Chichester Transport Study

Chichester Local Plan Review: Short Term Review Transport Modelling

On behalf of **Chichester District Council**

Project Ref: 47085/5503 | Rev: 0001 | Date: May 2022

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For and on behalf of Stantec UK Limited				

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1 Introduction

1.1 Introduction

1.1.1 Stantec has been commissioned by Chichester District Council (CDC) to assist in the development of the transport evidence base to support the Chichester Local Plan Review (LPR) 2021-2039. The commission involves undertaking a transport assessment (TA) to inform the preparation of the Chichester Local Plan Review (LPR).

1.1.2 The Local Plan Review will review the policies and strategy of the adopted Chichester Local Plan (LP): Key Policies 2014-2029 whilst also seeking to meet the latest identified needs of the Plan Area through to 2039. The output for this review is on Stantec's TA.

1.1.3 This report deals with an interim assessment between 2026 and 2031 of the possible local plan provision of residential units on the premise of only implementing certain junction mitigation improvements along the A27 corridor. The premise is to define if there is a threshold of development that can be supported by a reduced package of mitigation on the A27 corridor, while seeking to maintain a safety led operation of the A27 corridor.

1.1.4 This has arisen from ongoing dialogue with National Highways. The work is meant to provide an indication to National Highways (NH) on the potential impacts of proposed development on the Strategic Road Network (SRN) i.e., the A27 Chichester Bypass. The transport modelling will also include the analysis of the side roads, which are in West Sussex County Council's (WSCC) control, mainly at Stockbridge and Whyke Junctions and in the city.

1.1.5 The transport modelling work has been based on considerations of capacity constraints by looking at changes in delay in seconds and volume to capacity ratio (V/C%) as a result of flow changes from proposed LP development when compared to the Reference Case. The analysis has not considered a safety-based analysis (measured by queue lengths and potential for queues to extend to main carriageway) for example.

1.1.6 A safety led assessment will look beyond just using capacity constraint parameters to inform network performance. It is possible for delays and V/C to be high but for queues to be safely accommodated within available stacking capacity. In such cases, it may be possible for the network to accommodate more LP development than that determined based on considerations of capacity constraints alone.

1.2 Work to Date

1.2.1 The modelling has been based on LPR development assumptions for the Southern Plan area that proposes 9,630 dwellings between 2021 and 2039. Previous modelling based on capacity constraints assessment indicated that up to 5,250 dwellings could be accommodated equating to a forecast year of 2026. However, the network would tip over at about 7,500 dwellings, equating to a forecast year of 2031. These assumptions approximate to 532 dwellings per annum (dpa).

1.2.2 This analysis was based on the following three A27 junctions being mitigated at a total cost of about £20m:

1. Fishbourne Roundabout (£5.95m)

2. Bognor Roundabout (£10.3m)

3. Portfield Roundabout (£2.51m)

1.2.3 It is considered that this funding is unlikely to be realised in this timeline. It is therefore required to understand how much development and by when can be delivered with the limited funding that can be raised in the interim years.

1.2.4 In this study, it has been assumed that only the Fishbourne Roundabout and Bognor Roundabout mitigation schemes could be funded at best in the interim earlier years of the Local Plan.

1.3 Local Context

1.3.1 Chichester is a local government district within West Sussex. The district borders Arun and Horsham to the east and Havant in Hampshire to the west. The South Downs National Park sits in the centre of the district with the northern area including towns such as Loxwood and Wisborough Green bordering on Horsham's northern boundary.

1.3.2 Chichester is the main settlement within the district, with other areas of population including Southbourne, West Wittering, East Wittering, Selsey, Tangmere and Oving.

1.3.3 The main routes through the district are the A27 which forms part of the National Highways (NH) (formerly Highways England) controlled Strategic Road Network (SRN) which runs east - west along the southern edge of Chichester City, and the A286 providing access from the south coast of Chichester district north along with the A285 through the South Downs National Park to the north of the district.

1.3.4 Along the A27 six key junctions provide access between both sides of the A27, and include Fishbourne Roundabout, Stockbridge Roundabout, Bognor Roundabout, Whyke Roundabout, Bognor Roundabout, Oving Junction and Portfield Roundabout.

1.3.5 Within Chichester itself, the A286 provides a ring road around the historical City Centre and the A259 providing access from Fishbourne Roundabout into the town centre.

1.3.6 In terms of other infrastructure, Chichester is well served by public transport, including Chichester Railway Station on the West Coastway Line which has regular services between Brighton, London, Portsmouth, and Southampton being served by GWR and Southern Railway. Chichester is also well served by frequent bus services operated by Stagecoach in the South Downs and Compass Travel.

1.4 Local Plan Review

1.4.1 CDC is in the process of updating its Adopted Local Plan which currently sets out development plans and policies for the district for the period 2014 – 2029. The Local Plan was adopted in July 2015, and as part of the adoption process, the Planning Inspector required that CDC undertake a five-year review to address a shortfall in housing and employment provision to ensure sufficient housing would be planned to meet the longer-term needs of the area. As such, there is a requirement to review the current adopted Local Plan to provide a new policy framework for planning and development in the Plan Area up to 2039. This will form the Chichester Local Plan Review (LPR) 2021 - 2039.

1.4.2 In 2018, CDC appointed Peter Brett Associates (PBA), now Stantec to undertake the Chichester Local Plan Review Transport Study. The outcomes of this study were reported in 'Chichester District Council – Local Plan; Transport Study of Strategic Development Options and Sustainable Transport Measures, December 2018'.

1.4.3 Representations received during the subsequent consultation on the Local Plan Review, in combination with updates to the evidence base, indicate that it would be appropriate for further work to be commissioned to update the transport study.

1.4.4 It is understood that the Arun Local Plan has now been adopted and that Havant are consulting on their emerging Local Plan and has published their Regulation 19 Local Plan and are moving towards submission (a 'reasonably foreseeable' commitment in transport modelling terms).

1.4.5 A review of the committed developments and infrastructure identified, is therefore required to ensure that the data accurately captures the position of specific schemes in the Chichester Plan Area and adjoining areas of Havant and Arun. The purpose of the Local Plan Transport study is to identify suitable measures that would mitigate the Local Plan impacts and assist in the delivery of the Local Plan development. The aim of the study was not to address Chichester's current transport issues but seek not to exacerbate them as a result of proposed LPR developments.

1.4.6 For informing this Local Plan Review, computer modelling was used to analyse the complex transport patterns that already take place in the area. The Chichester Area Transport Model (CATM) has been updated by Stantec to investigate travel patterns in and around the Chichester area. This includes taking account of changes in response to the policies and strategy of the emerging Chichester Local Plan.

1.4.7 The Local Model Validation Report (LMVR) was one of the documents, through which the preparation of the Chichester Local Plan Review 2016-2039 will be informed. The LMVR was submitted to stakeholders including Chichester District Council (CDC), West Sussex County Council (WSCC) and Highways England (HE) (now National Highways (NH)). Comments from CDC, WSCC and then Highways England were satisfactorily addressed and a final LMVR agreed by all parties. The updated base model has a base year of 2014 and is deemed a satisfactory and robust tool on which to develop future forecasts and inform the Local Plan testing. The base year 2014 model underpinned the 2018 study and continues to inform this current study update.

1.5 Report Purpose

1.5.1 The purpose of this report is to provide a detailed assessment of the impacts of the Preferred Local Plan Scenario based on the interim forecast years 2026 and 2031. Technical Appendices are provided as necessary to illustrate more detailed information of the modelling results and approach used to assess scenario impacts.

1.5.2 This report defines the impact of the level of development with a focus on understanding when the network with a level of limited mitigation falls over and the level of local plan development that can be supported by this limited mitigation.

1.5.3 Using a safety led assessment, the objectives of the modelling are as follows:

i) Estimate the amount of Local Plan development that can be accommodated by mitigation that CDC is able to afford in the interim years

ii) Establish the year to which that development can be provided

iii) Establish what that mitigation is and when it is needed

iv) Give an indication of the spatial distribution of that development

1.6 National Guidance

1.6.1 Modelling work has been undertaken in line with relevant national guidance. This guidance is provided by the Department for Transport (DfT) and is known as Transport Analysis Guidance (TAG)[1].

1.6.2 Although the CATM includes an average hour Inter-Peak (IP) model, the Local Plan modelling has followed best practice and focussed on the AM and PM peak hours as these are the most congested hours and hence where the impacts of the Local Plan are most likely to be significant. The IP model has been used with the AM and PM peak hour models to inform the Air Quality and Noise Assessments.

1.6.3 The model, as per national guidance, is for an "average day" which in summary assumes a weekday, with all schools open. The modelling for the local plan process focuses on new residential and employment development. As such the times of day that these land uses will influence are the AM and PM commuter peaks during term time, when the background traffic is deemed to be at its highest. The modelling for the LP is not required to assess weekends, Bank Holidays, or seasonal changes (see TAG Unit M1.2 Section 3.3.6) that may alter traffic flows in an area. In Chichester's case this could arise in the summer tourist season or when major events are held at Goodwood. For these types of assessment, which are regarded as infrequent occurrences for the purposes of this study, the Council would be required to carry out more localised studies. This approach reflects policy and recognises best practice in transport studies across the country

1.6.4 It is important to note that the contents of this document including the quanta and timing of development assumed for this assessment is based on the Council's best estimate at the time the stage commenced; as an emerging strategy emerges, the sites and capacity for development may change due to the evolving evidence base.

1.7 Report Structure

1.7.1 Following this introduction, the report is set out as follows:

- Section 2 outlines the modelling approach and assumptions for 2026 and 2031 interim years
- Section 3 outlines the mitigation schemes that have been considered
- Section 4 provides an assessment of the 2026 interim year focussing on V/C ratios, delays, and average queue lengths.
- Section 5 provides an assessment of the 2031 interim year focussing on V/C ratios, delays, and average queue lengths.
- Section 6 provides an overall summary and conclusions from the study.

[1] https://www.gov.uk/guidance/transport-analysis-guidance-webtag

2 Modelling Approach and Assumptions

2.1.1 The Reference Case forecast demands for the interim years 2026 and 2031 followed the same processes and methodology as that used to create the 2037 forecast matrices.

2.1.2 A 2037 Reference Case forecast model was developed to represent future traffic conditions without the consideration of the Local Plan development. This model includes all committed development within Chichester District, including development within the adopted Local Plan and in neighbourhood plans that were 'made' before May 2021, as well as any committed development within neighbouring authorities. A key point to note is that the Southern Gateway development allocation has been included, but the highway mitigation scheme has not been included in the Reference Case. The Local Plan period now covers the period 2021 to 2039.

2.1.3 It is noted that the Reference Case model was produced for the previous iteration of Local Plan tests and given the level of uncertainty inherent in forecasts, the difference for the additional one to two years is not deemed to be material, hence the model was not updated. The Reference Case model going forward is referred to as a 2039 model.

2.1.4 To obtain the intermediate years the traffic input files for the Local Plan modelling has incorporated a number of elements to consider general background growth, which includes growth from the base 2014 model up to the associated forecast years. This used TEMPro growth rates which were adjusted using TEMPro's alternative assumptions facility to avoid double counting. The adjusted growth rates were applied across the individual model zones as appropriate.

2.1.5 However, in 2026 only committed development indicated in the 'Uncertainty Log' for up to 2026 was included and similarly for 2031, only committed development up to 2031 was included.

2.1.6 There was no adjustment made to the committed scheme assumptions and hence the 2026 and 2031 committed schemes are consistent with those in the 2037 Reference Case. It should be noted that the model year is 2037 and the Local Plan Review horizon year is 2039.

2.2 Local Plan Allocations

2.2.1 The current local plan study utilises the forecast year of 2039 for residential and employment. This study is seeking to define a forecast year that the mitigation schemes are able to support.

2.2.2 To obtain the intermediate years the traffic input files for the Local Plan modelling has incorporated a number of elements to consider general background growth, which includes growth from the base 2014 model up to the associated forecast years. This has used TEMPro growth rates.

2.2.3 On top of the background TEMPro growth a build out profile has been generated which allows number of units to be assigned to a forecast year. This study has assessed 2 interim forecast years 2026 and 2031 as shown below alongside the 2039 assumptions.

Table 2.1: Residential Unit assumptions including Interim years (from 2015)

Forecast Year	Number of Units	Percentage of completed units
2026	6,331	50%
2031	8,471	66%
2039	12,751	100%

2.2.4 It should be noted that the above include completions from 2015 to 2021. This aligns with the fact that the forecasts are pivoted off a 2014 Base year model. The Local Plan review itself covers the period 2021 to 2039 and plans for 9,630 dwellings at average of 535 dwellings per annum (dpa). Table 2.3 summarises the dwelling assumptions looking at a timeline from 2021.

Table 2.2: Residential Unit assumptions including Interim years (from 2021)

Forecast Year	Number of Units	Percentage of completed units
2026	3,177	33%
2031	5,073	53%
2039	9,630	100%

2.3 Employment – Land East of Rolls Royce

2.3.1 For the purposes of the modelling the employment allocation at the Land East of Rolls Royce has been incorporated within the transport modelling. This is deemed to provide a worst-case scenario and it is assumed that it is likely that this development will come forward during the Local Plan time period up to 2039.

2.3.2 The levels of two-way trips associated with the development are 720 which equates to less than 2% of the overall network trips. As such this will not have a material impact on the operation of the highway network.

2.3.3 Table 2.3 provides an indication of the number of hectares applied to each of the scenarios.

Table 2.3: Employment Assumptions including interim years

Forecast Year	Number of ha	Percentage of completed units
2026	46	70%
2031	56	85%
2037	66	100%

2.4 Interim Years 2026 and 2031 Mitigation Scheme Assumptions

2.4.1 For the 2026 and 2031 Interim Years, various scenarios were tested to understand which would be the best way to implement A27 mitigation in an East to West approach. The assumptions regarding what A27 mitigation that would be in place in the different scenarios modelled are either to mitigate the Fishbourne Roundabout without SLR or to mitigate the Fishbourne Roundabout without SLR and the Bognor Road roundabout. Other mitigation within the local Chichester highway network as assumed in the 2039 models, were also included in the relevant 2026 and 2031 scenarios. The modelling did not include any potential mitigation in Chichester arising from removing the Southern Gateway scheme. This was also the case for the 2039 models.

2.4.2 For City centre schemes, WSCC has indicated that in light of emerging policies, consideration to promote sustainable improvements rather than additional highway capacity schemes would be a preferred approach.

3 Assessed Mitigation Schemes

3.1 Introduction

3.1.1 This section outlines the mitigation schemes that were assessed as part of the effort to identify what short term mitigation is required to support and enable Local Plan development in the short term i.e., 2026 and 2031 given funding constraints.

3.2 Initial Modelled Mitigation Scenarios

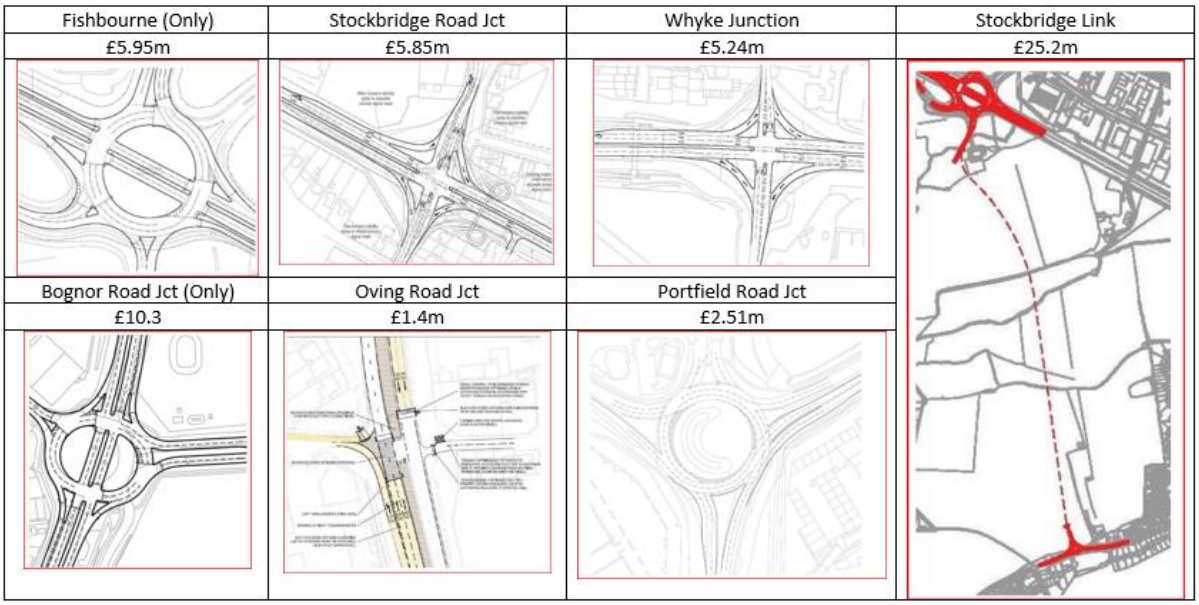
3.2.1 The following mitigation scenarios were initially considered:

- Option 1: Provide mitigation only at the Fishbourne junction – This is considered the minimal scheme that can be provided. This test investigated whether it would be possible to accommodate planned 2026 and 2031 Local Plan development by providing mitigation at the Fishbourne junction alone. A favourable outcome would be ideal as funding would be available to support this mitigation scheme.

- Option 2: Provide mitigation at the Fishbourne and the Bognor junctions. This was tested as the next level of mitigation that could potentially be provided to mitigate Local Plan impacts in the short term. This builds on the option to mitigate the Fishbourne junction and was also tested for both 2026 and 2031.

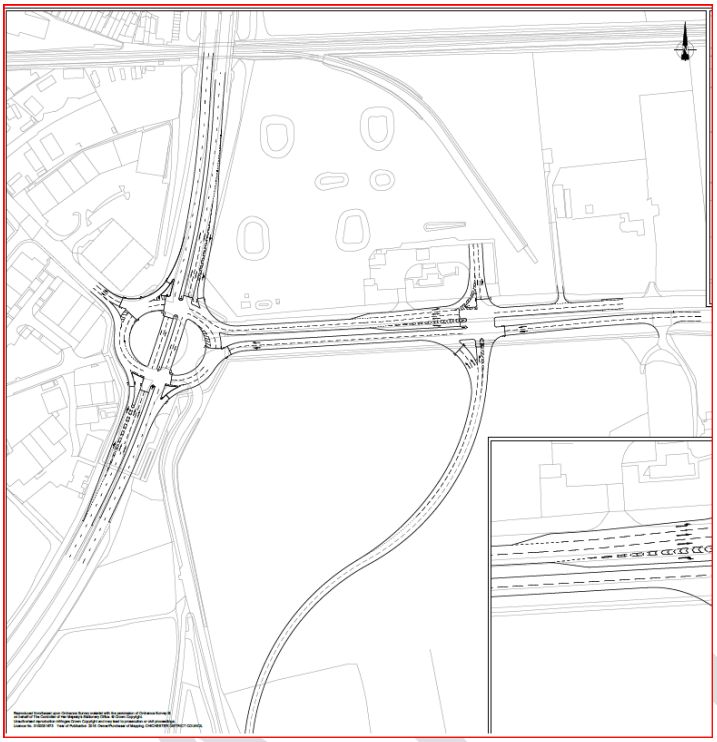
3.2.2 Figure 3-1 further illustrates the provisional A27 Chichester Bypass concept mitigation schemes. The Stockbridge Link Road is also illustrated. Also shown are the individual estimated costs of each scheme. The Fishbourne (Only) scheme estimated at £5.95m and the Bognor Road junction (Only) scheme estimated at £10.3m can be seen as part of Figure 3-1.

Figure 3-1 A27 Junction Provisional Concept Schemes



3.2.3 The Bognor Road scheme includes the modification of the junction into a 4-arm hamburger signalised junction, with the removal of the Vinnetrow Road link and its replacement link onto the Bognor Road at a new signalised Junction as shown in Figure 3-2.

