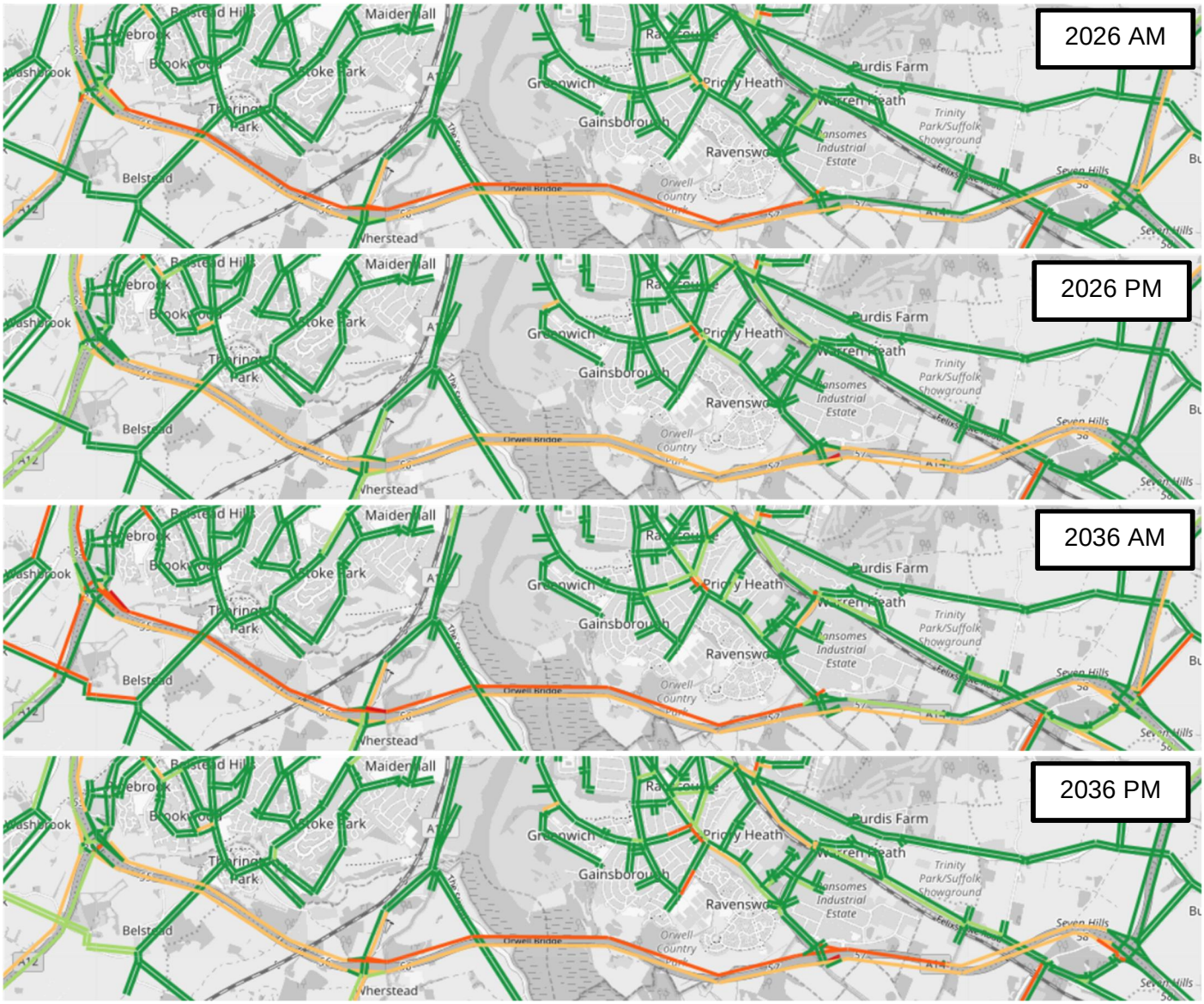


Figure 11 – A14 South of Ipswich modelled V/C Ratio – with scheme

JUNCTION 55 COPDOCK WITH SCHEME

Junction 55 Copdock improvements include the flyover from the A12 south to the eastbound carriageway and the optimisation of signal timings. The scheme decreases the V/C ratio on the A12 south approach. During the AM peak the flyover is not utilised by traffic turning onto the eastbound carriageway due to insufficient capacity on the A14 downstream of the existing merge. As such, traffic utilises the existing on-slip as it has a higher capacity due to a lower opposing flow on the highway. A test has been undertaken banning right turn movement on the roundabout from the south to the east – modelling shows this to be partially effective at moving vehicles onto the flyover, however there is a large volume travelling through the roundabout and proceeding north to perform a U-turn at the Scrivener Drive roundabout, then accessing the A14 through the existing on ramp. During the PM peak the flyover is utilised as expected, the RIS scheme leads to significant decreases in capacity issues, the remaining part of the junction which continues to show capacity issues is the westbound off-slip.

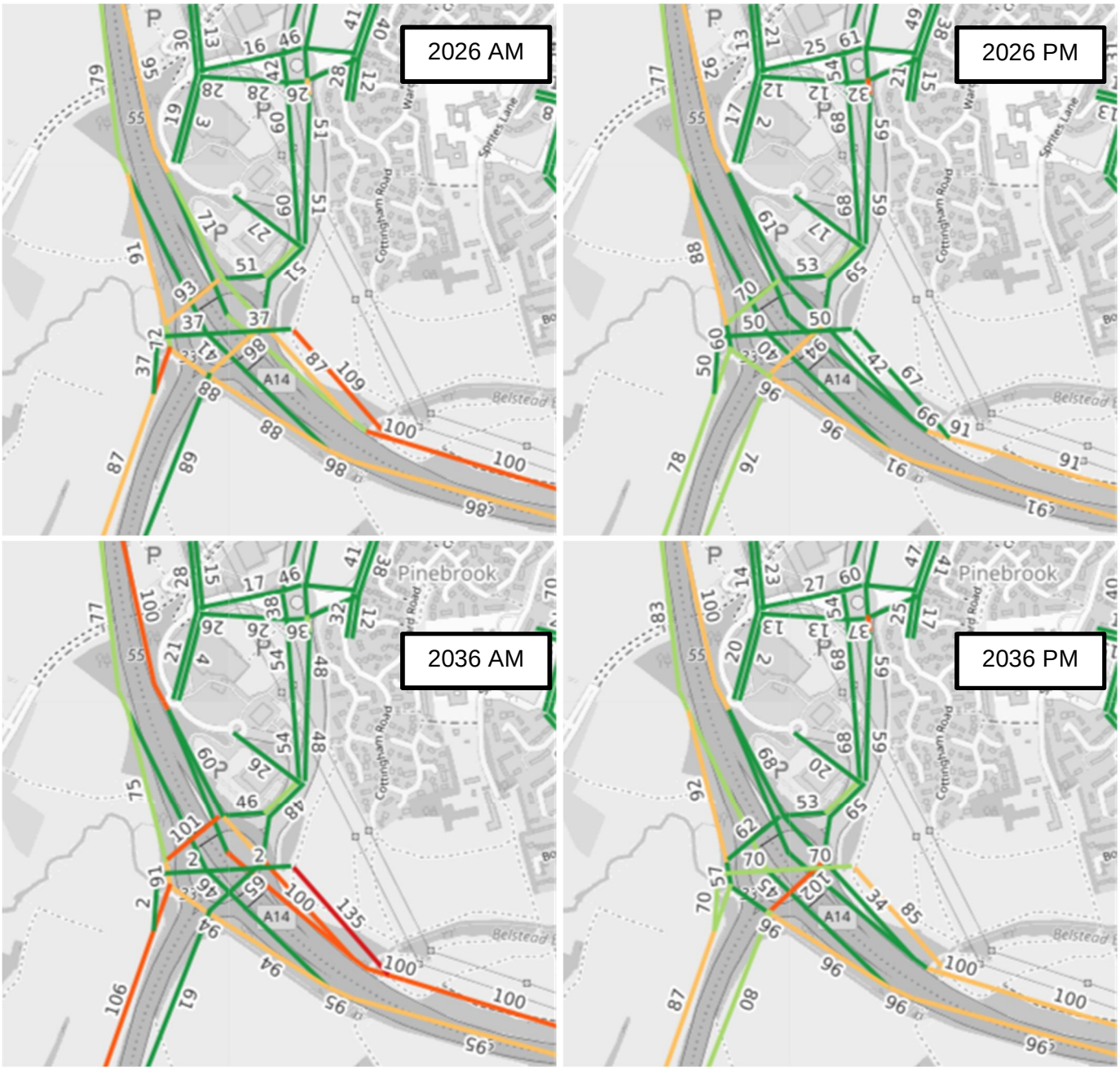


Figure 12 – Junction 55 modelled V/C Ratio – with scheme

The RIS scheme decreases the V/C ratio of key constrained locations, including at Church Lane and at the A1071 / Swan Hill (Beagle) roundabout. However, this roundabout still continues to show capacity issues despite the alleviation of congestion at the Copdock interchange.

Figure 13 – Junction 55 broader area V/C Ratio – with scheme

JUNCTION 56 WHERSTEAD WITH SCHEME

The RIS scheme reduces the V/C ratio on the Wherstead Road approaches, with all approaches now operating within capacity, most notably the A137 southern approach which is significantly over capacity in the Do Minimum. The eastbound on-slip is shown to be over capacity in all time periods, except 2026 PM, due to the A14 mainline being at capacity, minimising the opportunity for traffic to merge onto the main carriageway.