Figure 3-2 Bogor Road and Vinnetrow Road combined Concept Schemes



3.3 Additional Modelled Mitigation Scenarios

3.3.1 Following an initial analysis of the outputs from the above two modelled scenarios, it was noted that in both 2026 and 2031 outputs, the side roads at Stockbridge and Whyke junctions exhibited capacity issues. This was expected given that the mitigation at both Fishbourne and Bognor junctions favoured traffic movements on the A27 Chichester Bypass. This meant that there were limited gaps for traffic from the side roads resulting in high link volume to capacity ratios (%) from the side roads and associated high delays (seconds) and in some cases high average link queues in Passenger Car Units (PCU)[2]. The challenge was how the side roads could be mitigated to improve their performance while maintaining an acceptable level of service (LOS) on the SRN A27 junctions.

3.3.2 In order to alleviate the impacts on the side roads, it was considered that V/C ratios on the A27 be allowed to exceed 100% with an upper limit of about 105%. This means that capacity constraints were somewhat relaxed on the SRN as long as safety was not compromised.

Adjustment to A27 Signal Green times

3.3.3 In the first instance iterative adjustments of signal timings at the SRN junctions was explored with a view to giving less green times to the A27. This was on the premise that less favourable green times to the SRN would give side road traffic more opportunities in the face of opposing A27 traffic. The output showed that this approach would not provide meaningful relief to the side roads as the magnitude of reallocation of green times from A27 movements was significant with little improvement to the side roads, while the A27 performance deteriorated. It was evident that this approach did not provide the desired relief to the side roads.

[2] A Passenger Car Unit is a measure used primarily to assess highway capacity, for modelling purposes. Different vehicles are assigned different values, according to the space they take up. A car has a value of 1; smaller vehicles will have lower values, and larger vehicles will have higher values.

Consideration of localised geometric changes to side roads

3.3.4 A consideration of possible geometric changes was made. Figure 3-3 shows considerations made at the Stockbridge junction.

Figure 3-3 Geometric considerations at Stockbridge junction

**Not possible to increase entry flare due to assumed highway boundary line on western entry kerb.*
*If entry widening could be achieved, based upon boundaries lines etc the additional approach stacking would be approx **+2 PCU**.*

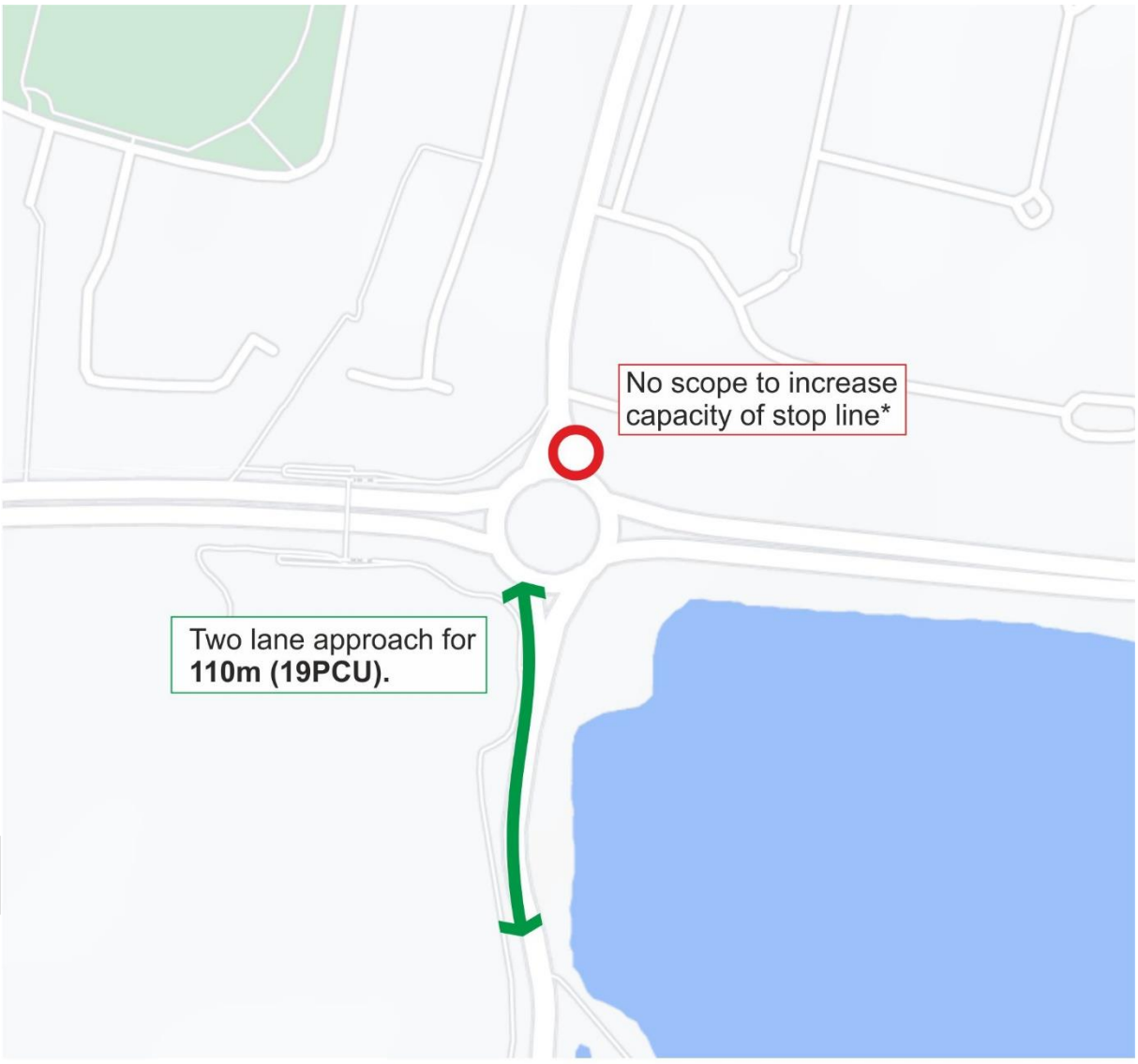
3.3.5 At the Stockbridge junction a number of constraints were evident on the southern approach which limit capacity improvements as follows:

- Due to the assumed highway boundary on the western kerb edge, it is not possible to increase flares, or to widen the existing lanes nor is it possible to provide a third entry lane.
- Limited or no possibility for a third entry lane.
- Considered that if entry widening could be achieved to provide a third lane, based upon boundary lines etc, this would only provide stacking for a short length of 2 PCU's.
- It was evident that there was limited possibility for geometric changes that would result in meaningful capacity gains for the side roads.

3.3.6 Similar geometric considerations were made at the Whyke junction as illustrated in Figure 3-4 with limited scope for meaningful capacity gains. It was therefore concluded that the only

scope for additional mitigation would be to secure additional land adjacent to the southern approach (B2145) which could provide additional exit and entry lanes.

Figure 3-4 Geometric considerations at Whyke junction



Potential Partial Signalisation of Stockbridge junction

3.3.7 Given the limited scope for geometric changes, potential interim signalised arrangements at the Stockbridge junction on the A27 approaches were considered as follows:

- Option 1 includes signalising just the western arm (West Signal option),
- Option 2 includes signalising both the western and northern arms (West & North Signal option).

3.3.8 It was also considered if it was viable to signalise the eastern arm (and subsequently the southern arm), however, there does not appear to be enough space to provide sufficient stacking on the circulatory. There is a risk therefore that cars would queue back across the

A27 (east) exit and cause both capacity and safety issues. This scenario was therefore not considered further.

3.3.9 The signal options considered are illustrated in Figure 3- 5.

Figure 3-5 Considered Signal options at Stockbridge junction

3.3.10 The Stockbridge Roundabout has a diameter of around 80m, whereas the Whyke Junction is small at less than 65m, as such there is limited scope to provide signal control on the minor arms due to the lack of circulatory queuing space.

3.3.11 The above signal options at Stockbridge were considered in tandem with the already modelled Fishbourne mitigation scheme (Option 1) and Fishbourne and Bognor Mitigation schemes (Option 2) to create the following additional options that were tested in SATURN.

Option 3: Fishbourne + West signal option

Option 4: Fishbourne + West & North signal option

Option 5: Fishbourne + Bognor + West & North signal option

Option 6: Fishbourne + Bognor + West signal option.

3.3.12 The results of the modelled scenarios are discussed in subsequent sections of this report.

4 2026 Outputs and Analysis

4.1.1 Analysis of impacts has focussed on the following SRN junctions:

- Fishbourne
- Stockbridge
- Whyke
- Bognor

4.1.1 The analysis has also considered and compared outputs to those of equivalent 2026 and 2031 Reference Cases.

4.1.2 The analysis has looked at Volume to Capacity (V/C) ratios (%) at the junction links. In order to alleviate the impacts on the side roads, it was considered that V/C ratios on the A27 were allowed to exceed 100% with an upper limit of about 105%. This means that capacity constraints were somewhat relaxed on the SRN as long as safety was not compromised.

4.1.3 Other outputs analysed include:

- Link delays in seconds
- Average queues in PCU
- Flow changes.

4.1.4 Appendices A to D provide graphical SATURN P1X plots for 2026 focussing on Option 1 and Option 2 outputs.

4.2 Results and Analysis 2026

4.2.1 This section discusses the results by Option. The results for 2026 are summarised in Table 4-1 to 4-6. This includes tables showing the change when compared to the Reference Case.

Table 4-1 2026 V/C % outputs

		2026 AM							2026 PM						
	Model ID	05	13	13a.	13b	13c	13d.	13e	05	13	13a.	13b	13c	13d.	13e
		Reference Case	Fishbourne Only	Fishbourne & Bognor	Fishbourne + West Sig (S'bge)	Fishbourne + West& North Sig (S'bge)	Fishbourne + Bognor + West & North Sig (S'bge)	Fishbourne + Bognor + West Sig (S'bge)	Reference Case	Fishbourne Only	Fishbourne & Bognor	Fishbourne + West Sig (S'bge)	Fishbourne + West& North Sig (S'bge)	Fishbourne + Bognor + West & North Sig (S'bge)	Fishbourne + Bognor + West Sig (S'bge)
	Approach Arm	Reference Case	Option1	Option2	Option3	Option4	Option5	Option6	Reference Case	Option1	Option2	Option3	Option4	Option5	Option6
Fishbourne Junction	A27 E	93	80	83	75	74	78	79	92	89	91	83	83	88	85
	A27W	96	64	65	63	62	63	63	75	71	71	71	67	65	65
	A259 Cathedral Way	86	29	38	26	23	25	25	110	48	50	51	46	37	37
	Terminus Road	29	3	6	2	2	2	2	180	103	103	103	14	11	12
	A259 Fishbourne Road West	116	45	86	46	44	44	44	106	46	44	46	46	43	43
Stockbridge Junction	A27 E	93	93	94	95	86	96	98	96	94	100	102	107	105	104
	A27W	71	72	76	103	108	109	109	91	89	92	71	106	117	118
	Stockbridge Road (S)	113	123	123	119	117	120	120	106	110	118	114	111	114	115
	Stockbridge Road (N)	76	87	101	77	56	61	67	112	111	108	110	85	95	101
Whyke Junction	A27 E	85	84	105	84	83	107	107	92	92	103	92	81	99	102
	A27W	79	79	87	71	60	57	58	96	97	93	97	86	80	75
	B2145 (S)	113	121	116	132	131	125	125	99	102	106	103	78	104	107
	B2145 (N)	84	85	104	85	86	98	97	112	110	106	108	81	96	100
Bognor Junction	A27 N	115	116	62	116	117	61	61	111	111	83	110	110	85	84
	A27S	106	107	75	105	103	62	62	107	109	76	109	111	72	69
	A259 Bognor Road (E)	119	122	76	126	126	76	76	109	110	57	111	107	59	60
	A259 Bognor Road (W)	101	101	38	101	101	40	39	112	111	68	111	109	59	59
	Vinnetrow Road	118	122	76	131	130	84	83	92	101	29	102	99	29	33

- Red shows V/C % greater than or equal to 105%

Table 4-2 2026 V/C % outputs – Difference Scenario minus Reference Case

		2026 AM							2026 PM						
	Model ID	05	13	13a.	13b	13c	13d.	13e	05	13	13a.	13b	13c	13d.	13e
		Reference Case	Fishbourne Only	Fishbourne & Bognor	Fishbourne + West Sig (S'bge)	Fishbourne + West& North Sig (S'bge)	Fishbourne + Bognor + West & North Sig (S'bge)	Fishbourne + Bognor + West Sig (S'bge)	Reference Case	Fishbourne Only	Fishbourne & Bognor	Fishbourne + West Sig (S'bge)	Fishbourne + West& North Sig (S'bge)	Fishbourne + Bognor + West & North Sig (S'bge)	Fishbourne + Bognor + West Sig (S'bge)
	Approach Arm	Reference Case	Option1	Option2	Option3	Option4	Option5	Option6	Reference Case	Option1	Option2	Option3	Option4	Option5	Option6
Fishbourne Junction	A27 E	0	-13	-10	-18	-19	-14	-14	0	-4	-1	-9	-9	-4	-7
	A27W	0	-32	-30	-32	-34	-33	-33	0	-4	-4	-5	-9	-10	-10
	A259 Cathedral Way	0	-57	-49	-60	-63	-61	-61	0	-62	-60	-59	-63	-73	-72
	Terminus Road	0	-27	-24	-27	-27	-27	-27	0	-77	-76	-77	-166	-169	-168
	A259 Fishbourne Road West	0	-71	-30	-71	-73	-72	-72	0	-61	-63	-61	-60	-64	-63
Stockbridge Junction	A27 E	0	1	1	3	-6	4	5	0	-2	5	6	12	9	8
	A27W	0	1	5	32	37	38	39	0	-2	0	-20	15	26	27
	Stockbridge Road (S)	0	10	10	6	4	7	7	0	4	12	9	6	9	10
	Stockbridge Road (N)	0	11	25	1	-20	-14	-9	0	-1	-4	-2	-28	-17	-11
Whyke Junction	A27 E	0	-1	19	-1	-2	22	22	0	0	11	0	-11	7	9
	A27W	0	1	8	-8	-19	-21	-20	0	1	-2	1	-10	-15	-20
	B2145 (S)	0	8	3	19	18	12	12	0	3	7	4	-20	6	8
	B2145 (N)	0	1	20	2	2	15	13	0	-1	-6	-3	-31	-15	-12
Bognor Junction	A27 N	0	1	-53	1	2	-54	-54	0	-1	-28	-1	-2	-27	-27
	A27S	0	1	-31	-1	-3	-44	-44	0	2	-31	2	3	-35	-39
	A259 Bognor Road (E)	0	3	-44	6	6	-43	-43	0	1	-52	2	-2	-50	-49
	A259 Bognor Road (W)	0	0	-63	0	0	-62	-62	0	0	-44	-1	-3	-53	-53
	Vinnetrow Road	0	5	-42	13	12	-34	-34	0	9	-63	10	7	-63	-59

Table 4-3 2026 Delay outputs (seconds)

		2026 AM							2026 PM						
	Model ID	05	13	13a.	13b	13c	13d.	13e	05	13	13a.	13b	13c	13d.	13e
		Reference Case	Fishbourne Only	Fishbourne & Bognor	Fishbourne + West Sig (S'bge)	Fishbourne + West& North Sig (S'bge)	Fishbourne + Bognor + West & North Sig (S'bge)	Fishbourne + Bognor + West Sig (S'bge)	Reference Case	Fishbourne Only	Fishbourne & Bognor	Fishbourne + West Sig (S'bge)	Fishbourne + West& North Sig (S'bge)	Fishbourne + Bognor + West & North Sig (S'bge)	Fishbourne + Bognor + West Sig (S'bge)
	Approach Arm	Reference Case	Option1	Option2	Option3	Option4	Option5	Option6	Reference Case	Option1	Option2	Option3	Option4	Option5	Option6
Fishbourne Junction	A27 E	34	30	31	27	27	30	30	33	32	33	30	30	32	31
	A27W	23	15	15	15	15	15	15	18	19	19	19	17	17	17
	A259 Cathedral Way	29	16	17	16	16	16	16	230	15	16	16	15	15	15
	Terminus Road	24	3	4	3	3	3	3	1541	72	84	56	4	4	4
	A259 Fishbourne Road West	375	6	10	6	6	6	6	200	19	19	19	19	19	19
Stockbridge Junction	A27 E	19	20	20	12	6	13	18	24	22	41	57	167	121	89
	A27W	17	18	18	71	172	184	195	21	21	22	12	137	332	357
	Stockbridge Road (S)	294	475	472	393	366	414	416	153	231	379	307	243	308	324
	Stockbridge Road (N)	29	35	80	14	25	25	8	322	301	253	266	26	27	65
Whyke Junction	A27 E	16	16	113	16	16	161	157	18	18	84	18	15	25	63
	A27W	15	15	16	14	14	14	14	22	23	19	23	18	17	16
	B2145 (S)	300	447	366	639	622	530	521	52	85	168	107	30	139	180
	B2145 (N)	29	30	143	28	26	47	43	296	272	193	235	32	55	62
Bognor Junction	A27 N	324	333	13	337	350	13	13	246	233	26	227	216	26	28
	A27S	144	166	24	128	83	22	22	167	201	25	197	229	25	24
	A259 Bognor Road (E)	390	445	3	507	509	3	3	210	235	1	241	168	1	1
	A259 Bognor Road (W)	72	66	21	64	67	21	21	274	265	20	252	219	19	19
	Vinnetrow Road	424	507	106	657	638	192	192	62	111	22	133	86	22	22

Table 4-4 2026 Delay outputs – Difference Scenario minus Reference Case

		2026 AM							2026 PM						
	Model ID	05	13	13a.	13b	13c	13d.	13e	05	13	13a.	13b	13c	13d.	13e
		Reference Case	Fishbourne Only	Fishbourne & Bognor	Fishbourne + West Sig (S'bge)	Fishbourne + West& North Sig (S'bge)	Fishbourne + Bognor + West & North Sig (S'bge)	Fishbourne + Bognor + West Sig (S'bge)	Reference Case	Fishbourne Only	Fishbourne & Bognor	Fishbourne + West Sig (S'bge)	Fishbourne + West& North Sig (S'bge)	Fishbourne + Bognor + West & North Sig (S'bge)	Fishbourne + Bognor + West Sig (S'bge)
	Approach Arm	Reference Case	Option1	Option2	Option3	Option4	Option5	Option6	Reference Case	Option1	Option2	Option3	Option4	Option5	Option6
Fishbourne Junction	A27 E	0	-5	-3	-7	-8	-5	-5	0	-1	0	-3	-3	-1	-2
	A27W	0	-8	-8	-8	-8	-8	-8	0	1	2	1	0	-1	-1
	A259 Cathedral Way	0	-13	-12	-13	-13	-13	-13	0	-215	-215	-215	-215	-216	-216
	Terminus Road	0	-21	-20	-21	-21	-21	-21	0	-1469	-1457	-1485	-1537	-1537	-1537
	A259 Fishbourne Road West	0	-369	-365	-369	-369	-369	-369	0	-181	-181	-181	-181	-181	-181
Stockbridge Junction	A27 E	0	1	1	-8	-14	-7	-1	0	-2	18	33	143	98	65
	A27W	0	0	0	54	155	166	177	0	0	0	-9	115	310	335
	Stockbridge Road (S)	0	182	179	100	73	120	122	0	77	226	154	90	155	171
	Stockbridge Road (N)	0	7	51	-15	-4	-4	-20	0	-22	-69	-56	-296	-295	-258
Whyke Junction	A27 E	0	0	97	0	0	145	141	0	0	66	0	-3	7	45
	A27W	0	0	2	0	-1	-1	-1	0	1	-2	2	-3	-4	-6
	B2145 (S)	0	147	66	339	322	230	221	0	33	116	56	-22	87	128
	B2145 (N)	0	1	114	-1	-2	18	14	0	-24	-103	-61	-264	-241	-234
Bognor Junction	A27 N	0	10	-310	13	26	-311	-311	0	-14	-221	-19	-30	-220	-219
	A27S	0	22	-120	-16	-61	-122	-122	0	34	-142	30	62	-142	-143
	A259 Bognor Road (E)	0	55	-387	117	118	-388	-388	0	26	-208	31	-41	-208	-208
	A259 Bognor Road (W)	0	-5	-51	-7	-5	-51	-51	0	-9	-254	-22	-55	-256	-256
	Vinnetrow Road	0	83	-318	233	215	-231	-232	0	49	-40	70	23	-40	-40