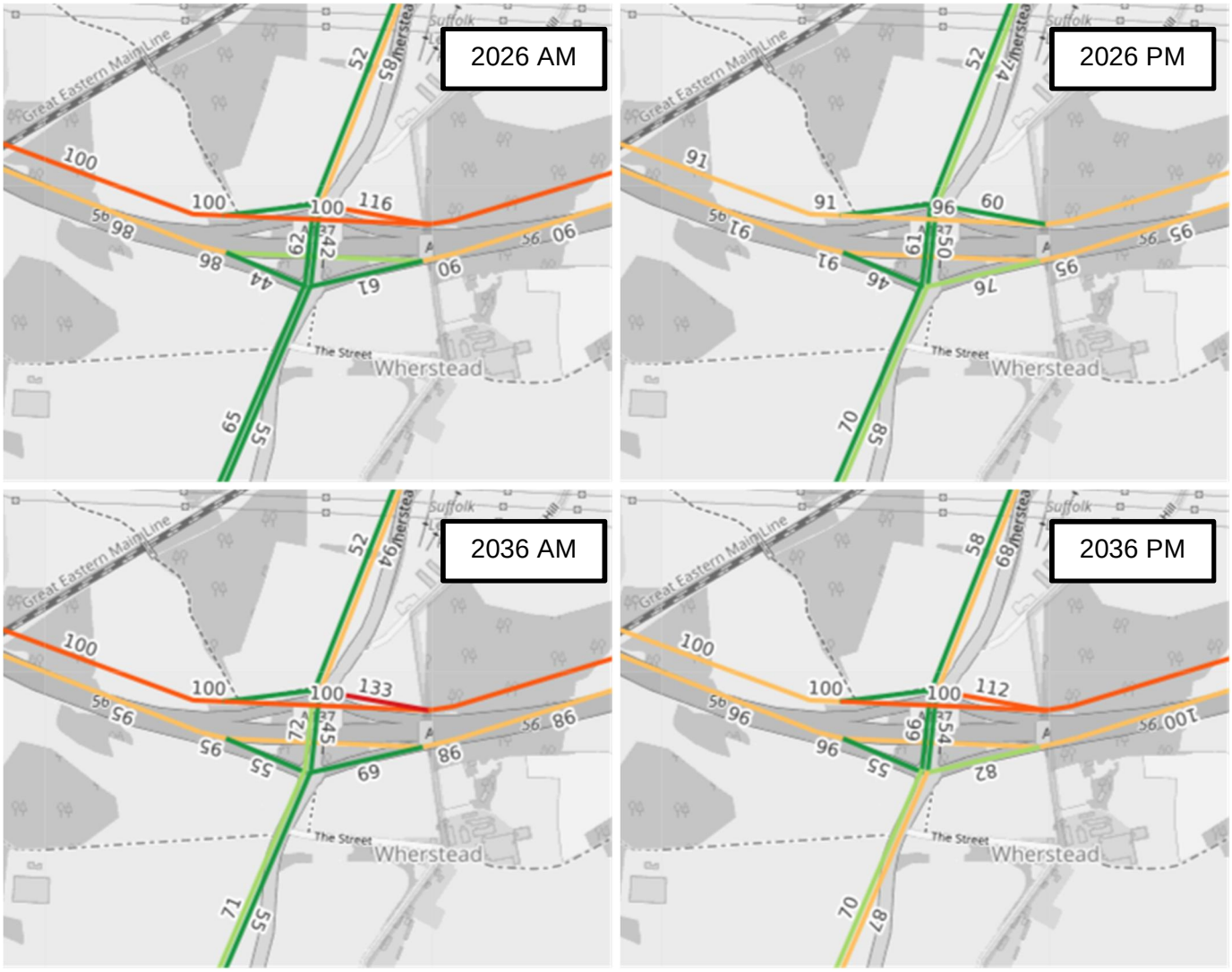


Figure 14 – Junction 56 modelled V/C Ratio – with scheme

JUNCTION 57 NACTON WITH SCHEME

Conditions at Junction 57 (Nacton) are largely unchanged under the RIS Scheme. There is an increase in V/C on the eastbound on slip in 2036 PM, this is associated with the increase in traffic on the eastbound carriageway which is operating at capacity, which decreases the capacity of the merge. The westbound on slip continues to show capacity issues.

Figure 15 – Junction 57 modelled V/C Ratio – with scheme

JUNCTION 58 SEVEN HILLS WITH J55-57 SCHEMES

The Junction 58 Seven Hills interchange generally operates comparably with and without the other RIS schemes. A notable difference is the A1156 southern approach is at capacity, this occurs due to traffic re-routing onto Felixstowe Road to avoid delays at the Junction 57 Nacton interchange and due to the closure of Nacton Road meaning Junction 58 becomes the most immediate route for this traffic to access the SRN.

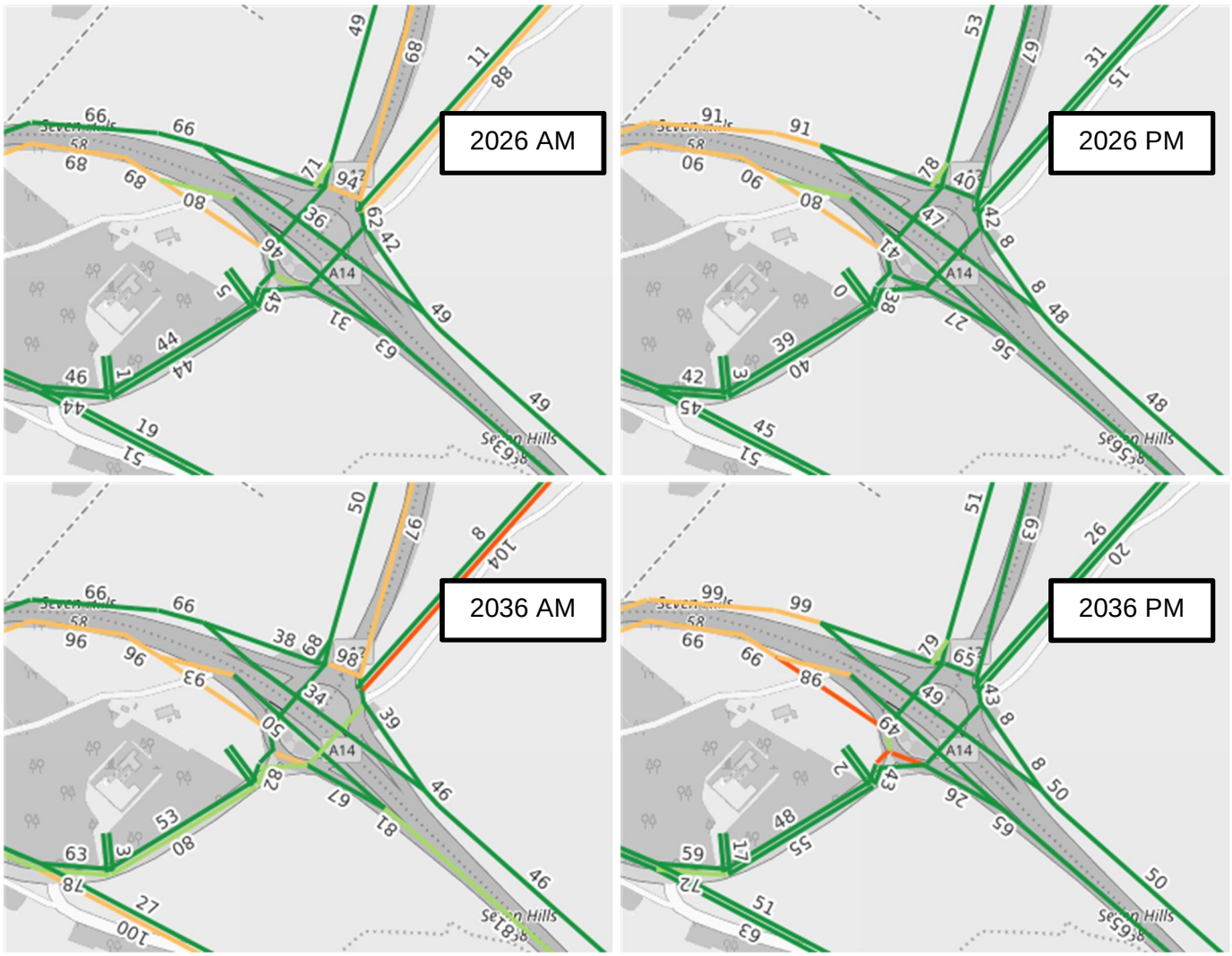


Figure 16 – Junction 58 modelled V/C Ratio – with scheme

The severance of Nacton Road at Junction 57 increases pressure on The Street, which operates over capacity with the RIS Scheme. The RIS scheme alleviates the high VC on the Felixstowe Road approach to the A1156 during the 2036 PM peak, however the AM peak V/C is increased due to increased traffic associated with the severance of Nacton Road. The addition of the RIS schemes does not impact on the capacity issues around Innocence Farm which are predominantly in the 2036 PM peak.

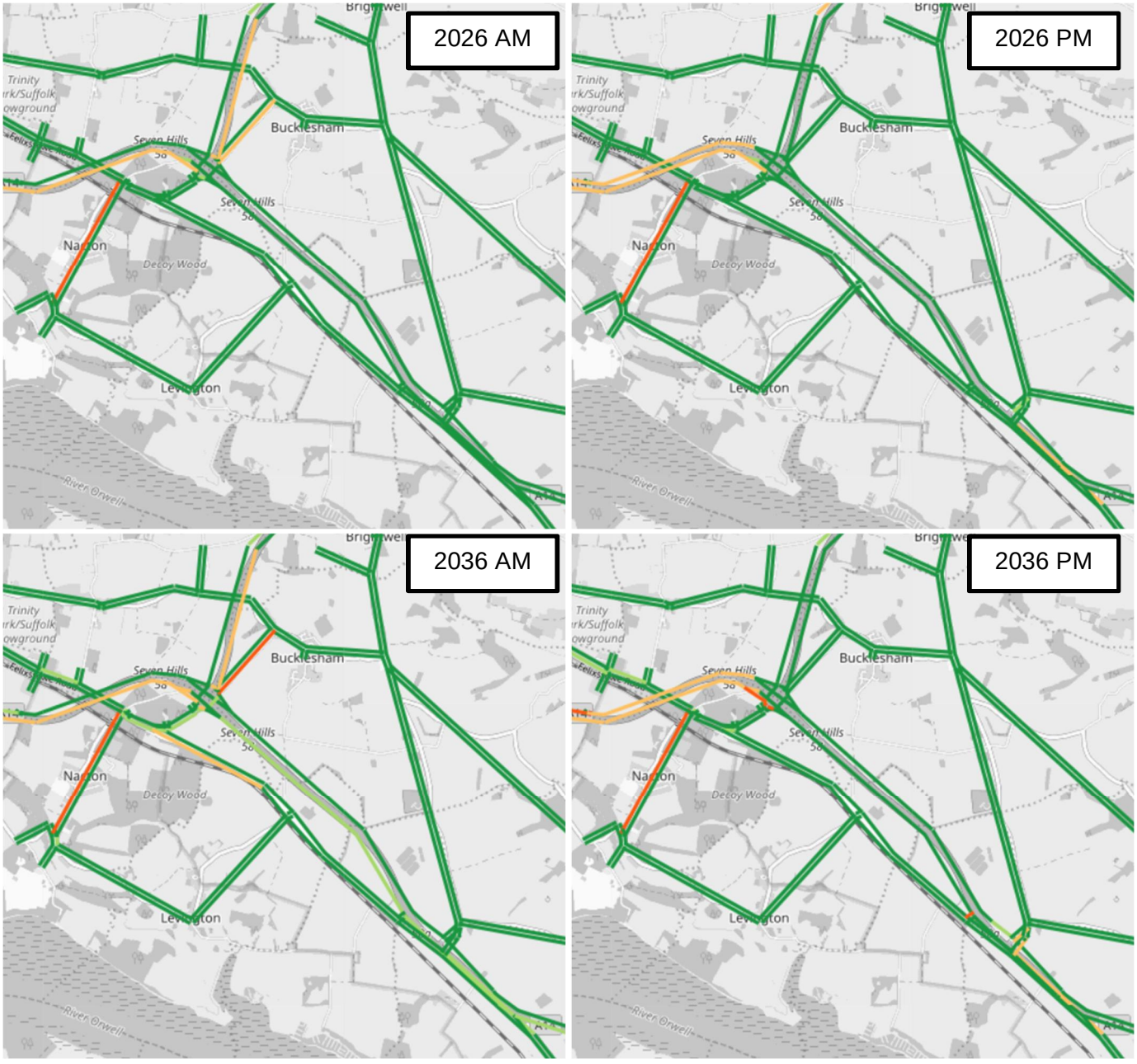


Figure 17 – Junction 58 broader area V/C Ratio – without intervention

WIDER NETWORK

Figure 18 shows the A14 Corridor between Ipswich and Newmarket, with the corridor outlined in blue. Conditions on the A14 corridor are comparable to conditions without the scheme.