- Red shows delay changes greater than or equal to +30 seconds

Table 4-5 2026 Average Queue outputs (PCU)

		2026 AM							2026 PM						
	Model ID	05	13	13a.	13b	13c	13d.	13e	05	13	13a.	13b	13c	13d.	13e
		Reference Case	Fishbourne Only	Fishbourne & Bognor	Fishbourne + West Sig (S'bge)	Fishbourne + West& North Sig (S'bge)	Fishbourne + Bognor + West & North Sig (S'bge)	Fishbourne + Bognor + West Sig (S'bge)	Reference Case	Fishbourne Only	Fishbourne & Bognor	Fishbourne + West Sig (S'bge)	Fishbourne + West& North Sig (S'bge)	Fishbourne + Bognor + West & North Sig (S'bge)	Fishbourne + Bognor + West Sig (S'bge)
	Approach Arm	Reference Case	Option1	Option2	Option3	Option4	Option5	Option6	Reference Case	Option1	Option2	Option3	Option4	Option5	Option6
Fishbourne Junction	A27 E	2	9	9	8	8	9	9	2	11	12	10	10	11	11
	A27W	5	7	7	7	7	7	7	1	10	10	9	8	8	8
	A259 Cathedral Way	3	3	4	2	2	2	2	59	5	5	5	5	4	4
	Terminus Road	0	0	0	0	0	0	0	86	11	13	11	0	0	0
	A259 Fishbourne Road West	46	2	3	2	2	2	2	21	3	3	3	3	3	3
Stockbridge Junction	A27 E	2	3	3	5	2	5	7	5	4	16	30	64	58	47
	A27W	0	0	0	32	59	63	66	1	1	2	7	62	113	122
	Stockbridge Road (S)	57	101	101	57	57	57	57	33	55	81	57	57	57	57
	Stockbridge Road (N)	2	3	9	2	4	5	1	22	22	15	20	7	8	15
Whyke Junction	A27 E	1	1	61	1	1	82	81	3	3	40	3	1	7	28
	A27W	0	1	1	0	0	0	0	3	4	2	4	2	1	1
	B2145 (S)	64	102	55	143	135	72	73	8	19	40	28	1	33	43
	B2145 (N)	2	2	16	2	2	7	6	26	25	15	21	2	5	7
Bognor Junction	A27 N	115	123	7	127	131	7	7	88	86	15	84	74	16	16
	A27S	51	58	12	44	27	9	9	70	84	12	80	80	12	11
	A259 Bognor Road (E)	123	134	2	149	149	2	2	60	65	1	65	50	1	1
	A259 Bognor Road (W)	14	13	4	12	13	4	4	44	44	7	44	44	6	6
	Vinnetrow Road	26	31	23	40	40	45	45	4	8	2	9	6	2	2

Table 4-6 2026 Average queue outputs – Difference Scenario minus Reference Case

		2026 AM							2026 PM						
	Model ID	05	13	13a.	13b	13c	13d.	13e	05	13	13a.	13b	13c	13d.	13e
		Reference Case	Fishbourne Only	Fishbourne & Bognor	Fishbourne + West Sig (S'bge)	Fishbourne + West& North Sig (S'bge)	Fishbourne + Bognor + West & North Sig (S'bge)	Fishbourne + Bognor + West Sig (S'bge)	Reference Case	Fishbourne Only	Fishbourne & Bognor	Fishbourne + West Sig (S'bge)	Fishbourne + West& North Sig (S'bge)	Fishbourne + Bognor + West & North Sig (S'bge)	Fishbourne + Bognor + West Sig (S'bge)
	Approach Arm	Reference Case	Option1	Option2	Option3	Option4	Option5	Option6	Reference Case	Option1	Option2	Option3	Option4	Option5	Option6
Fishbourne Junction	A27 E	0	7	7	6	6	7	7	0	9	10	8	8	9	9
	A27W	0	2	3	2	2	2	2	0	9	9	9	7	7	7
	A259 Cathedral Way	0	0	1	-1	-1	-1	-1	0	-54	-54	-54	-55	-56	-56
	Terminus Road	0	0	0	0	0	0	0	0	-76	-74	-75	-86	-86	-86
	A259 Fishbourne Road West	0	-45	-44	-45	-45	-45	-45	0	-18	-18	-18	-18	-18	-18
Stockbridge Junction	A27 E	0	1	1	3	-1	3	5	0	-1	11	25	59	53	43
	A27W	0	0	0	32	58	62	66	0	0	0	6	61	112	120
	Stockbridge Road (S)	0	45	44	1	1	1	1	0	22	47	24	24	24	24
	Stockbridge Road (N)	0	1	7	0	2	3	-1	0	0	-7	-3	-16	-15	-8
Whyke Junction	A27 E	0	0	59	0	0	81	80	0	0	38	0	-1	4	25
	A27W	0	0	0	0	0	0	0	0	1	-1	1	-2	-2	-3
	B2145 (S)	0	38	-9	79	71	8	9	0	11	31	19	-7	25	35
	B2145 (N)	0	0	14	0	0	4	3	0	-1	-11	-5	-24	-21	-19
Bognor Junction	A27 N	0	8	-108	12	15	-108	-108	0	-3	-73	-5	-14	-73	-73
	A27S	0	7	-39	-7	-24	-42	-42	0	14	-58	9	10	-59	-59
	A259 Bognor Road (E)	0	11	-121	26	26	-121	-121	0	5	-59	6	-10	-59	-59
	A259 Bognor Road (W)	0	-1	-10	-1	-1	-10	-10	0	0	-37	0	0	-38	-38
	Vinnetrow Road	0	5	-2	15	14	19	19	0	4	-2	6	2	-2	-1

- Red shows average queue changes greater than or equal to + 10 PCU (or 57.5 metres at 5.75 metres/PCU)

4.3 2026 Summary Findings

Impacts at Fishbourne junction

- All options are seen to generally mitigate the Fishbourne junction in both the AM and PM peaks

- There are significant delay reductions compared to the Reference Case on both the SRN and local side road arms in both peaks.

Impacts at Stockbridge junction

- V/C ratios indicate acceptable values on the SRN in Options 1,2,3 in both peaks.

- Options 4, 5 and 6 indicate V/C % ratios above the desirable 105% on one or both SRN approach arms.

- On the local network Stockbridge Road (south) is overcapacity in both the AM and PM peaks and shows significant increases in V/C ratios in both the AM and PM peaks across all options.

- Consequently, delay increases range between 73 seconds (Option 4) and 182 seconds (Option 1) in the AM peak and between 77 seconds (Option 1) to 226 seconds (Option 2)

- It is noted, however, that at Stockbridge Road (south) delays may reduce with the addition of west & north signals compared to scenarios without the signals although values do not fall below Reference Case levels. The V/C does not, however, reduce.

- Queue increases compared to the Reference Case are highest in Option 1 (45 PCU) and Option 2 (44 PCU) in the AM peak.

- In the PM peak are highest in Option 2 (47 PCU) with all other options ranging between 22 PCU and 24 PCU increases.

- None of the options achieve Reference Case LOS conditions and hence it is unlikely that WSCC would accept the forecast levels of delays and average queues as predicted based on the output of the strategic model and there is limited scope for mitigate.

- Given these are forecast impacts, there may be scope to implement a monitor and manage approach, which could consider gating access to these junctions across a wider network and thus managing access patterns of flows on the side roads.

- On Stockbridge Road (north), addition of west & north signals at Stockbridge seems to provide benefits on the arm in AM and PM.

Impacts at Whyke junction

- V/C ratios generally indicate acceptable values on the SRN across all options in the AM and PM with only Option 5 and Option 6 showing V/C ratios above the desirable 105% at 107% for both in the AM peak on the A27 (East) arm.

- The A27 East arm shows corresponding delay increases of the order of 145 seconds (Option 5) and 141 seconds (Option 6) in the AM with equivalent queue increases of 81 PCU and 80 PCU respectively

- On the local side roads, the B2145(south) generally shows high overcapacity V/C ratios well above the Reference Case value of 113% in the AM peak across all options with

associated delay increases ranging between 66 seconds (Option 2) and 339 seconds (Option 3)

- In the PM peak the B2145 (south) arm generally shows acceptable V/C ratios across all the options except Option 2 (106%) (Delay increase 116 seconds) (queue increase 31 PCU) and Option 6 (107%) (Delay increase 128 seconds) (queue increase 35 PCU)

- In general terms across both peaks, none of the options achieve sufficient Reference Case LOS conditions and hence it is unlikely that WSCC would accept the forecast levels of delays and average queues as predicted based on the output of the strategic model and there is limited scope for mitigate.

- Given these are forecast impacts, there may be scope to implement a monitor and manage approach, which could consider gating access to these junctions across a wider network and thus manging access patterns of flows on the side roads.

Impacts at Bognor junction

- Option 2 mitigates the Bognor junction in both AM and PM peaks on both the SRN and local network.

- In Option 1 the SRN links V/C ratios are a percentage point higher than the Reference Case values of 115% (A27 North) and 106% (A27 South) in the AM peak

- Consequently, the increases in delays on the SRN are relatively small and less than a 30 second increase in the AM peak, with associated queue increases of no more than 8 PCU

- On the local network A259 Bognor Road (east) is overcapacity (3% higher) than the AM V/C of 119%, with associated delay increase of 55 seconds and average queue increase of 11 PCU.

- In the PM, Option 1 is generally comparable in LOS to the Reference case on both the SRN and side roads.

- Generally, all the other options provide a LOS on both the SRN and local roads that is comparable to the Reference Case.

4.4 2026 Summary

4.4.1 In summary it is considered that the SRN is generally seen to operate within criteria for 2026. The main impacts of concern in 2026 is the impact at Stockbridge junction in respect of the Stockbridge (South) side road. Option 1 and 2 have the biggest impact on this arm. The initial assessment is whether partial signalisation of Stockbridge would mitigate the impact based on the modelling evidence. Analysis indicates that partial signalisation of Stockbridge does not appear to provide enough improvements to justify an interim signalisation scheme at the junction.

4.4.2 None of the options achieve Reference Case LOS conditions at the arm at the Stockbridge junction and hence it is unlikely that WSCC would accept the forecast levels of delays and average queues as predicted based on the output of the strategic model and there is limited scope for mitigate

4.4.3 The additional mitigation considering both Fishbourne junction mitigation and Bognor junction mitigation is required in 2026 (i.e., Option 2). Analysis indicates that with Bognor in place, the Bognor junction operates well within capacity in Option 2. However, while there are overcapacity arms at Bognor Roundabout in Option 1 (Fishbourne only No Bognor), the

impacts when compared to the Reference Case are such that a similar LOS as in the Reference case is generally achieved.

4.4.4 It is therefore recommended that subject to WSCC reviewing the levels of delay and queue increases at Stockbridge (South) arm at Stockbridge junction, and to an extent on the B2145 (South) arm LOS at Whyke junction, Option 1 appears to be a reasonable option to allow ongoing development to proceed in the interim, with Option 2 (both junctions) offering a level of certainty for adequate mitigation up to 2026.

5 2031 Outputs and Analysis

5.1.1 This section reports the equivalent outputs for 2031.

5.2 Results and Analysis 2031

5.2.1 This section discusses the results by Option. The results for 2031 are summarised in Table 5-1 to 5-6 for 2031. This includes tables showing the change when compared to the Reference Case.

5.2.2 The results generally mirror the trends seen in 2031 although in most cases the network is more congested.

5.2.3 Appendices E to H provide graphical SATURN P1X plots for 2031 focussing on Option 1 and Option 2 outputs.

Table 5-1 2031 V/C % Outputs

		2031 AM							2031 PM						
	Model ID	15	24	24a.	24b	24c	24d.	24e	15	24	24a.	24b	24c	24d.	24e
		Reference Case	Fishbourne Only	Fishbourne & Bognor	Fishbourne + West Sig (S'bge)	Fishbourne + West& North Sig (S'bge)	Fishbourne + Bognor + West & North Sig (S'bge)	Fishbourne + Bognor + West Sig (S'bge)	Reference Case	Fishbourne Only	Fishbourne & Bognor	Fishbourne + West Sig (S'bge)	Fishbourne + West& North Sig (S'bge)	Fishbourne + Bognor + West & North Sig (S'bge)	Fishbourne + Bognor + West Sig (S'bge)
	Approach Arm	Reference Case	Option1	Option2	Option3	Option4	Option5	Option6	Reference Case	Option1	Option2	Option3	Option4	Option5	Option6
Fishbourne Junction	A27 E	86	75	77	69	69	73	73	85	87	92	80	83	87	86
	A27W	106	68	70	66	66	66	66	102	76	76	69	69	69	69
	A259 Cathedral Way	81	29	37	16	17	17	19	81	94	83	48	46	43	43
	Terminus Road	25	3	7	2	2	2	2	29	126	117	15	13	15	18
	A259 Fishbourne Road West	122	93	97	53	53	51	51	120	61	58	84	49	52	50
Stockbridge Junction	A27 E	94	93	95	90	87	100	104	94	96	100	89	98	102	96
	A27W	72	89	89	110	110	112	113	74	98	96	139	135	135	136
	Stockbridge Road (S)	116	122	122	117	116	121	118	118	124	126	116	117	119	118
	Stockbridge Road (N)	75	95	103	62	57	68	92	76	136	121	112	103	101	104
Whyke Junction	A27 E	81	85	108	79	80	110	107	84	97	110	94	95	108	110
	A27W	78	85	90	59	58	57	69	81	100	97	82	88	83	76
	B2145 (S)	116	129	128	141	141	139	129	119	117	112	121	115	111	112
	B2145 (N)	80	95	106	89	91	100	97	87	136	120	120	114	104	105
Bognor Junction	A27 N	121	122	69	124	124	67	66	121	116	86	118	117	86	85
	A27S	108	110	77	105	105	62	69	107	109	76	103	105	70	65
	A259 Bognor Road (E)	123	129	102	133	133	102	102	124	120	70	121	118	70	73
	A259 Bognor Road (W)	101	103	45	102	102	44	38	103	111	85	111	110	70	71
	Vinnetrow Road	123	134	96	142	142	113	95	124	116	58	117	114	53	61

- Red shows V/C % greater than or equal to 105%

Table 5-2 22031 V/C % Outputs – Difference Scenario minus Reference Case

		2031 AM							2031 PM						
	Model ID	15	24	24a.	24b	24c	24d.	24e	15	24	24a.	24b	24c	24d.	24e
		Reference Case	Fishbourne Only	Fishbourne & Bognor	Fishbourne + West Sig (S'bge)	Fishbourne + West& North Sig (S'bge)	Fishbourne + Bognor + West & North Sig (S'bge)	Fishbourne + Bognor + West Sig (S'bge)	Reference Case	Fishbourne Only	Fishbourne & Bognor	Fishbourne + West Sig (S'bge)	Fishbourne + West& North Sig (S'bge)	Fishbourne + Bognor + West & North Sig (S'bge)	Fishbourne + Bognor + West Sig (S'bge)
	Approach Arm	Reference Case	Option1	Option2	Option3	Option4	Option5	Option6	Reference Case	Option1	Option2	Option3	Option4	Option5	Option6
Fishbourne Junction	A27 E	0	-11	-8	-17	-17	-13	-13	0	2	7	-5	-2	3	1
	A27W	0	-38	-36	-39	-39	-39	-39	0	-26	-26	-33	-33	-33	-34
	A259 Cathedral Way	0	-52	-44	-65	-63	-64	-62	0	13	3	-33	-35	-38	-38
	Terminus Road	0	-22	-18	-23	-23	-23	-23	0	97	88	-14	-16	-14	-11
	A259 Fishbourne Road West	0	-29	-25	-70	-69	-71	-71	0	-59	-62	-36	-71	-68	-70
Stockbridge Junction	A27 E	0	-1	1	-4	-7	5	9	0	2	6	-5	5	8	2
	A27W	0	18	17	38	38	40	41	0	23	22	64	60	60	62
	Stockbridge Road (S)	0	6	6	1	0	4	1	0	6	8	-2	0	1	0
	Stockbridge Road (N)	0	20	28	-13	-18	-7	17	0	60	45	36	27	25	28
Whyke Junction	A27 E	0	4	27	-2	0	29	26	0	13	25	10	10	23	26
	A27W	0	7	12	-19	-20	-20	-9	0	19	16	2	7	3	-4
	B2145 (S)	0	13	12	25	24	22	13	0	-2	-7	2	-4	-8	-7
	B2145 (N)	0	15	26	9	12	20	17	0	49	33	33	27	17	18
Bognor Junction	A27 N	0	2	-52	3	3	-54	-55	0	-5	-35	-3	-4	-35	-35
	A27S	0	2	-30	-3	-3	-46	-38	0	1	-31	-5	-2	-37	-42
	A259 Bognor Road (E)	0	5	-21	9	10	-21	-21	0	-4	-54	-3	-5	-54	-51
	A259 Bognor Road (W)	0	2	-56	0	1	-58	-63	0	8	-18	8	8	-32	-31
	Vinnetrow Road	0	10	-27	19	19	-10	-28	0	-8	-66	-7	-9	-71	-62

Table 5-3 2031 Delay Outputs (Seconds)

		2031 AM							2031 PM						
	Model ID	15	24	24a.	24b	24c	24d.	24e	15	24	24a.	24b	24c	24d.	24e
		Reference Case	Fishbourne Only	Fishbourne & Bognor	Fishbourne + West Sig (S'bge)	Fishbourne + West& North Sig (S'bge)	Fishbourne + Bognor + West & North Sig (S'bge)	Fishbourne + Bognor + West Sig (S'bge)	Reference Case	Fishbourne Only	Fishbourne & Bognor	Fishbourne + West Sig (S'bge)	Fishbourne + West& North Sig (S'bge)	Fishbourne + Bognor + West & North Sig (S'bge)	Fishbourne + Bognor + West Sig (S'bge)
	Approach Arm	Reference Case	Option1	Option2	Option3	Option4	Option5	Option6	Reference Case	Option1	Option2	Option3	Option4	Option5	Option6
Fishbourne Junction	A27 E	33	26	27	23	23	26	26	32	31	34	28	30	32	31
	A27W	137	17	17	16	16	16	16	75	21	21	18	18	18	18
	A259 Cathedral Way	25	16	16	15	15	15	15	25	21	19	15	15	15	15
	Terminus Road	22	3	4	3	3	3	3	23	486	331	4	4	4	4
	A259 Fishbourne Road West	486	11	12	7	7	6	6	442	20	20	23	19	20	20
Stockbridge Junction	A27 E	20	20	21	7	6	21	94	20	22	31	7	22	60	14
	A27W	18	19	20	210	209	249	258	18	25	24	722	654	652	677
	Stockbridge Road (S)	355	453	458	367	351	435	378	376	483	521	339	371	394	380
	Stockbridge Road (N)	29	53	124	7	25	25	18	31	767	508	257	76	48	121
Whyke Junction	A27 E	15	17	165	15	15	215	155	16	24	203	19	21	170	211
	A27W	15	16	17	14	14	14	15	15	32	21	17	18	17	16
	B2145 (S)	354	591	587	803	798	776	597	403	360	272	443	336	260	274
	B2145 (N)	26	43	192	28	30	56	48	31	746	471	428	330	142	164
Bognor Junction	A27 N	421	446	14	481	480	14	14	416	328	34	362	349	47	57
	A27S	177	215	25	128	122	22	24	167	184	25	80	131	25	24
	A259 Bognor Road (E)	466	560	48	641	644	52	49	475	404	3	418	380	3	4
	A259 Bognor Road (W)	73	104	21	80	83	21	21	96	258	23	250	240	20	21
	Vinnetrow Road	519	704	172	851	846	274	181	531	383	25	396	349	24	25