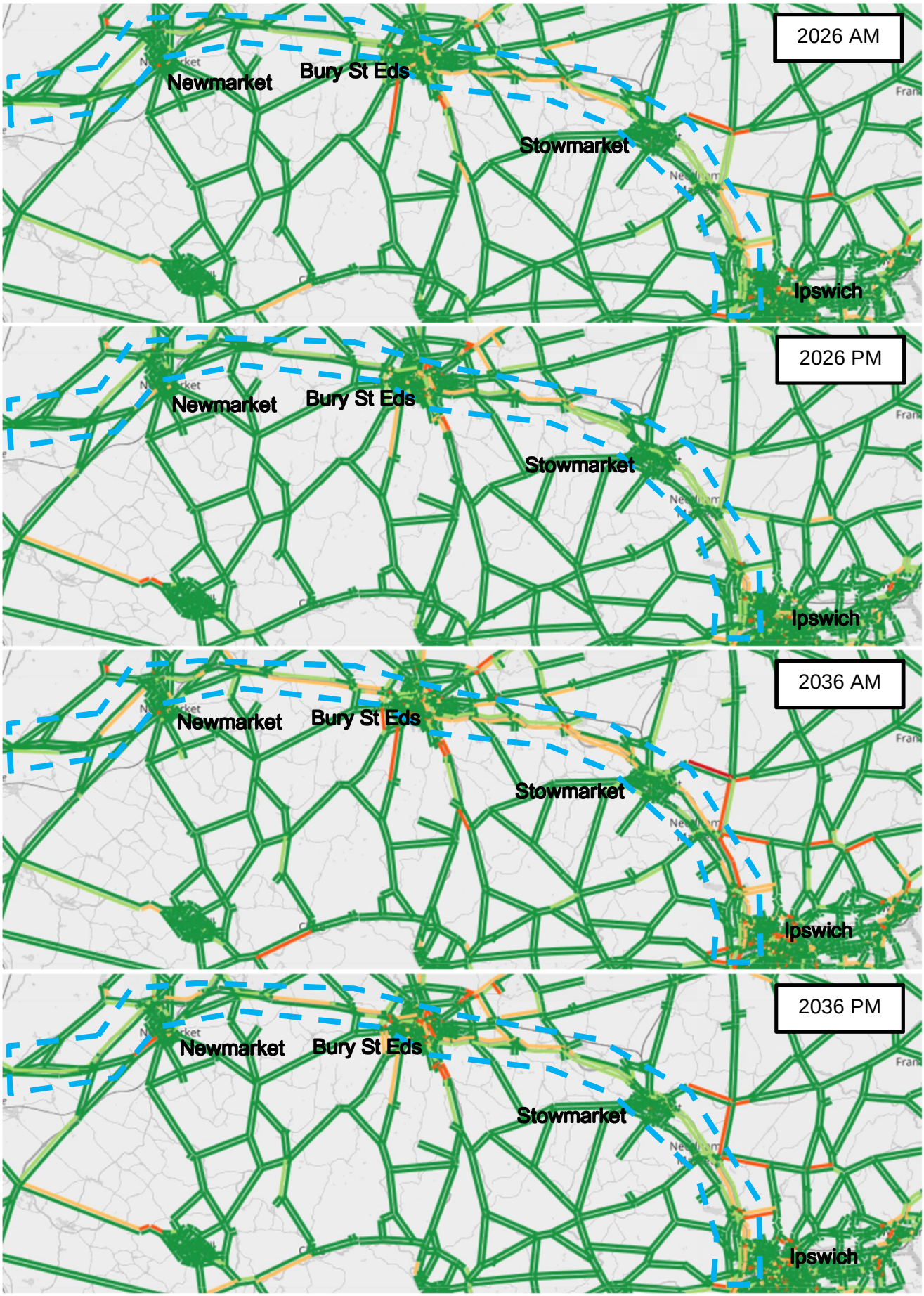


Figure 18 – A14 Newmarket to Ipswich V/C Ratio – without intervention

SUMMARY

The A14 mainline is shown to reach capacity by 2026, particularly south of Ipswich, where the eastbound carriageway is at capacity in the AM peak, with a larger section of the A14 mainline at capacity in the 2036 AM peak. In the PM peak, the A14 mainline is shown to operate within capacity in 2026, but reaches capacity at the Orwell Bridge section (Junction 57 to Junction 56) in the PM peak. It is considered the A14 south of Ipswich is the key area of concern on the SRN.

In order to fully realise the benefits which the potential RIS schemes would provide, the issues associated with the A14 mainline would need to be addressed. The issue of the A14 mainline being at capacity means that whilst the RIS schemes would lead to significant easing of congestion at approaches to junctions on the SRN, their effectiveness would be substantially enhanced if the traffic exiting these junctions is able to merge onto the A14 with minimal delay. It is therefore considered a strategy needs to be developed which looks to ease congestion on both the junctions and mainline for the section of the SRN south of Ipswich.

The proposed Junction 55 Copdock interchange scheme is shown to be highly effective at reducing delay in the PM peak. However, the benefits of the flyover are constrained in the AM peak by the A14 mainline which is at capacity at the point it merges, reducing the amount of traffic which opts to use the flyover. Appendix A contains analysis of the breakdown of traffic which uses this key strategic junction. This information could be used to understand what relative contribution is required from developer contributions within each LPA to fund mitigation.

The Junction 56 Wherstead scheme is shown to be effective at easing the delay which is prevalent in all time periods at the A137 southern approach. However, with the A14 mainline at capacity there continue to be issues with the eastbound-on slip arm of this junction. It is considered a mitigation solution at this junction will be found and predominantly funded by developments.

The Junction 57 Nacton scheme is shown to lead to the westbound A14 mainline operating with capacity due to the removal of traffic from the southern Nacton Road approach. However, the westbound on-slip continues to show capacity issues. Appendix B contains information on the split of traffic by LPA which uses this junction in the modelled time periods. This analysis could be used to understand what relative contribution is required from developer contributions within each LPA to fund mitigation.

The Junction 58 Seven Hills scheme is shown to generally operate within capacity. However, the closure of Nacton Road as part of the Junction 57 scheme leads to increases pressure on the A1156 southern approach to this junction. There is potential for the mitigation scheme associated with the Brightwell Lakes planning permission to be enhanced further if funding contributions are sought from other significant developments around the A12 / A14 corridor which achieve planning consent.

APPENDIX A – A14 JUNCTION 55 COPDOCK TURNING MOVEMENTS BY LPA

The numbers in the tables below relate to vehicles per hour for the peak hours modelled. This analysis represents the vehicles which specifically use the A14 Junction 55 (Copdock) and excludes A14 mainline flows. Rows represent where trips originate from, columns detail the end destination of trips. “Major Dev” relates to trips to/from Brightwell Lakes and Ipswich Garden Suburb.

Table A-1 – AM 2016 turning movements by LPA at A14 Junction 55

Copdock Interchange (	Ipswich	Waveney	Suffolk Coa	Mid Suffolk	West Suffo	Babergh	Outside Su	Major Dev
Car	Ipswich	104	3	115	0	2	266	189	0
	Waveney	3	0	0	0	0	17	38	0
	Suffolk Coa	0	0	0	0	1	283	233	0
	Mid Suffolk	89	0	0	0	0	157	133	0
	West Suffo	25	0	9	0	0	27	9	0
	Babergh	386	21	219	125	52	205	77	0
	Outside Su	259	46	245	123	23	93	283	0
	Major Dev	0	0	0	0	0	0	0	0
LGV	Ipswich	8	1	21	0	0	29	91	0
	Waveney	0	0	0	0	0	1	8	0
	Suffolk Coa	0	0	0	0	0	28	90	0
	Mid Suffolk	2	0	0	0	0	5	19	0
	West Suffo	1	0	2	0	0	1	1	0
	Babergh	24	5	39	13	9	10	13	0
	Outside Su	42	8	101	62	6	7	45	0
	Major Dev	0	0	0	0	0	0	0	0
HGV	Ipswich	0	0	0	0	0	16	11	0
	Waveney	0	0	0	0	0	2	24	0
	Suffolk Coa	0	0	0	0	0	15	60	0
	Mid Suffolk	0	0	0	0	0	0	45	0
	West Suffo	2	0	2	0	0	0	6	0
	Babergh	1	18	33	0	0	4	5	0
	Outside Su	26	10	59	44	0	3	88	0
	Major Dev	0	0	0	0	0	0	0	0

Table A-2 – PM 2016 turning movements by LPA at A14 Junction 55

Copdock Interchange (		Ipswich	Waveney	Suffolk Coa	Mid Suffolk	West Suffo	Babergh	Outside Su	Major Dev
Car	Ipswich	96	0	86	0	0	663	325	0
	Waveney	10	0	0	0	0	29	42	0
	Suffolk Coa	0	0	0	0	0	268	378	0
	Mid Suffolk	267	0	0	0	0	178	71	0
	West Suffo	86	0	26	0	0	48	33	0
	Babergh	218	17	416	85	9	172	77	0
	Outside Su	477	50	253	251	13	116	242	0
	Major Dev	0	0	0	0	0	0	0	0
LGV	Ipswich	4	0	7	0	0	36	49	0
	Waveney	0	0	0	0	0	1	2	0
	Suffolk Coa	0	0	0	0	0	16	65	0
	Mid Suffolk	9	0	0	0	0	6	10	0
	West Suffo	2	0	2	0	0	1	0	0
	Babergh	22	2	47	15	2	17	14	0
	Outside Su	108	4	39	47	2	21	24	0
	Major Dev	0	0	0	0	0	0	0	0
HGV	Ipswich	1	0	1	0	0	3	17	0
	Waveney	0	0	0	0	0	0	0	0
	Suffolk Coa	0	0	0	0	0	25	31	0
	Mid Suffolk	0	0	0	0	0	4	37	0
	West Suffo	1	0	4	0	0	0	3	0
	Babergh	5	0	19	4	0	1	16	0
	Outside Su	21	3	44	15	1	2	55	0
	Major Dev	0	0	0	0	0	0	0	0

Table A-3 – AM 2026 turning movements by LPA at A14 Junction 55

Copdock Interchange (		Ipswich	Waveney	Suffolk Coa	Mid Suffolk	West Suffo	Babergh	Outside Su	Major Dev
Car	Ipswich	134	0	136	0	16	275	226	11
	Waveney	2	0	0	0	0	15	32	0
	Suffolk Coa	0	0	0	0	14	248	286	0
	Mid Suffolk	107	0	0	0	0	158	133	0
	West Suffo	29	0	6	0	0	36	9	1
	Babergh	368	15	177	114	51	171	85	7
	Outside Su	306	50	342	132	11	107	218	16
	Major Dev	0	0	0	0	1	15	69	0
LGV	Ipswich	12	0	32	0	0	29	103	0
	Waveney	0	0	0	0	0	1	8	0
	Suffolk Coa	0	0	0	0	0	27	97	0
	Mid Suffolk	2	0	0	0	0	5	16	0
	West Suffo	1	0	2	0	0	1	0	0
	Babergh	23	5	36	12	8	7	16	0
	Outside Su	43	7	99	39	2	6	30	0
	Major Dev	0	0	0	0	0	0	0	0
HGV	Ipswich	0	0	0	0	0	16	12	0
	Waveney	0	0	0	0	0	2	19	0
	Suffolk Coa	0	0	0	0	0	16	66	0
	Mid Suffolk	0	0	0	0	0	0	39	0
	West Suffo	2	0	2	0	0	0	5	0
	Babergh	1	17	29	0	0	3	6	0
	Outside Su	19	9	61	29	1	2	72	0
	Major Dev	0	0	0	0	0	0	0	0

Table A-4 – PM 2026 turning movements by LPA at A14 Junction 55

Copdock Interchange (		Ipswich	Waveney	Suffolk Coa	Mid Suffolk	West Suffo	Babergh	Outside Su	Major Dev
Car	Ipswich	100	0	73	0	0	703	423	6
	Waveney	11	0	0	0	0	34	62	0
	Suffolk Coa	0	0	0	0	0	267	559	0
	Mid Suffolk	308	0	0	0	0	185	103	0
	West Suffo	74	0	24	0	0	52	30	4
	Babergh	192	15	338	77	14	166	98	10
	Outside Su	521	49	295	245	8	117	250	35
	Major Dev	0	0	0	0	0	7	30	0
LGV	Ipswich	5	0	6	0	0	34	51	0
	Waveney	0	0	0	0	0	1	3	0
	Suffolk Coa	0	0	0	0	0	17	75	0
	Mid Suffolk	9	0	0	0	0	7	12	0
	West Suffo	1	0	1	0	0	1	0	0
	Babergh	20	2	35	12	2	14	13	0
	Outside Su	102	4	38	34	2	18	23	0
	Major Dev	0	0	0	0	0	0	0	0
HGV	Ipswich	1	0	1	0	0	3	17	0
	Waveney	0	0	0	0	0	0	0	0
	Suffolk Coa	0	0	0	0	0	29	35	0
	Mid Suffolk	0	0	0	0	0	4	37	0
	West Suffo	1	0	3	0	0	0	3	0
	Babergh	4	0	14	2	0	1	15	0
	Outside Su	20	3	44	12	0	2	52	0
	Major Dev	0	0	0	0	0	0	0	0

Table A-5 – AM 2036 turning movements by LPA at A14 Junction 55

Nacton Interchange (A		Ipswich	Waveney	Suffolk Coa	Mid Suffolk	West Suffo	Babergh	Outside Su	Major Dev
Car	Ipswich	147	3	142	24	33	283	218	14
	Waveney	3	0	0	0	0	15	27	0
	Suffolk Coa	0	0	0	0	20	292	320	0
	Mid Suffolk	105	0	0	0	0	138	96	0
	West Suffo	30	0	0	0	0	33	6	0
	Babergh	346	10	132	101	45	178	76	9
	Outside Su	332	44	401	99	3	106	120	30
	Major Dev	0	0	0	0	3	24	105	0
LGV	Ipswich	13	0	21	1	1	31	104	0
	Waveney	0	0	0	0	0	1	8	0
	Suffolk Coa	0	0	0	0	0	29	100	0
	Mid Suffolk	3	0	0	0	0	4	12	0
	West Suffo	1	0	0	0	0	1	0	0
	Babergh	18	3	14	12	9	6	16	0
	Outside Su	38	5	84	30	0	5	19	0
	Major Dev	0	0	0	0	0	0	0	0
HGV	Ipswich	0	0	0	0	0	16	12	0
	Waveney	0	0	0	0	0	1	15	0
	Suffolk Coa	0	0	0	0	0	16	65	0
	Mid Suffolk	0	0	0	0	0	0	15	0
	West Suffo	0	0	0	0	0	0	3	0
	Babergh	1	15	13	0	0	2	5	0
	Outside Su	18	6	46	20	0	2	40	0
	Major Dev	0	0	0	0	0	0	0	0