Table 5-4 2031 Delay Outputs – Difference Scenario minus Reference Case

		2031 AM							2031 PM						
	Model ID	15	24	24a.	24b	24c	24d.	24e	15	24	24a.	24b	24c	24d.	24e
		Reference Case	Fishbourne Only	Fishbourne & Bognor	Fishbourne + West Sig (S'bge)	Fishbourne + West& North Sig (S'bge)	Fishbourne + Bognor + West & North Sig (S'bge)	Fishbourne + Bognor + West Sig (S'bge)	Reference Case	Fishbourne Only	Fishbourne & Bognor	Fishbourne + West Sig (S'bge)	Fishbourne + West& North Sig (S'bge)	Fishbourne + Bognor + West & North Sig (S'bge)	Fishbourne + Bognor + West Sig (S'bge)
	Approach Arm	Reference Case	Option1	Option2	Option3	Option4	Option5	Option6	Reference Case	Option1	Option2	Option3	Option4	Option5	Option6
Fishbourne Junction	A27 E	0	-6	-5	-10	-10	-7	-7	0	-1	2	-4	-3	0	-1
	A27W	0	-121	-120	-121	-121	-122	-121	0	-55	-54	-57	-57	-58	-58
	A259 Cathedral Way	0	-9	-8	-9	-9	-9	-9	0	-5	-6	-10	-10	-10	-10
	Terminus Road	0	-19	-18	-19	-19	-19	-19	0	464	308	-18	-18	-18	-18
	A259 Fishbourne Road West	0	-475	-474	-480	-480	-480	-480	0	-421	-422	-419	-422	-422	-422
Stockbridge Junction	A27 E	0	0	1	-13	-14	0	74	0	2	12	-13	2	40	-6
	A27W	0	2	2	192	191	231	240	0	8	6	704	636	634	659
	Stockbridge Road (S)	0	98	103	12	-4	81	23	0	107	145	-38	-5	18	4
	Stockbridge Road (N)	0	23	95	-22	-5	-4	-11	0	736	478	226	46	17	90
Whyke Junction	A27 E	0	1	150	0	0	200	140	0	8	187	3	5	154	195
	A27W	0	1	2	0	0	0	1	0	17	6	2	3	3	1
	B2145 (S)	0	237	233	449	443	421	243	0	-44	-131	40	-68	-143	-129
	B2145 (N)	0	17	166	2	4	30	21	0	715	440	397	299	111	133
Bognor Junction	A27 N	0	25	-407	60	59	-406	-407	0	-89	-382	-55	-67	-369	-359
	A27S	0	38	-153	-49	-56	-155	-154	0	18	-142	-87	-36	-142	-143
	A259 Bognor Road (E)	0	94	-418	174	177	-414	-417	0	-71	-472	-57	-95	-472	-471
	A259 Bognor Road (W)	0	30	-52	7	9	-52	-53	0	162	-73	154	145	-75	-75
	Vinnetrow Road	0	184	-347	332	327	-245	-339	0	-148	-506	-134	-181	-507	-505

- Red shows delay changes greater than or equal to +30 seconds

Table 5-5 2031 Average Queue Outputs (PCU)

		2031 AM							2031 PM						
	Model ID	15	24	24a.	24b	24c	24d.	24e	15	24	24a.	24b	24c	24d.	24e
		Reference Case	Fishbourne Only	Fishbourne & Bognor	Fishbourne + West Sig (S'bge)	Fishbourne + West& North Sig (S'bge)	Fishbourne + Bognor + West & North Sig (S'bge)	Fishbourne + Bognor + West Sig (S'bge)	Reference Case	Fishbourne Only	Fishbourne & Bognor	Fishbourne + West Sig (S'bge)	Fishbourne + West& North Sig (S'bge)	Fishbourne + Bognor + West & North Sig (S'bge)	Fishbourne + Bognor + West Sig (S'bge)
	Approach Arm	Reference Case	Option1	Option2	Option3	Option4	Option5	Option6	Reference Case	Option1	Option2	Option3	Option4	Option5	Option6
Fishbourne Junction	A27 E	1	8	8	7	7	8	8	1	11	12	10	10	11	11
	A27W	79	8	8	8	8	8	8	38	11	11	9	9	9	9
	A259 Cathedral Way	2	3	4	1	2	2	2	2	4	5	5	5	4	4
	Terminus Road	0	0	0	0	0	0	0	0	56	43	0	0	0	0
	A259 Fishbourne Road West	66	4	4	2	2	2	2	62	4	4	4	3	4	3
Stockbridge Junction	A27 E	3	3	3	3	2	11	50	3	4	10	2	8	33	5
	A27W	0	1	1	72	71	85	88	0	4	3	246	223	222	231
	Stockbridge Road (S)	69	101	101	57	57	57	57	73	101	101	57	57	57	57
	Stockbridge Road (N)	2	5	13	1	4	5	4	2	37	23	57	23	14	28
Whyke Junction	A27 E	1	2	94	1	1	112	87	1	5	103	3	4	84	102
	A27W	0	1	1	0	0	0	0	0	9	2	1	1	1	0
	B2145 (S)	83	146	70	199	192	96	108	89	98	66	120	99	70	67
	B2145 (N)	2	5	19	3	3	9	6	3	48	24	52	34	14	20
Bognor Junction	A27 N	148	169	9	179	179	9	9	150	127	20	134	132	27	32
	A27S	60	73	13	42	40	9	11	57	80	12	31	52	11	10
	A259 Bognor Road (E)	152	167	34	183	183	35	35	154	107	2	115	106	2	2
	A259 Bognor Road (W)	15	23	4	17	17	4	4	20	44	10	44	44	8	8
	Vinnetrow Road	32	45	46	59	59	77	46	32	29	5	31	26	4	5

Table 5-6 2031 Average Queue Outputs – Difference Scenario minus Reference Case

		2031 AM							2031 PM						
	Model ID	15	24	24a.	24b	24c	24d.	24e	15	24	24a.	24b	24c	24d.	24e
		Reference Case	Fishbourne Only	Fishbourne & Bognor	Fishbourne + West Sig (S'bge)	Fishbourne + West& North Sig (S'bge)	Fishbourne + Bognor + West & North Sig (S'bge)	Fishbourne + Bognor + West Sig (S'bge)	Reference Case	Fishbourne Only	Fishbourne & Bognor	Fishbourne + West Sig (S'bge)	Fishbourne + West& North Sig (S'bge)	Fishbourne + Bognor + West & North Sig (S'bge)	Fishbourne + Bognor + West Sig (S'bge)
	Approach Arm	Reference Case	Option1	Option2	Option3	Option4	Option5	Option6	Reference Case	Option1	Option2	Option3	Option4	Option5	Option6
Fishbourne Junction	A27 E	0	7	7	6	6	7	7	0	10	11	9	10	11	10
	A27W	0	-71	-71	-71	-71	-71	-71	0	-27	-27	-30	-30	-30	-30
	A259 Cathedral Way	0	0	1	-1	-1	-1	-1	0	2	3	2	2	2	2
	Terminus Road	0	0	0	0	0	0	0	0	56	42	0	0	0	0
	A259 Fishbourne Road West	0	-62	-62	-63	-63	-64	-64	0	-57	-58	-58	-58	-58	-58
Stockbridge Junction	A27 E	0	0	0	0	-1	8	47	0	2	7	0	6	30	3
	A27W	0	1	1	71	71	84	87	0	4	3	246	223	222	230
	Stockbridge Road (S)	0	32	32	-12	-12	-12	-12	0	29	29	-15	-15	-15	-15
	Stockbridge Road (N)	0	3	11	-1	3	3	2	0	35	21	55	21	12	26
Whyke Junction	A27 E	0	1	93	0	0	111	86	0	4	101	2	2	83	100
	A27W	0	1	1	0	0	0	0	0	9	2	0	1	0	0
	B2145 (S)	0	63	-12	116	110	13	25	0	9	-23	31	10	-19	-22
	B2145 (N)	0	3	18	1	2	7	4	0	45	21	50	32	11	18
Bognor Junction	A27 N	0	21	-140	31	31	-139	-140	0	-23	-130	-16	-18	-122	-117
	A27S	0	12	-47	-18	-20	-51	-49	0	23	-45	-26	-5	-46	-47
	A259 Bognor Road (E)	0	15	-117	31	32	-117	-117	0	-47	-152	-39	-48	-152	-151
	A259 Bognor Road (W)	0	8	-11	2	2	-11	-11	0	24	-10	24	24	-13	-13
	Vinnetrow Road	0	13	15	27	27	45	15	0	-3	-27	-1	-6	-28	-27

- Red shows average queue changes greater than or equal to + 10 PCU (or 57.5 metres at 5.75 metres/PCU)

5.3 2031 Summary Findings

Impacts at Fishbourne junction

- All options are seen to generally mitigate the Fishbourne junction in both the AM and PM peaks on the SRN
- In the AM peak the local network side roads are also mitigated
- In the PM peak Terminus Road is overcapacity in Option 1 (V/C 126%), (Delays 486 seconds), (Average queues 56 PCU); and in Option 2 (V/C 117%), (Delays 331 seconds), (Average queues 43 PCU). All other options operate within capacity.

Impacts at Stockbridge junction

- V/C ratios indicate acceptable values on the SRN in Options 1,2 in both peaks
- In both peaks, Options 3, 4, 5 and 6 indicate V/C % ratios above the desirable 105% on the A27 West approach on the SRN and perform significantly worse than the Reference Case
- On the local network Stockbridge Road (south) is overcapacity in both the AM and PM peaks and shows significant increases in V/C ratios in both the AM and PM peaks across all options.
- Delay increases for Options 3 to 6 in the AM range between 192 seconds (Option 3) to 240 seconds (Option 6). In the PM delay increases range between 634 seconds (Option 5) to 704 seconds (Option 3). These are significant increases over the Reference Case and a worsening of LOS compared to 2026.
- Queue increases compared to the Reference Case for Options 3 to 6 range between 71 PCU (Option 4) to 88 PCU in the AM peak.
- In the PM peak they range between 222 PCU (Option 5) to 246 PCU (Option 3)
- The Stockbridge (South) arm is generally overcapacity across most scenarios in both the AM and PM peaks.
- It is evident that by 2031 the junction is exhibiting overcapacity issues, increased delays, and significant queues across various options on both the SRN and the local network side roads
- Impact of adding signals at Stockbridge West & North has some benefits in both peaks compared to without the signals but does not necessarily achieve the level of performance seen in the reference case.

Impacts at Whyke junction

- At Whyke there is increased stress on the B2145 (South) side road across most of the options in both the AM and PM peaks. None of the options is seen to mitigate this arm Increased stress is also seen on the B2145 (North) side road especially in the PM peak.
- The A27 East arm is overcapacity in the AM for Option 2 (108%), Option 5 (110%) and Option 6 (107%). Corresponding delay increases of the order of 145 seconds, 200 seconds, and 140 seconds respectively, while associated queue increases 93 PCU, 111 PCU and 86 PCU respectively

Impacts at Bognor junction

- Option 2 mitigates the Bognor junction in both AM and PM peaks on both the SRN and local network.

- Generally, by 2031 all other options generally show stress in both the AM and PM peaks on the SRN and on local roads.

5.4 2031 Summary

5.4.1 By 2031 no standout option is seen to mitigate both the SRN and local roads consistently across both the AM and PM peaks. Generally, the network stress levels have increased across the options to the extent that no specific single option can be said to provide adequate mitigation in 2031.

5.4.2 Indications are that a more concerted mitigation effort would be required at either Stockbridge and or Whyke in order to accommodate the demands in 2031.

5.5 Journey Time Analysis

5.5.1 Additional analysis has been undertaken to understand journey time impacts on the A259/A285/A286. The analysed routes are shown in Figure 5-1 and were analysed for 2026 and 2031.

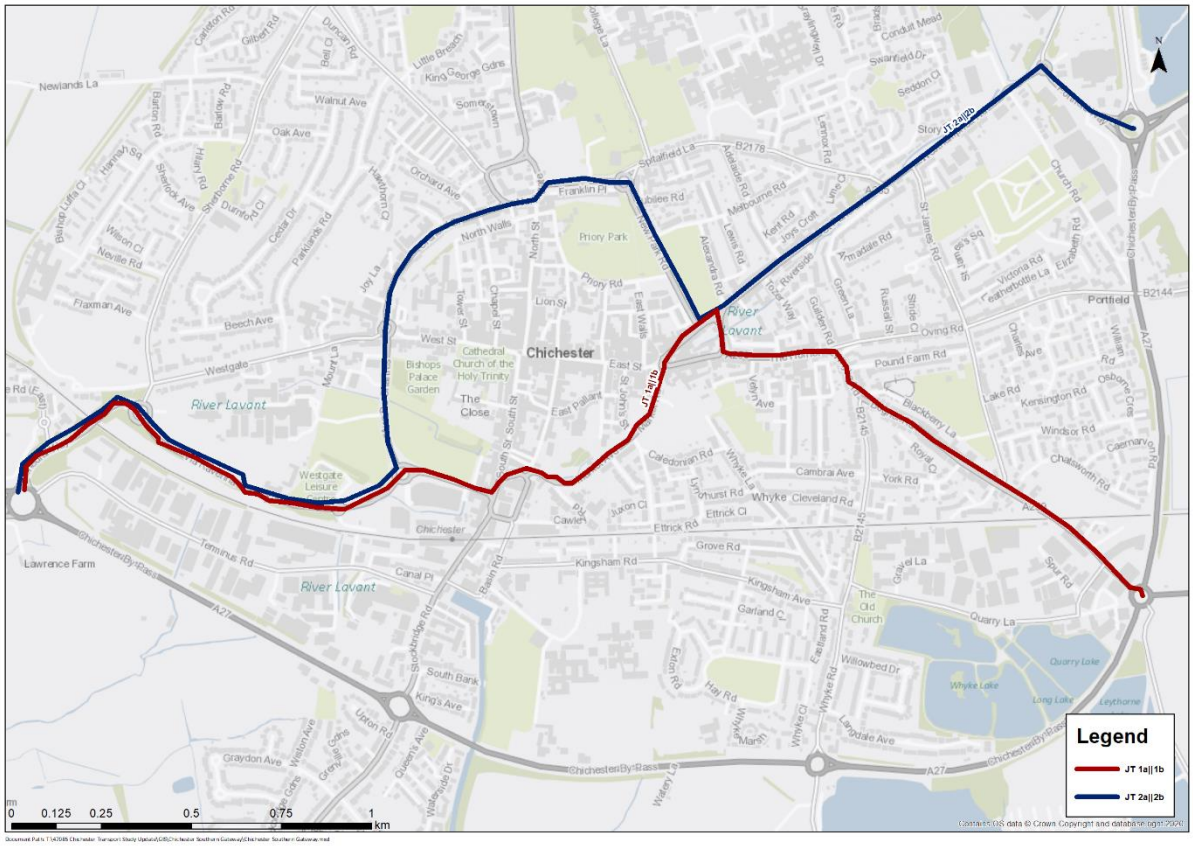


Figure 5-1 Analysed Journey Time Routes

5.5.2 The journey time results are summarised in Tables 5-7 to 5-10. Red journey time values indicate where the journey time value of a scenario is greater than that of the Reference Case

by 30 or more seconds, while green shows where the journey times are less than the Reference Case by 30 seconds or more.

Table 5-7 2026 AM Journey Times

Journey Time ID	Description	5	6	13	13a.
		2026 Reference Case	2026 LP Without Mitigation	2026 Local Plan with Fishbourne	2026 Local Plan with Fishbourne and Bognor
JT 1a	Fishbourne Roundabout - A286 - Bognor Rd- Bognor Rd Roundabout	00:06:58	00:06:59	00:07:38	00:07:45
JT 1b	Bognor Rd Roundabout - Bognor Rod - A286 - Fishbourne Roundabout	00:06:26	00:06:26	00:06:28	00:07:06
JT 2a	Fishbourne Roundabout - A286 - A285- Portfield Roundabout	00:08:40	00:08:42	00:09:26	00:09:04
JT 2b	Portfield Roundabout - A285 - A286 - Fishbourne Roundabout	00:12:13	00:12:35	00:12:41	00:10:30

Table 5-8 2026 PM Journey Times

Journey Time ID	Description	5	6	13	13a.
		2026 Reference Case	2026 LP Without Mitigation	2026 Local Plan with Fishbourne	2026 Local Plan with Fishbourne and Bognor
JT 1a	Fishbourne Roundabout - A286 - Bognor Rd- Bognor Rd Roundabout	00:06:53	00:06:57	00:07:01	00:07:49
JT 1b	Bognor Rd Roundabout - Bognor Rod - A286 - Fishbourne Roundabout	00:06:15	00:06:16	00:06:17	00:06:40
JT 2a	Fishbourne Roundabout - A286 - A285- Portfield Roundabout	00:11:04	00:11:11	00:11:23	00:10:58
JT 2b	Portfield Roundabout - A285 - A286 - Fishbourne Roundabout	00:11:15	00:11:31	00:11:46	00:12:08

- In 2026 the results indicate that in the AM peak journey times on routes JT1a and JT2a get worse by more than 30 seconds in the Fishbourne only option compared to the Reference Case as well as on JT1a in the scenario with both Fishbourne and Bognor

mitigation. Route 2b shows a decrease in journey time for the combined Fishbourne and Bognor mitigation scenario.

- In 2026 the results indicate that in the PM peak journey times on route JT1a get worse by more than 30 seconds in the Fishbourne and Bognor combined mitigation.

Table 5-9 2031 AM Journey Times

Journey Time ID	Description	15	16	24	24a.
		2031 Reference Case	2031 LP Without Mitigation	2031 Local Plan with Fishbourne	2031 Local Plan with Fishbourne and Bognor
JT 1a	Fishbourne Roundabout - A286 - Bognor Rd- Bognor Rd Roundabout	00:07:06	00:07:04	00:08:23	00:08:49
JT 1b	Bognor Rd Roundabout - Bognor Rod - A286 - Fishbourne Roundabout	00:06:26	00:06:25	00:06:30	00:07:11
JT 2a	Fishbourne Roundabout - A286 - A285- Portfield Roundabout	00:08:50	00:08:48	00:10:13	00:09:59
JT 2b	Portfield Roundabout - A285 - A286 - Fishbourne Roundabout	00:14:06	00:15:03	00:14:40	00:12:04

Table 5-10 2031 PM Journey Times

Journey Time ID	Description	15	16	24	24a.
		2031 Reference Case	2031 LP Without Mitigation	2031 Local Plan with Fishbourne	2031 Local Plan with Fishbourne and Bognor
JT 1a	Fishbourne Roundabout - A286 - Bognor Rd- Bognor Rd Roundabout	00:07:07	00:08:08	00:08:49	00:12:45
JT 1b	Bognor Rd Roundabout - Bognor Rod - A286 - Fishbourne Roundabout	00:06:20	00:06:49	00:06:19	00:07:54
JT 2a	Fishbourne Roundabout - A286 - A285- Portfield Roundabout	00:11:56	00:12:46	00:13:43	00:16:01
JT 2b	Portfield Roundabout - A285 - A286 - Fishbourne Roundabout	00:12:52	00:14:35	00:14:39	00:18:43

- In 2031 the results indicate that in the AM peak journey times on routes 1a and 2a and 2b get worse by more than 30 seconds in the Fishbourne only option compared to the

Reference Case. The journey times get worse on routes 1a, 1b and 2a in the Fishbourne and Bognor combined mitigation. There is an improvement on route 2b in the Fishbourne and Bognor combined mitigation.

- In 2031 the results indicate that in the PM peak journey times on routes 1a, 2a and 2b get worse by more than 30 seconds in the Fishbourne only mitigation. With the Fishbourne and Bognor combined mitigation all four routes are seen to get worse.

6 Summary and Conclusions

6.1 Summary and Conclusions

6.1.1 This report has reported on potential impacts of proposed Local Plan Review development for interim years 2026 and 2031. The purpose of the study has been to adopt a safety led approach to estimate the amount of development, their location and required mitigation to support the development. A safety led assessment implies that network performance has not solely been limited by capacity constraints but has also considered a safety. This is with a view that while there might be capacity constraints, it may be possible to accommodate more development where safety considerations indicated that it was possible to accommodate this development safely on the network. This could arise because queue lengths are such that they can be safely accommodated on the network.

6.1.2 A number of mitigation scheme scenarios were tested. Funding constraints are such that in the early years of the plan, CDC have limited funds for mitigation schemes. It is considered that funding available may be able to deliver mitigation at Fishbourne junction (£5.95m) and at Bognor Roundabout (£10.3m). The testing has therefore considered whether this mitigation of a combination of the mitigation could safely accommodate local plan development in the earlier years of the local Plan period, and if so what and where this development is located.