Table A-6 – PM 2036 turning movements by LPA at A14 Junction 55

Copdock Interchange (		Ipswich	Waveney	Suffolk Coa	Mid Suffolk	West Suffo	Babergh	Outside Su	Major Dev
Car	Ipswich	101	0	63	0	0	629	449	9
	Waveney	12	0	0	0	0	33	71	0
	Suffolk Coa	0	0	0	0	0	265	618	0
	Mid Suffolk	288	0	0	0	0	160	97	0
	West Suffo	58	0	14	0	0	46	28	2
	Babergh	216	12	302	84	14	165	122	12
	Outside Su	527	50	324	223	6	114	236	58
	Major Dev	0	0	0	0	0	9	47	0
LGV	Ipswich	5	0	6	0	0	32	50	0
	Waveney	0	0	0	0	0	1	4	0
	Suffolk Coa	0	0	0	0	0	17	71	0
	Mid Suffolk	8	0	0	0	0	6	11	0
	West Suffo	1	0	0	0	0	1	0	0
	Babergh	20	2	26	16	2	13	14	0
	Outside Su	108	4	37	35	1	19	22	0
	Major Dev	0	0	0	0	0	0	0	0
HGV	Ipswich	1	0	1	0	0	2	16	0
	Waveney	0	0	0	0	0	0	0	0
	Suffolk Coa	0	0	0	0	0	29	34	0
	Mid Suffolk	0	0	0	0	0	3	29	0
	West Suffo	1	0	2	0	0	0	3	0
	Babergh	4	0	13	3	0	1	15	0
	Outside Su	19	3	40	10	0	1	49	0
	Major Dev	0	0	0	0	0	0	0	0

APPENDIX B – A14 JUNCTION 57 NACTON TURNING MOVEMENTS BY LPA

The numbers in the tables below relate to vehicles per hour for the peak hours modelled. This analysis represents the vehicles which specifically use the A14 Junction 57 (Nacton) and excludes A14 mainline flows. Rows represent where trips originate from, columns detail the end destination of trips. “Major Dev” relates to trips to/from Brightwell Lakes and Ipswich Garden Suburb.

Table B-1 – AM 2016 turning movements by LPA at A14 Junction 57

Nacton Interchange (A		Ipswich	Waveney	Suffolk Coa	Mid Suffolk	West Suffo	Babergh	Outside Su	Major Dev
Car	Ipswich	839	3	233	101	17	125	75	0
	Waveney	10	0	0	0	0	0	0	0
	Suffolk Coa	519	0	0	32	5	53	11	0
	Mid Suffolk	264	0	57	0	0	0	0	0
	West Suffo	48	0	6	0	0	0	0	0
	Babergh	292	0	71	0	0	0	0	0
	Outside Su	161	0	54	0	0	0	0	0
	Major Dev	0	0	0	0	0	0	0	0
LGV	Ipswich	59	2	49	40	9	14	35	0
	Waveney	1	0	0	0	0	0	0	0
	Suffolk Coa	30	0	0	14	3	8	7	0
	Mid Suffolk	38	0	10	0	0	0	0	0
	West Suffo	4	0	1	0	0	0	0	0
	Babergh	27	0	9	0	0	0	0	0
	Outside Su	28	0	14	0	0	0	0	0
	Major Dev	0	0	0	0	0	0	0	0
HGV	Ipswich	14	0	30	6	0	0	14	0
	Waveney	0	0	0	0	0	0	0	0
	Suffolk Coa	22	0	0	30	0	0	6	0
	Mid Suffolk	29	0	0	0	0	0	0	0
	West Suffo	4	0	0	0	0	0	0	0
	Babergh	0	0	2	0	0	0	0	0
	Outside Su	13	0	4	0	0	0	0	0
	Major Dev	0	0	0	0	0	0	0	0

Table B-2 – PM 2016 turning movements by LPA at A14 Junction 57

Nacton Interchange (A		Ipswich	Waveney	Suffolk Coa	Mid Suffolk	West Suffo	Babergh	Outside Su	Major Dev
Car	Ipswich	551	26	579	181	46	255	119	0
	Waveney	10	0	0	0	0	0	0	0
	Suffolk Coa	268	0	0	98	19	58	56	0
	Mid Suffolk	85	0	43	0	0	0	0	0
	West Suffo	33	0	19	0	0	0	0	0
	Babergh	92	0	81	0	0	0	0	0
	Outside Su	150	0	30	0	0	0	0	0
	Major Dev	0	0	0	0	0	0	0	0
LGV	Ipswich	37	3	44	15	3	12	14	0
	Waveney	1	0	0	0	0	0	0	0
	Suffolk Coa	19	0	0	12	3	8	15	0
	Mid Suffolk	36	0	11	0	0	0	0	0
	West Suffo	3	0	1	0	0	0	0	0
	Babergh	12	0	12	0	0	0	0	0
	Outside Su	22	0	6	0	0	0	0	0
	Major Dev	0	0	0	0	0	0	0	0
HGV	Ipswich	8	0	14	0	5	6	4	0
	Waveney	1	0	0	0	0	0	0	0
	Suffolk Coa	16	0	0	0	0	0	7	0
	Mid Suffolk	2	0	5	0	0	0	0	0
	West Suffo	1	0	0	0	0	0	0	0
	Babergh	4	0	0	0	0	0	0	0
	Outside Su	25	0	2	0	0	0	0	0
	Major Dev	0	0	0	0	0	0	0	0