6.1.3 A major issue is that while the mitigation has generally been known to mitigate the SRN, this has seen poor levels of service on the side roads at the Stockbridge and Whyke junctions where the Local Plan mitigation at these locations is not considered affordable in the earlier years of the Local Plan period. The study has given consideration to adjusting signal timings at Fishbourne junction to be less favourable to A27 traffic with a view to alleviating side road traffic particularly at Stockbridge and Whyke junctions. It was found out that adjustments of the signals did not provide sufficient benefit to improve side road performance. Highway boundary constraints at Stockbridge and Whyke have rendered meaningful geometric changes or localised widening impractical.

6.1.4 An interim partial signalisation of the Stockbridge junction has been modelled in combination the proposed mitigation at Fishbourne or in combination with mitigation at Fishbourne + Bognor Roundabout mitigation. Generally, it is considered that the partial signalisation of Stockbridge does not provide sufficient benefits on the side roads to justify an interim signalisation scheme at Stockbridge.

2026 Summary

6.1.5 It is therefore recommended that subject to WSCC reviewing the levels of delay and queue increases at Stockbridge (South) arm at Stockbridge junction, and to an extent on the B2145 (South) arm LOS at Whyke junction, Option 1 appears to be a reasonable option to allow ongoing development to proceed in the interim, with Option 2 (both junctions) offering a level of certainty for adequate mitigation up to 2026.

6.1.6 However, given these are forecast impacts and the limited scope for mitigation above the 2 main junctions, there may be a requirement to implement a monitor and manage approach, which compares the actual with the forecast flows and observations on site.

6.1.7 In addition to above, there is scope to consider gating/management of vehicle trips accessing these junctions through use of signal junctions which feed these links and thus managing access patterns of flows on the side roads.

2031 Summary

6.1.1 By 2031 no standout option is seen to mitigate both the SRN and local roads consistently across both the AM and PM peaks. Generally, the network stress levels have increased across the options to the extent that no specific single option can be said to provide adequate mitigation in 2031.

6.1.2 Indications are that a more concerted mitigation effort would be required at either Stockbridge and or Whyke in order to accommodate the demands in 2031.

6.2 Conclusion

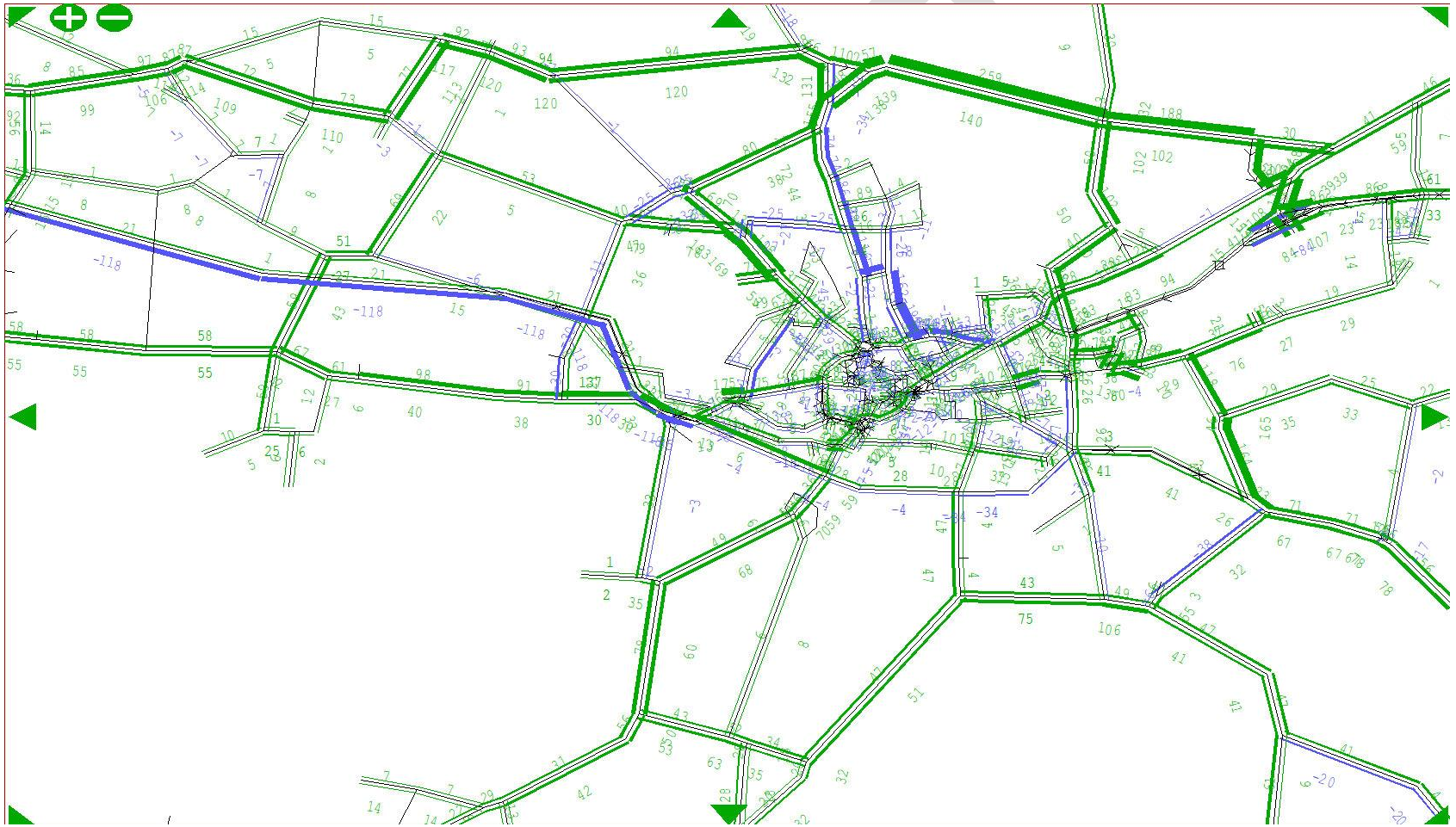
6.2.1 The high-level modelling indicates that the provision of the Fishbourne and Bognor Roundabout mitigation schemes would be required to support the build out of the Local Plan forecast for residential and employment up to 2026.

6.2.2 There is limited scope for major improvements at Stockbridge and Whyke Roundabout within highway land or through partial signalisation. There may be scope to consider gating/management of vehicle trips accessing these junctions through use of modified signal junctions which feed these links and thus manging access patterns of flows on the side roads; however, this would impose additional delay and queuing at those locations.

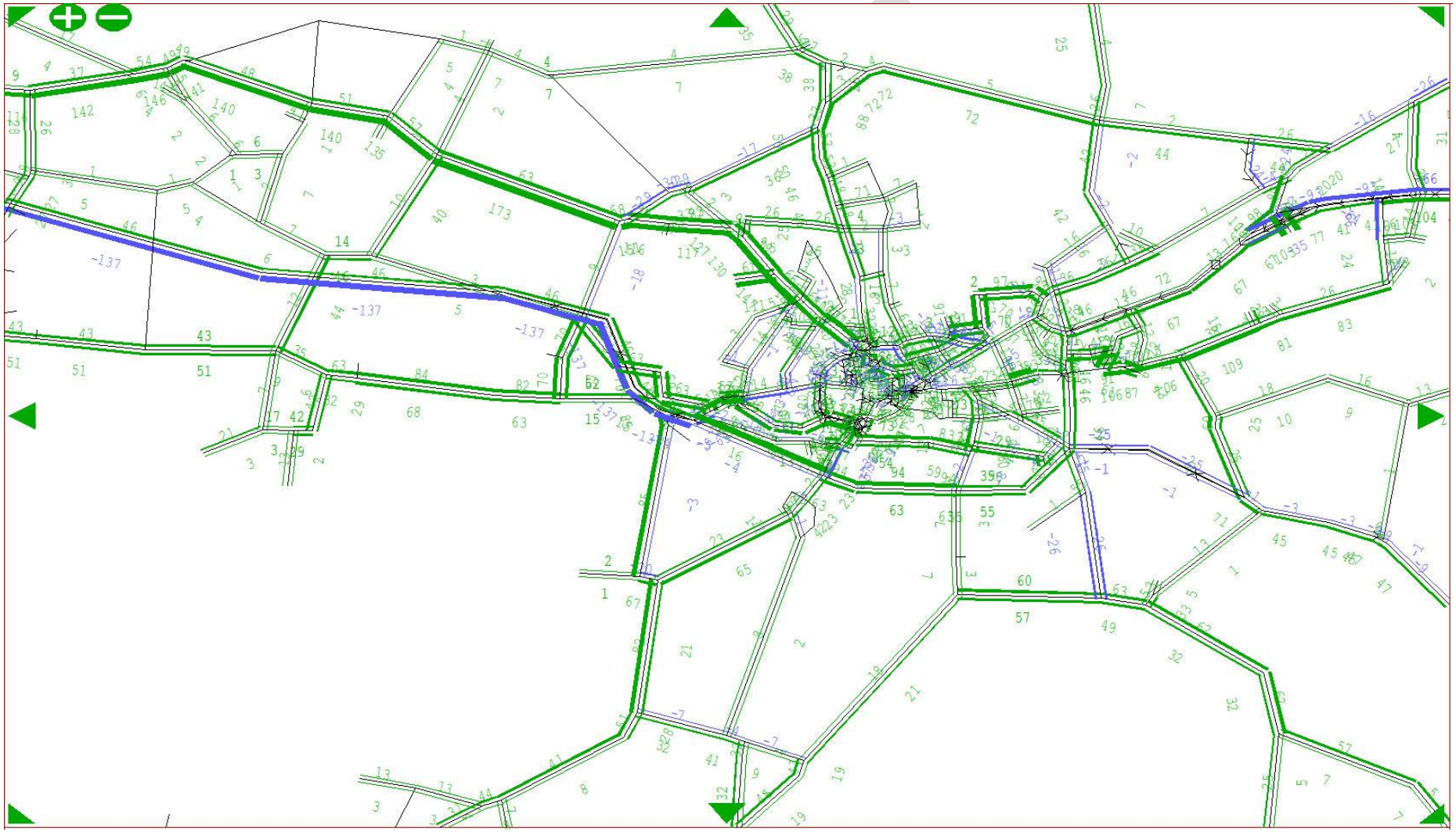
6.2.3 The report using forecast flows and a strategic model and follows a predict and provide approach. As such there may be scope to implement a monitor and manage approach, which considers the actual flows and observations on site with the forecast and tracks the local plan build out, in that this may allow additional units to be considered post 2026 and the mitigation schemes.

Appendix A 2026 Flow Changes Scenario

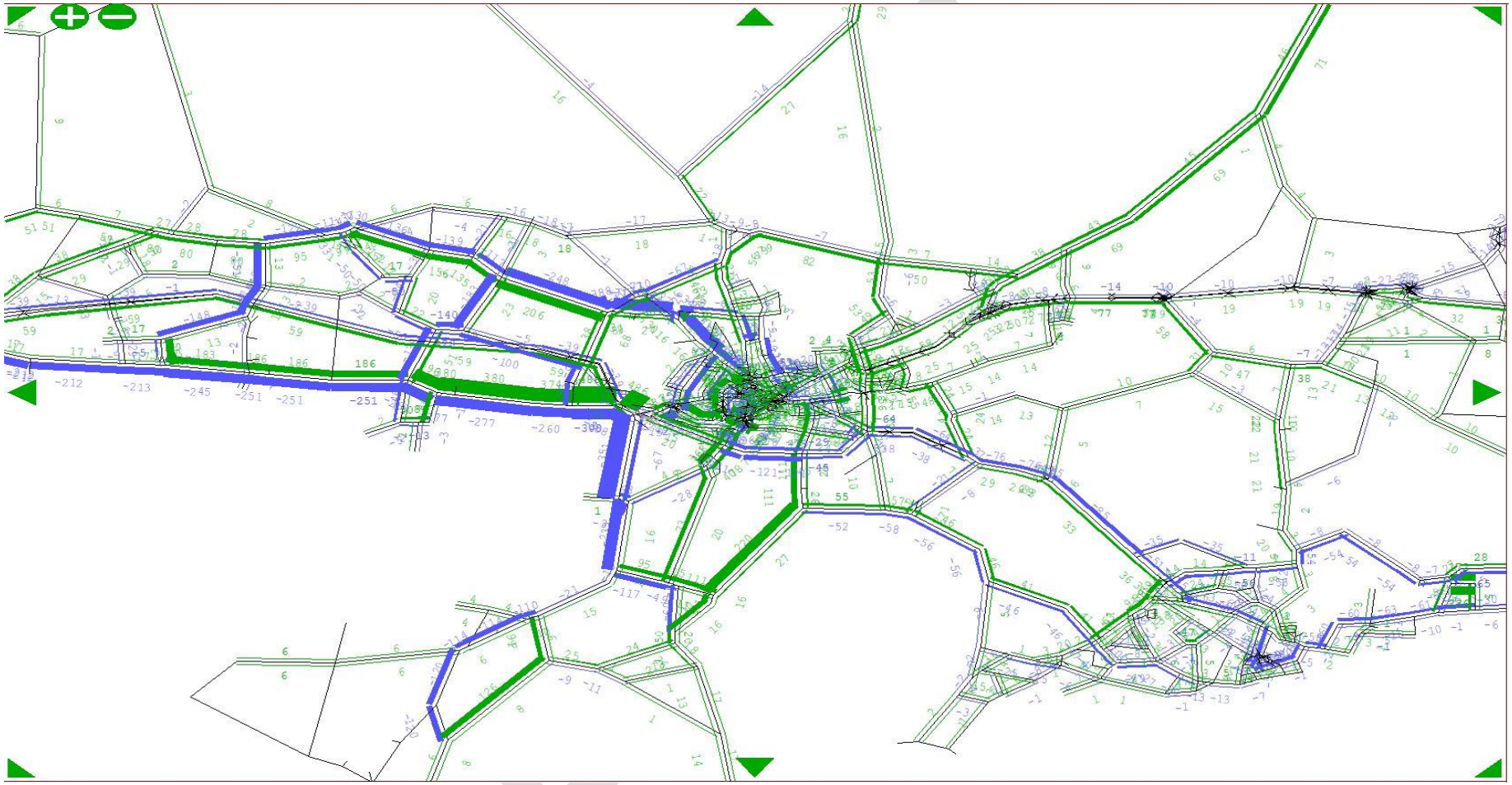
A.1 AM 2026 Local Plan with No Mitigation minus 2026 Reference Case



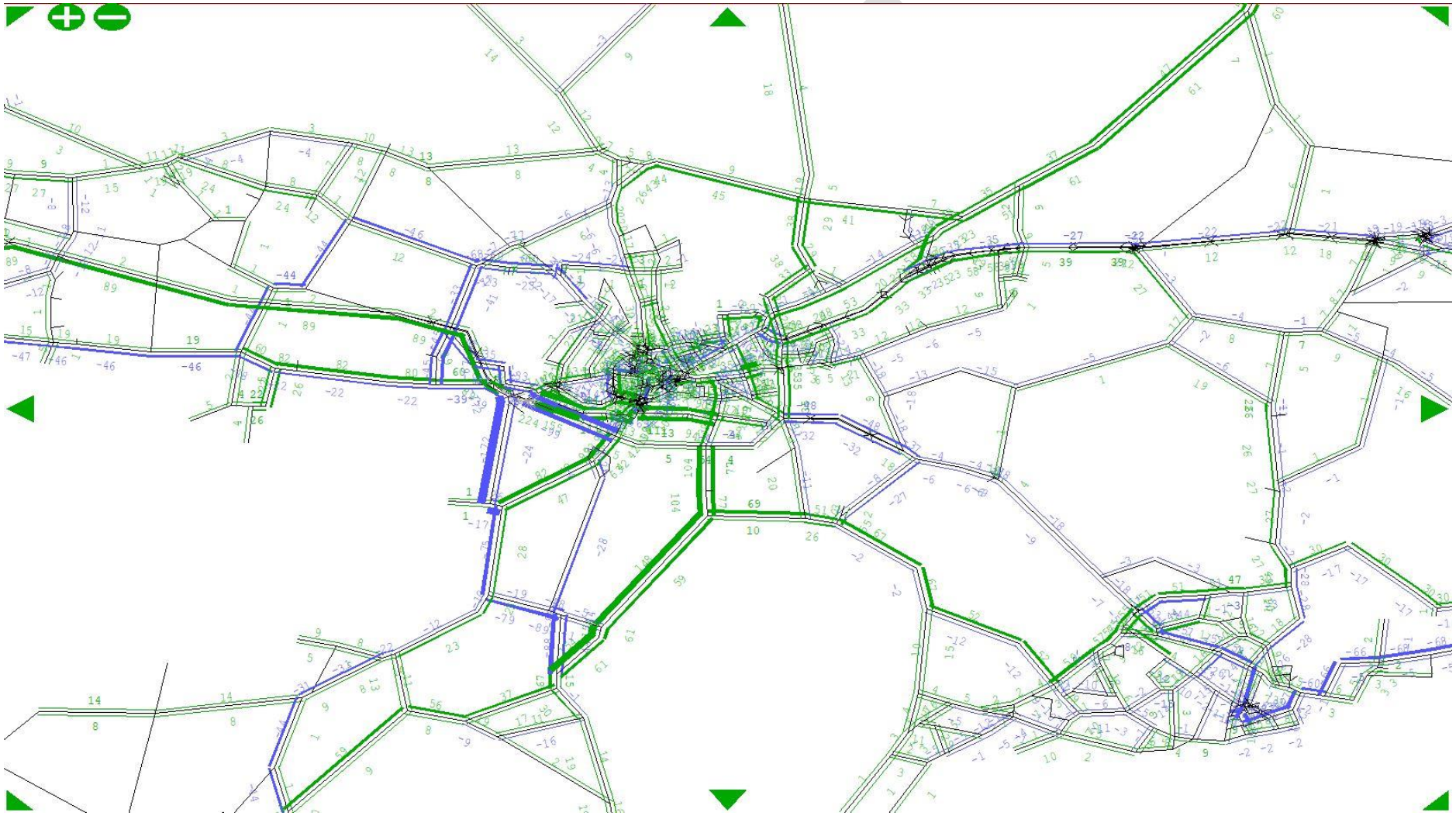
A.2 PM 2026 Local Plan with No Mitigation minus 2026 Reference Case



A.3 AM- 2026 Local Plan with Fishbourne (No SLR)- STN Mitigation minus 2026 Reference Case

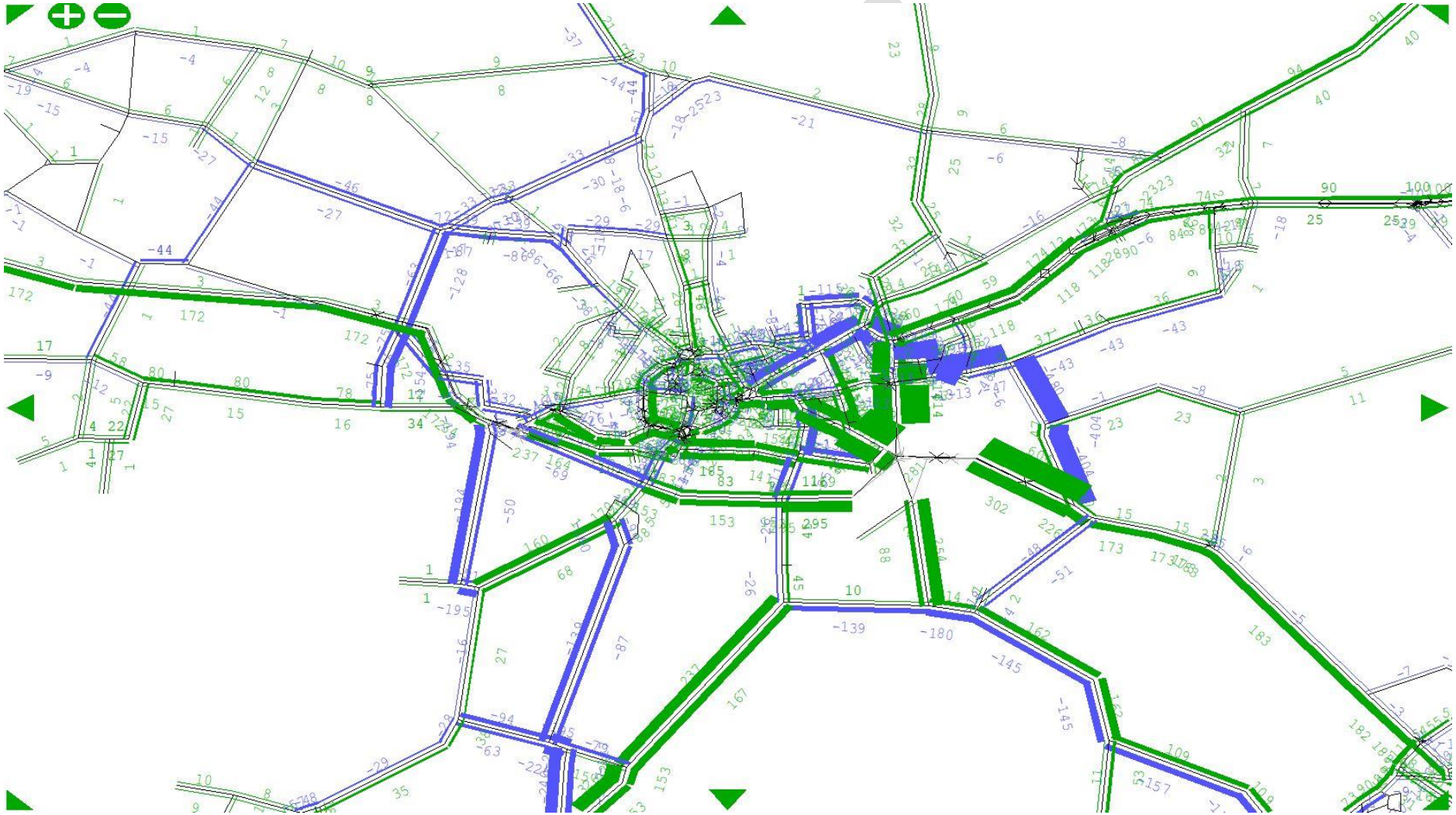


A.4 PM 2026 Local Plan with Fishbourne (No SLR)- STN Mitigation minus 2026 Reference Case

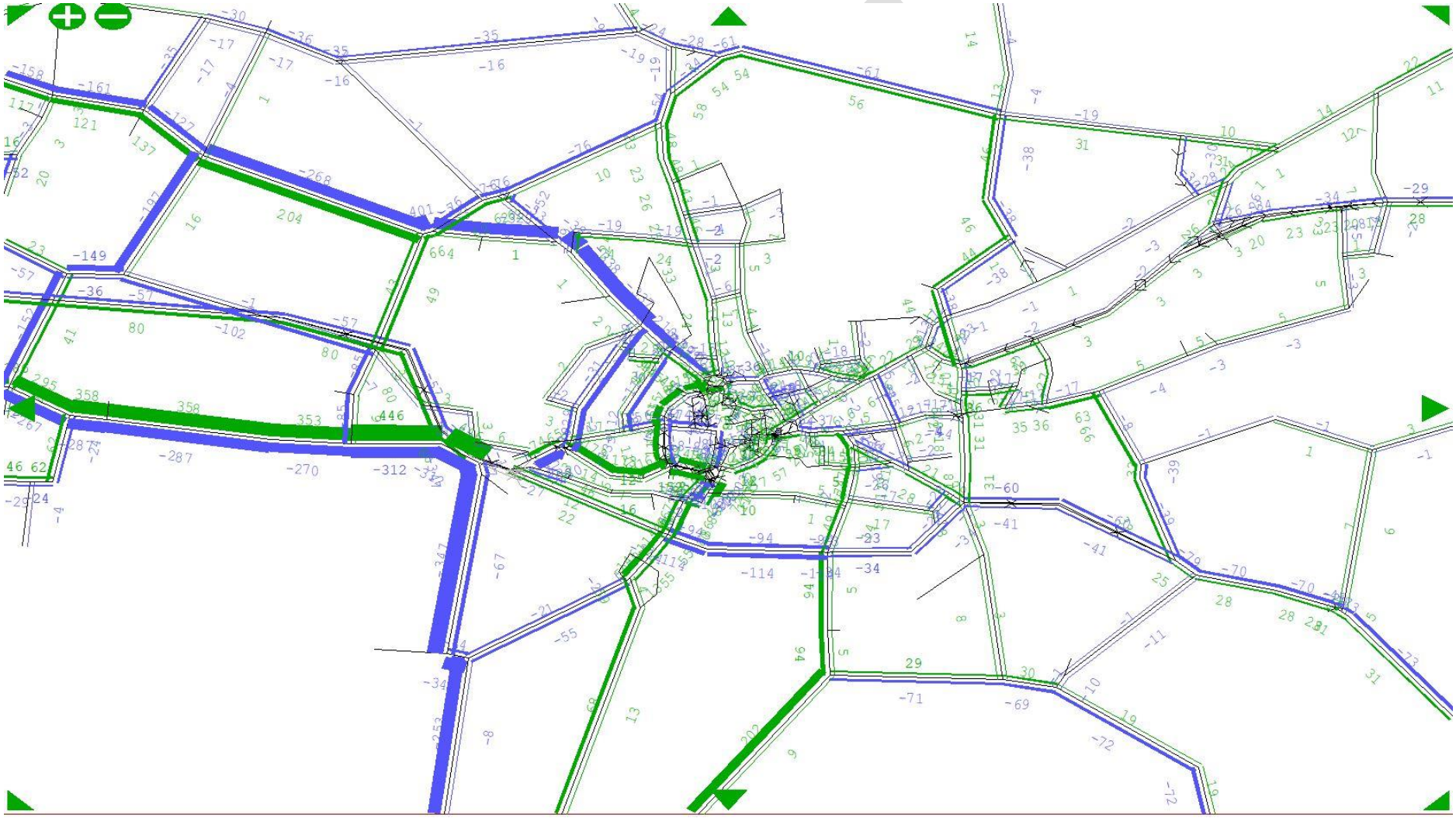


A.5 AM 2026 Local Plan with Fishbourne (No SLR)- STN Mitigation and Bognor minus 2026 Reference Case

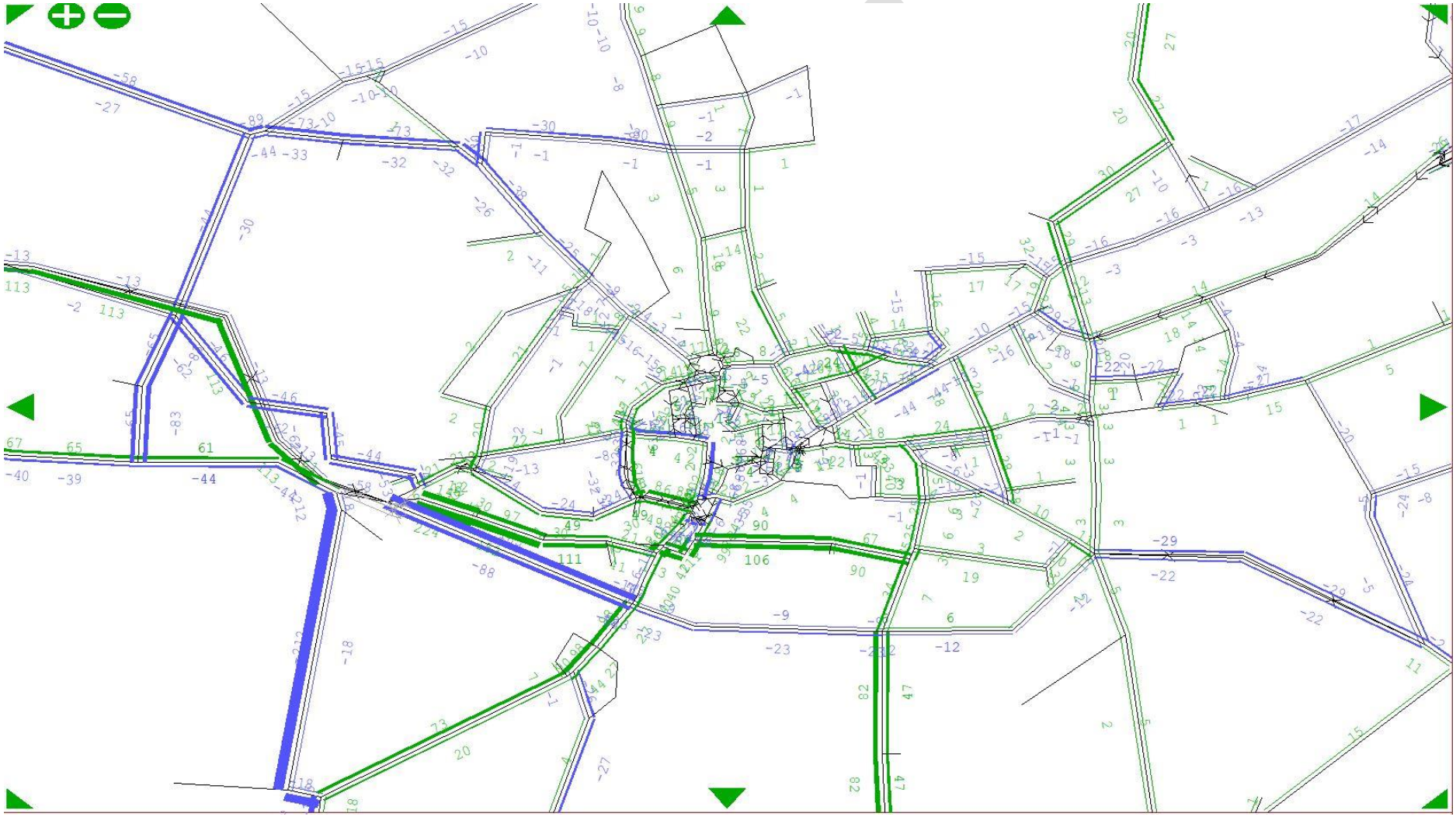
A.6 PM 2026 Local Plan with Fishbourne (No SLR)- STN Mitigation and Bognor minus 2026 Reference Case



A.7 AM 2026 Local Plan with Fishbourne (No SLR)- STN Mitigation minus 2026 Local plan Without Mitigation

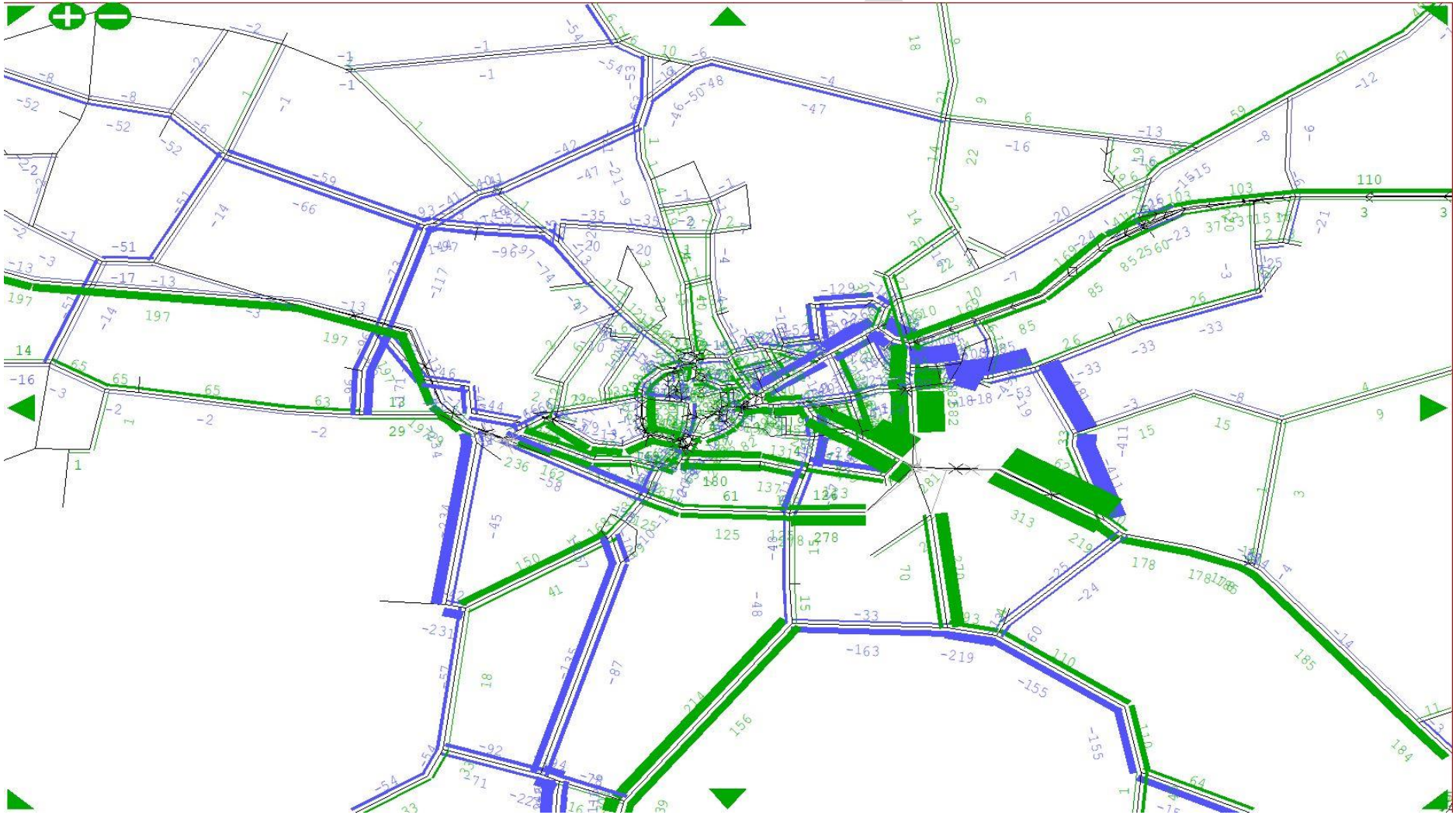


A.8 PM 2026 Local Plan with Fishbourne (No SLR)- STN Mitigation minus 2026 Local plan Without Mitigation



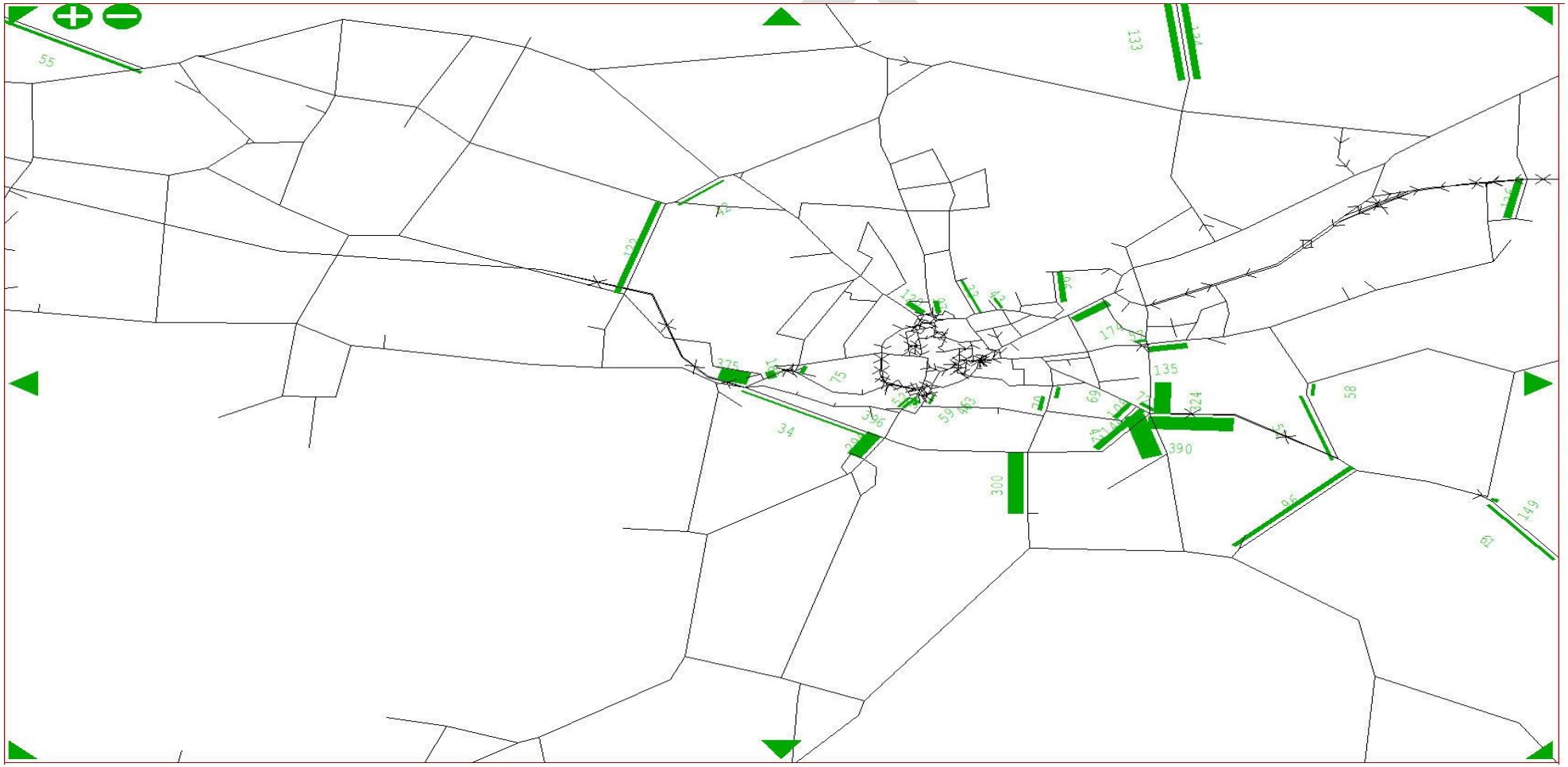
A.9 AM 2026 Local Plan with Fishbourne (No SLR)- STN Mitigation and Bognor minus 2026 Local plan Without Mitigation

A.10 PM 2026 Local Plan with Fishbourne (No SLR)- STN Mitigation and Bognor minus 2026 Local plan Without Mitigation