Table B-3 – AM 2026 turning movements by LPA at A14 Junction 57

Nacton Interchange (A	Ipswich	Waveney	Suffolk Coa	Mid Suffolk	West Suffo	Babergh	Outside Su	Major Dev
Car	Ipswich	795	3	171	96	21	109	80	0
	Waveney	13	0	4	0	0	0	0	0
	Suffolk Coa	597	0	4	38	4	42	9	0
	Mid Suffolk	318	0	68	0	0	0	0	0
	West Suffo	74	0	8	0	0	0	0	0
	Babergh	284	0	72	0	0	0	0	0
	Outside Su	193	0	54	0	0	0	0	0
	Major Dev	9	0	0	0	0	0	0	0
LGV	Ipswich	63	1	26	43	10	13	35	0
	Waveney	1	0	0	0	0	0	0	0
	Suffolk Coa	36	0	0	16	4	8	7	0
	Mid Suffolk	43	0	11	0	0	0	0	0
	West Suffo	5	0	1	0	0	0	0	0
	Babergh	25	0	9	0	0	0	0	0
	Outside Su	26	0	13	0	0	0	0	0
	Major Dev	0	0	0	0	0	0	0	0
HGV	Ipswich	13	0	14	5	0	0	12	0
	Waveney	0	0	0	0	0	0	0	0
	Suffolk Coa	22	0	0	29	0	0	6	0
	Mid Suffolk	28	0	0	0	0	0	0	0
	West Suffo	3	0	0	0	0	0	0	0
	Babergh	0	0	1	0	0	0	0	0
	Outside Su	12	0	2	0	0	0	0	0
	Major Dev	0	0	0	0	0	0	0	0

Table B-4 – PM 2026 turning movements by LPA at A14 Junction 57

Nacton Interchange (A		Ipswich	Waveney	Suffolk Coa	Mid Suffolk	West Suffo	Babergh	Outside Su	Major Dev
Car	Ipswich	560	17	442	212	70	271	168	8
	Waveney	17	0	1	0	0	0	0	0
	Suffolk Coa	371	0	0	127	23	71	69	0
	Mid Suffolk	102	0	52	0	0	0	0	0
	West Suffo	37	0	18	0	0	0	0	0
	Babergh	111	0	84	0	0	0	0	0
	Outside Su	161	0	30	0	0	0	0	0
	Major Dev	2	0	0	0	0	0	0	0
LGV	Ipswich	41	3	40	18	4	14	15	0
	Waveney	2	0	0	0	0	0	0	0
	Suffolk Coa	29	0	0	15	4	10	17	0
	Mid Suffolk	42	0	13	0	0	0	0	0
	West Suffo	3	0	1	0	0	0	0	0
	Babergh	13	0	12	0	0	0	0	0
	Outside Su	26	0	6	0	0	0	0	0
	Major Dev	0	0	0	0	0	0	0	0
HGV	Ipswich	9	0	14	0	5	6	5	0
	Waveney	1	0	0	0	0	0	0	0
	Suffolk Coa	16	0	0	0	1	1	10	0
	Mid Suffolk	2	0	5	0	0	0	0	0
	West Suffo	1	0	0	0	0	0	0	0
	Babergh	3	0	0	0	0	0	0	0
	Outside Su	26	0	1	0	0	0	0	0
	Major Dev	0	0	0	0	0	0	0	0

Table B-5– AM 2036 turning movements by LPA at A14 Junction 57

Nacton Interchange (A	Ipswich	Waveney	Suffolk Coa	Mid Suffolk	West Suffo	Babergh	Outside Su	Major Dev
Car	Ipswich	816	5	182	89	26	108	72	0
	Waveney	14	0	13	0	0	0	0	0
	Suffolk Coa	563	0	13	24	2	27	4	0
	Mid Suffolk	355	0	77	0	0	0	0	0
	West Suffo	106	0	12	0	0	0	0	0
	Babergh	236	0	64	0	0	0	0	0
	Outside Su	196	0	54	0	0	0	0	0
	Major Dev	1	0	0	0	0	0	0	0
LGV	Ipswich	66	1	29	45	11	14	34	0
	Waveney	1	0	0	0	0	0	0	0
	Suffolk Coa	39	0	0	17	4	8	7	0
	Mid Suffolk	45	0	11	0	0	0	0	0
	West Suffo	6	0	1	0	0	0	0	0
	Babergh	22	0	8	0	0	0	0	0
	Outside Su	15	0	11	0	0	0	0	0
	Major Dev	0	0	0	0	0	0	0	0
HGV	Ipswich	13	0	15	5	0	0	11	0
	Waveney	0	0	0	0	0	0	0	0
	Suffolk Coa	22	0	0	32	0	0	6	0
	Mid Suffolk	26	0	0	0	0	0	0	0
	West Suffo	3	0	0	0	0	0	0	0
	Babergh	0	0	1	0	0	0	0	0
	Outside Su	10	0	2	0	0	0	0	0
	Major Dev	0	0	0	0	0	0	0	0

Table B-6– PM 2036 turning movements by LPA at A14 Junction 57

Nacton Interchange (A		Ipswich	Waveney	Suffolk Coa	Mid Suffolk	West Suffo	Babergh	Outside Su	Major Dev
Car	Ipswich	527	24	765	35	26	49	44	16
	Waveney	3	0	4	0	0	0	0	0
	Suffolk Coa	164	0	4	0	0	0	0	1
	Mid Suffolk	99	0	53	0	0	0	0	0
	West Suffo	35	0	17	0	0	0	0	0
	Babergh	114	0	95	0	0	0	0	0
	Outside Su	148	0	28	0	0	0	0	0
	Major Dev	0	0	0	0	0	0	0	0
LGV	Ipswich	44	2	61	3	1	2	3	0
	Waveney	1	0	0	0	0	0	0	0
	Suffolk Coa	20	0	0	1	0	0	0	0
	Mid Suffolk	43	0	13	0	0	0	0	0
	West Suffo	3	0	1	0	0	0	0	0
	Babergh	14	0	14	0	0	0	0	0
	Outside Su	25	0	6	0	0	0	0	0
	Major Dev	0	0	0	0	0	0	0	0
HGV	Ipswich	8	0	18	0	2	1	2	0
	Waveney	1	0	0	0	0	0	0	0
	Suffolk Coa	16	0	0	0	0	0	1	0
	Mid Suffolk	2	0	4	0	0	0	0	0
	West Suffo	1	0	0	0	0	0	0	0
	Babergh	4	0	0	0	0	0	0	0
	Outside Su	24	0	2	0	0	0	0	0
	Major Dev	0	0	0	0	0	0	0	0