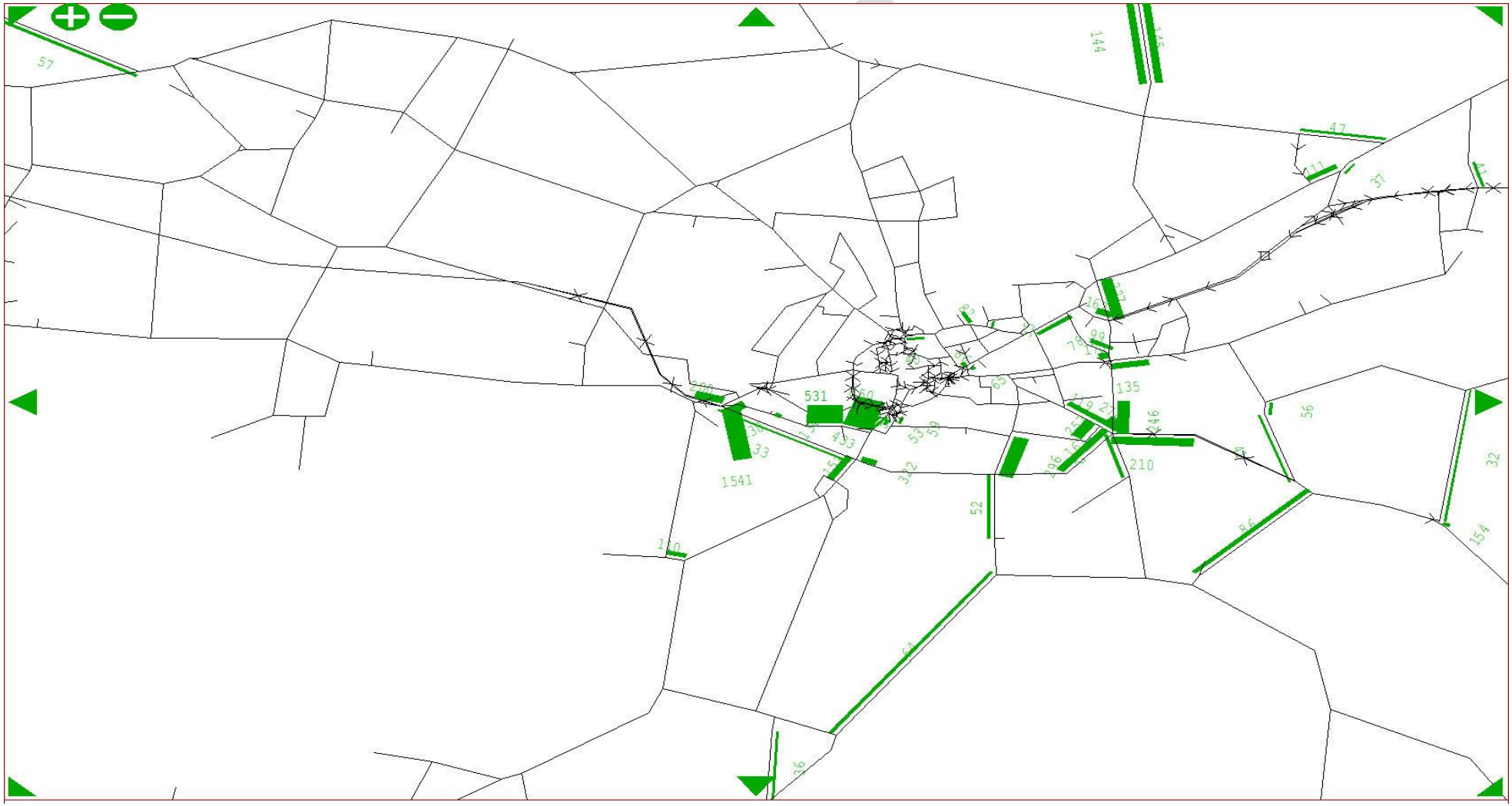


Appendix B 2026 Link Delays Output

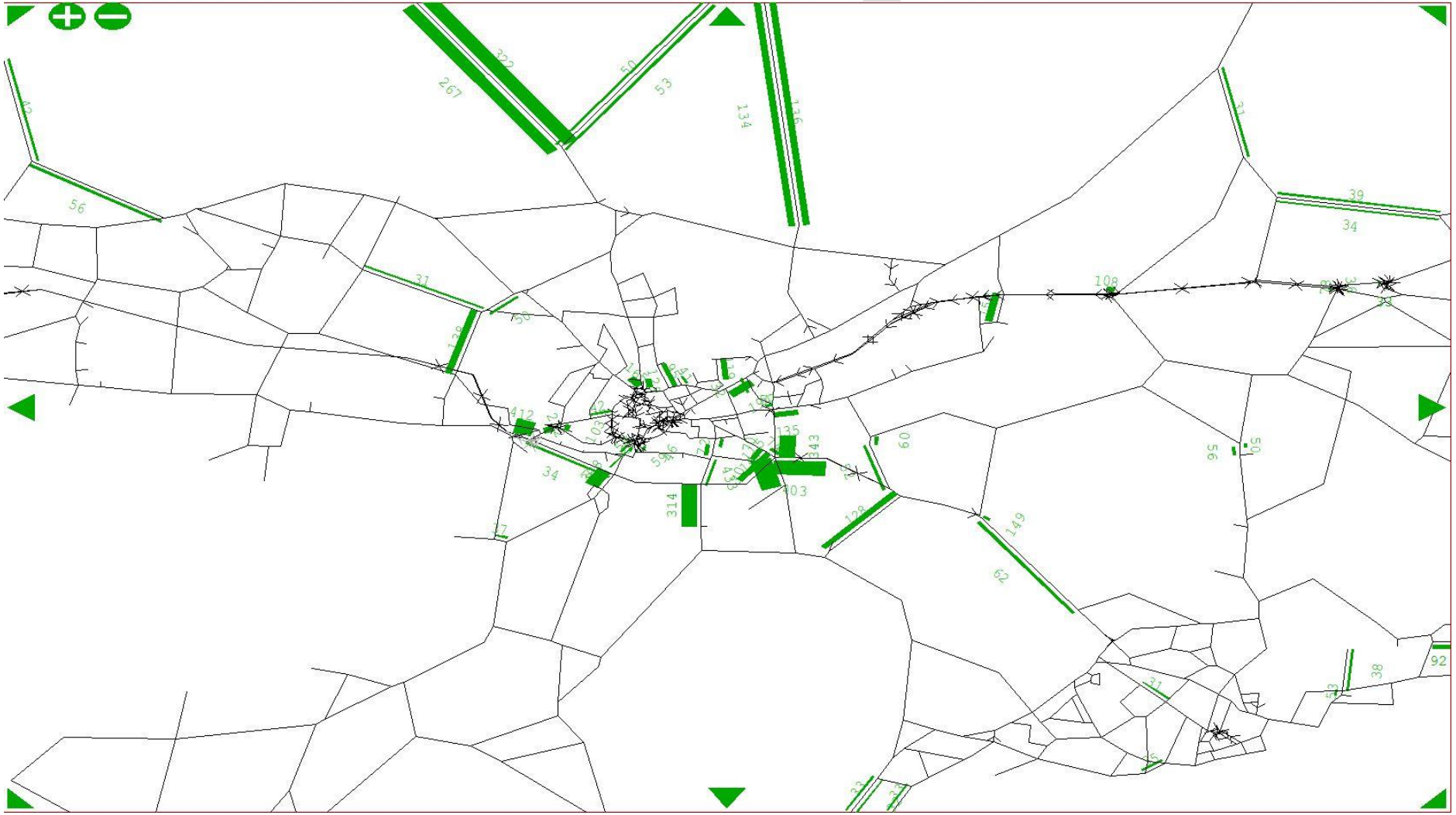
B.1 AM 2026 Reference case -Delay (seconds)



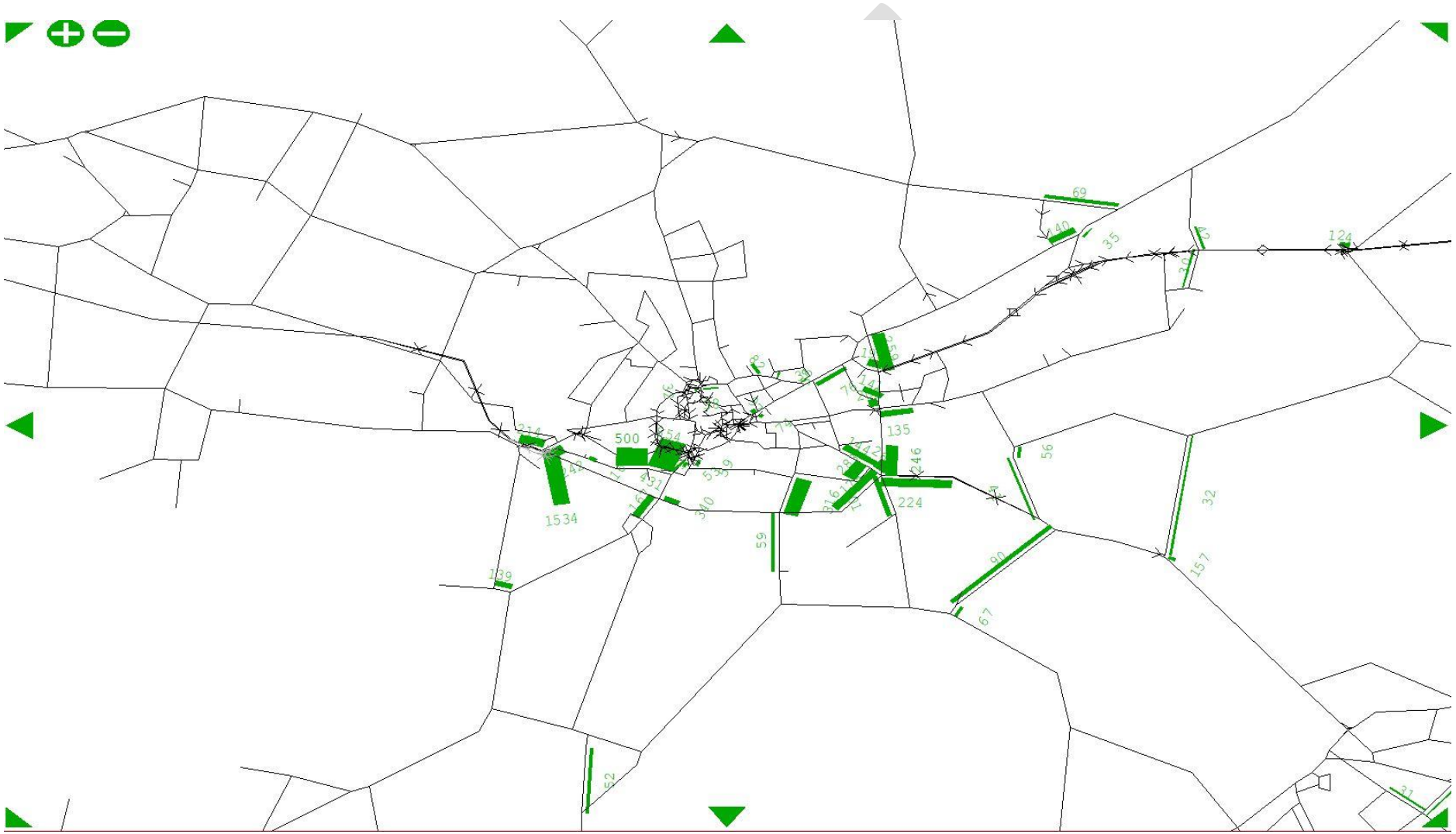
B.2 PM 2026 Reference case -Delay (seconds)



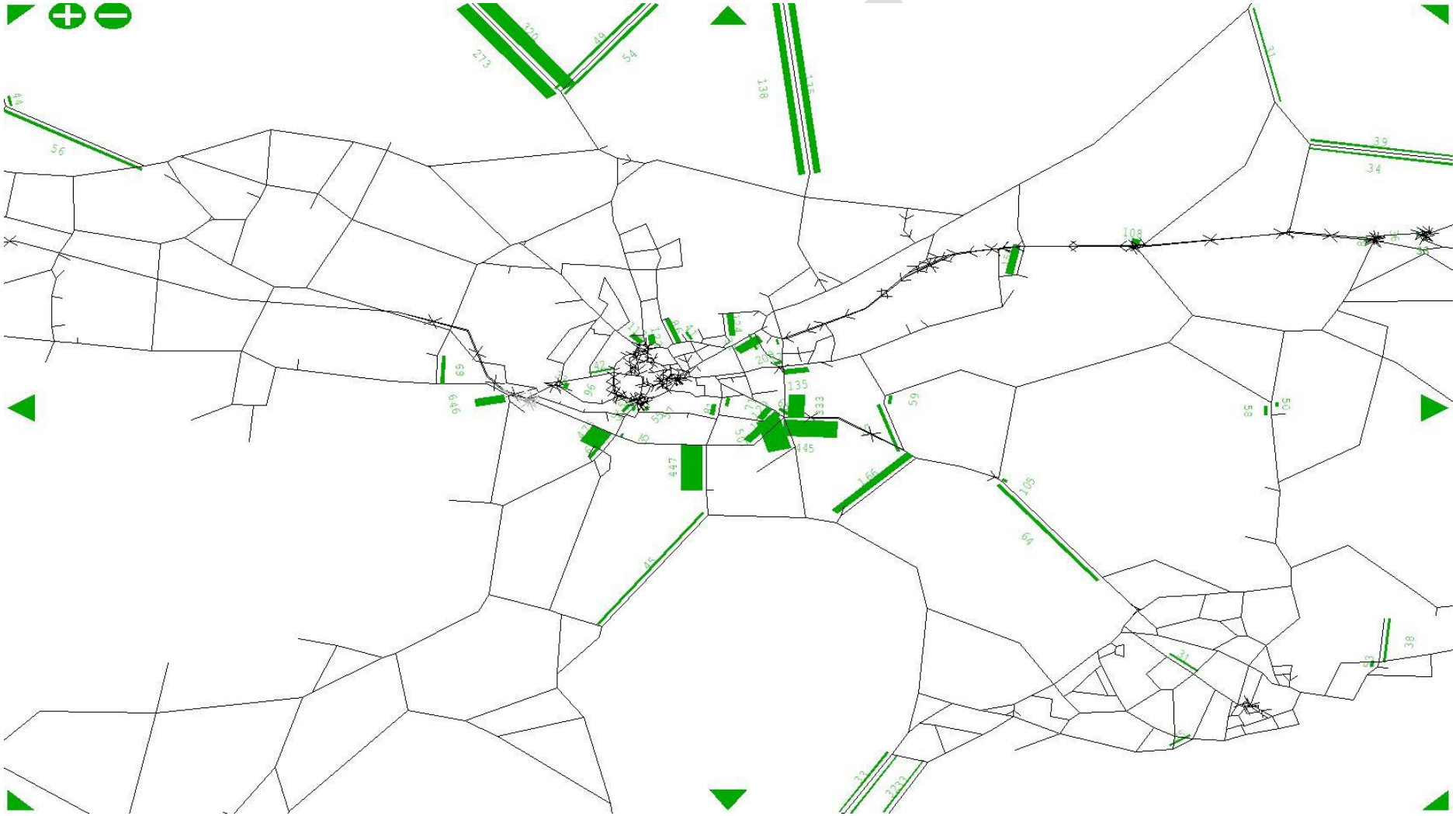
B.3 AM 2026 Local Plan Without Mitigation -Delay (seconds)



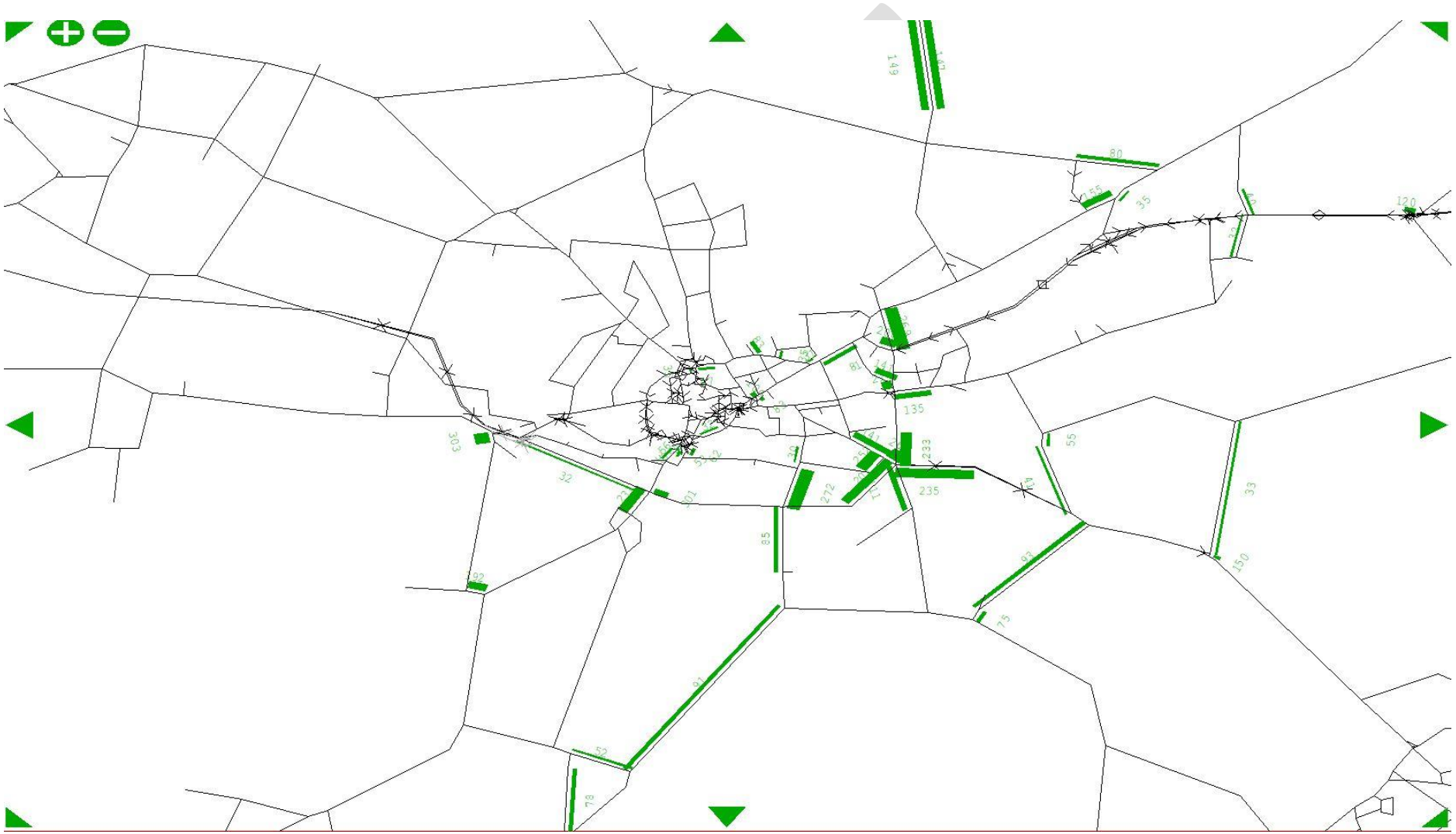
B.4 PM 2026 Local Plan Without Mitigation -Delay (seconds)



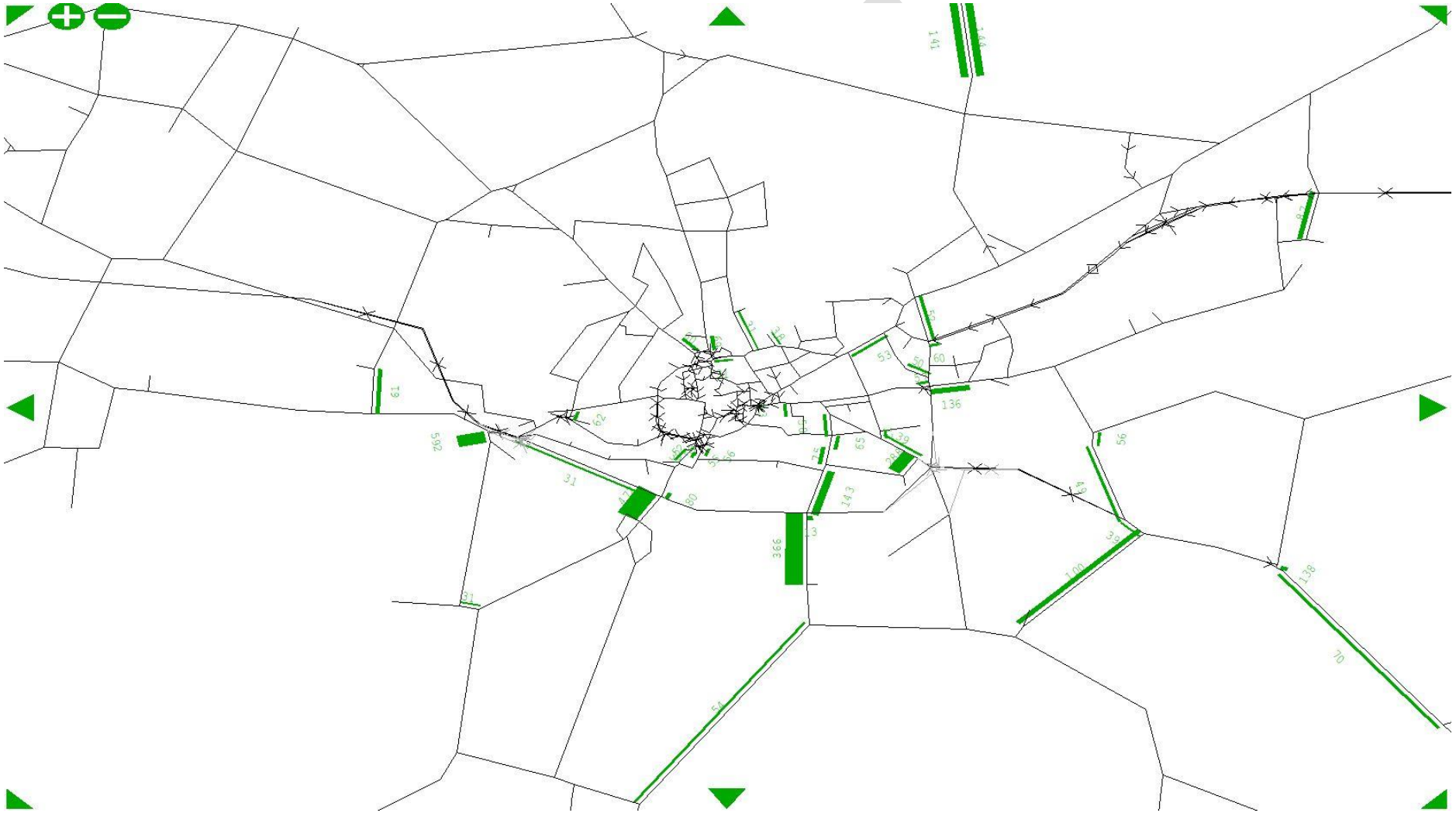
B.5 AM 2026 Local Plan with Fishbourne (No SLR)- STN Mitigation Delay (seconds)



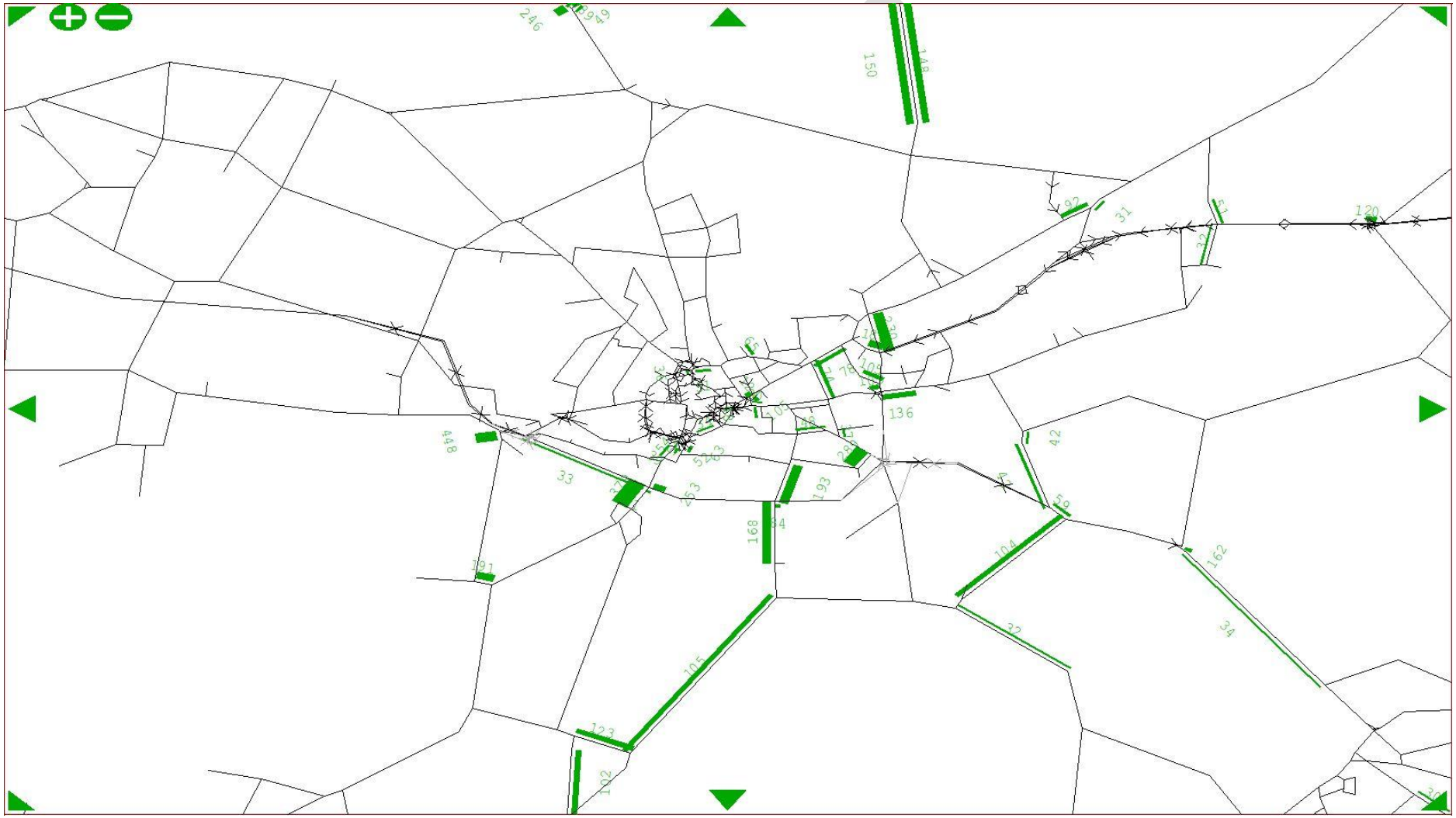
B.6 PM 2026 Local Plan with Fishbourne (No SLR)- STN Mitigation Delay (seconds)



B.7 AM 2026 Local Plan with Fishbourne (No SLR) and Bognor- STN Mitigation Delay (seconds)

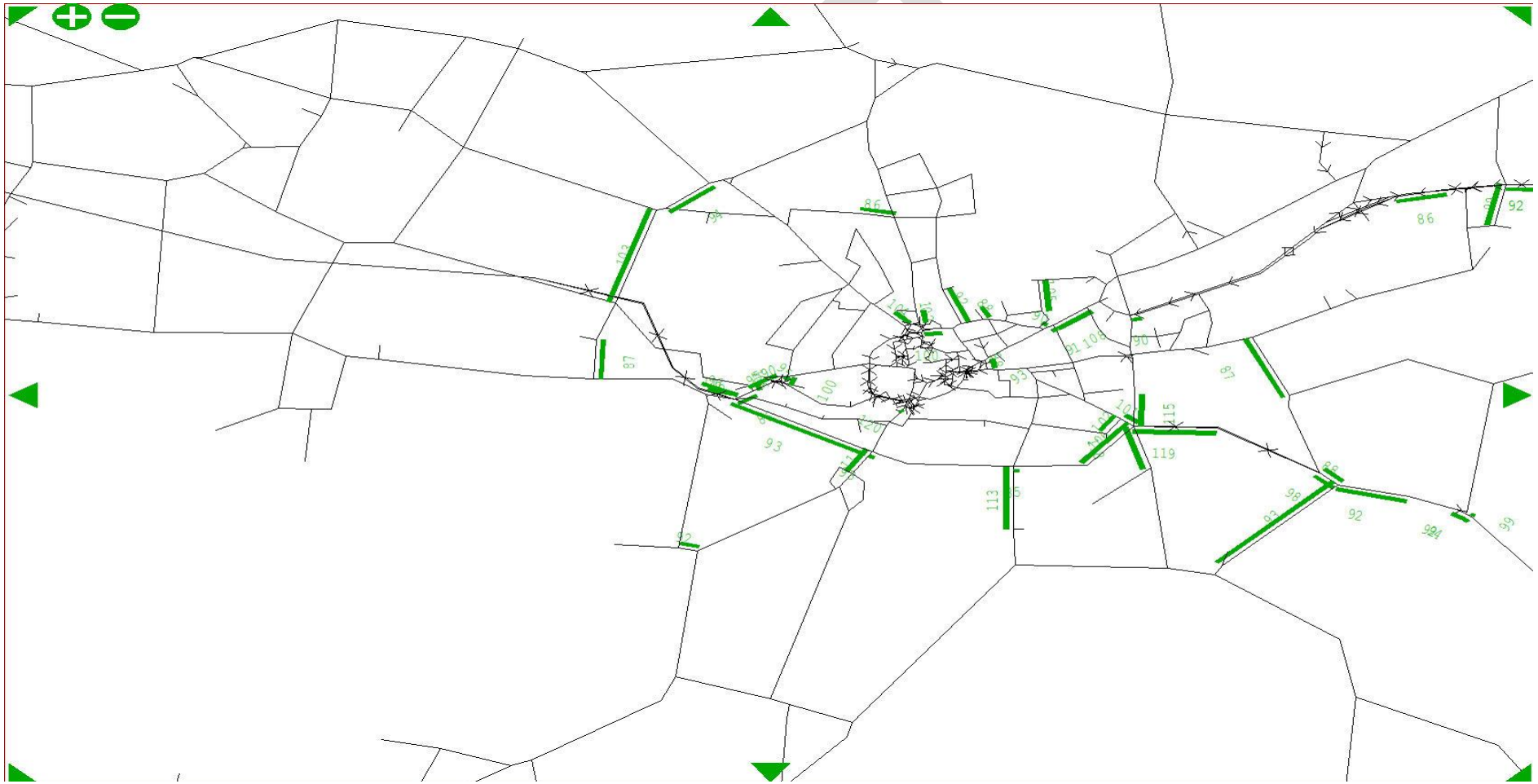


B.8 PM 2026 Local Plan with Fishbourne (No SLR) and Bognor- STN Mitigation Delay (seconds)



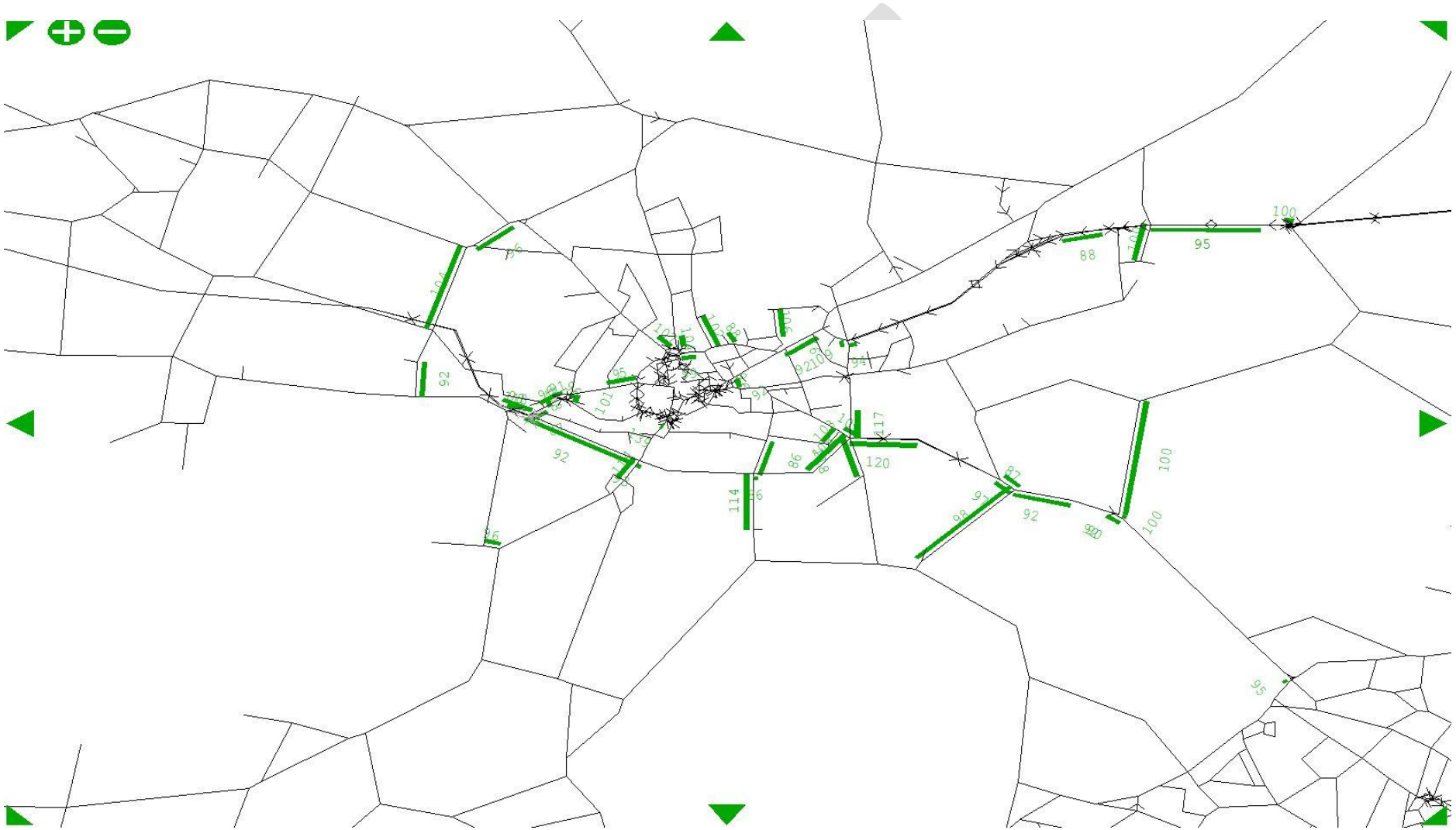
Appendix C 2026 V/C Outputs

C.1 AM 2026 Reference case V/C (%)

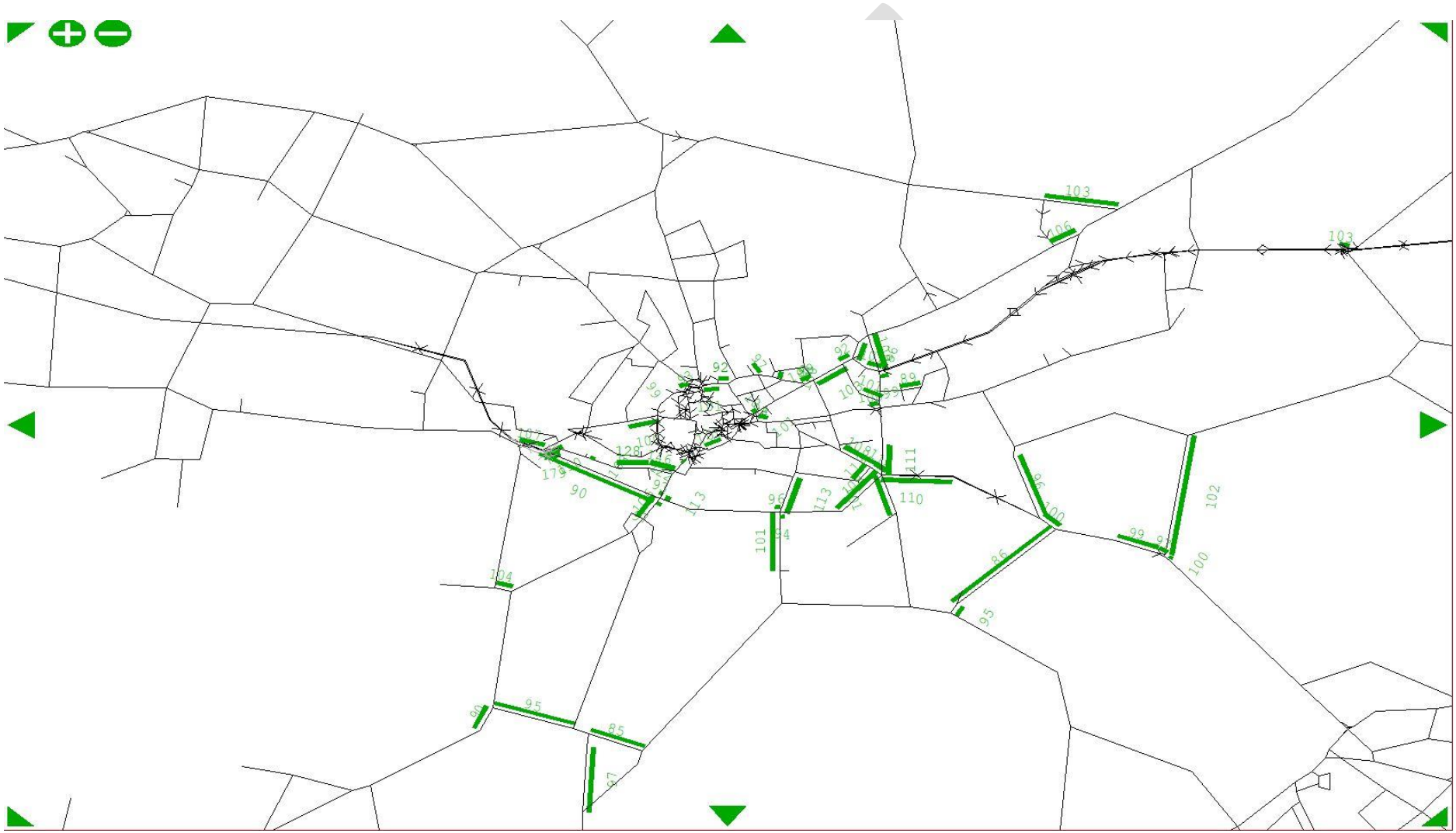


C.2 PM 2026 Reference case V/C (%)

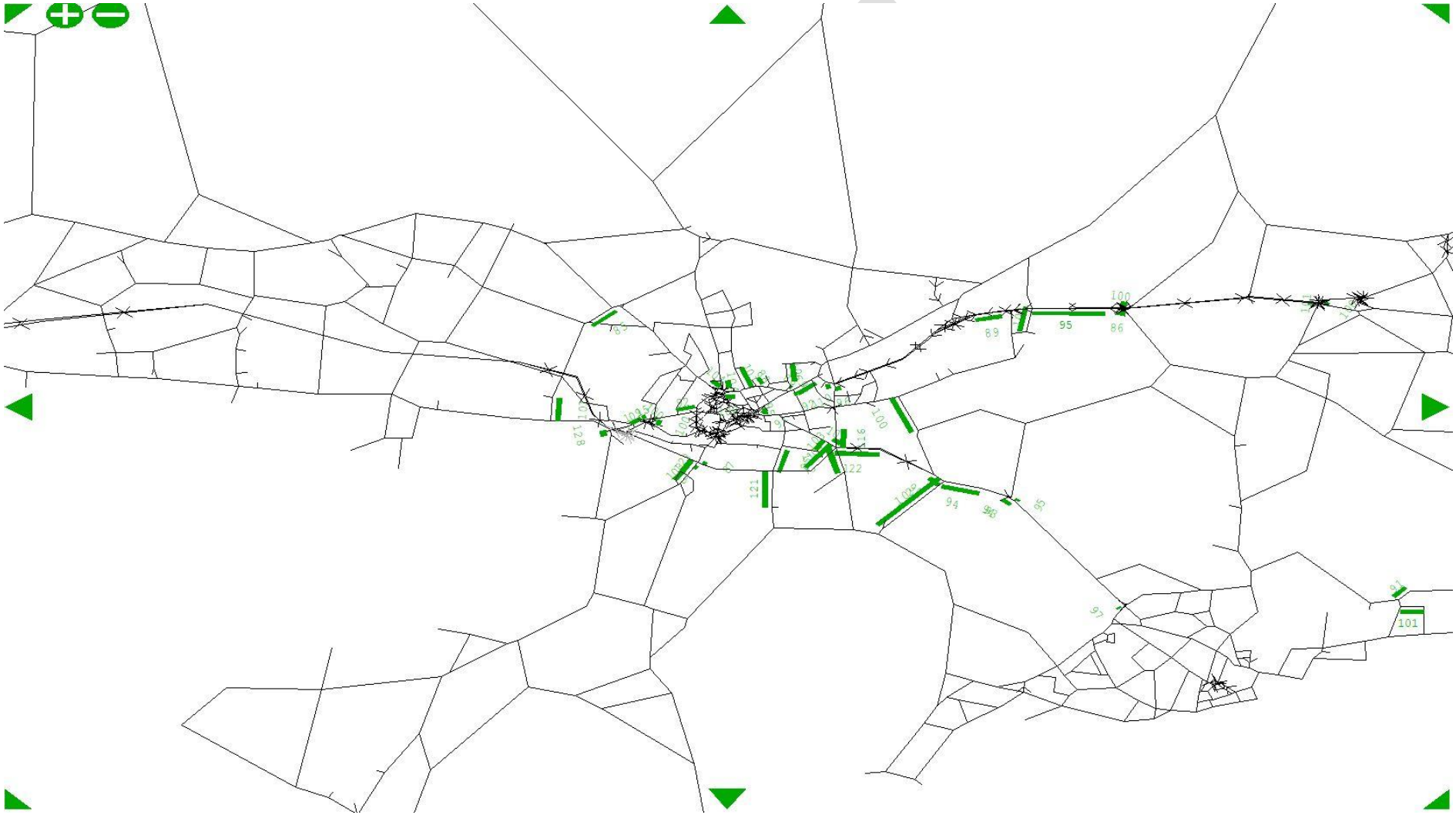
C.3 AM 2026 Local Plan Without Mitigation -V/C (%)



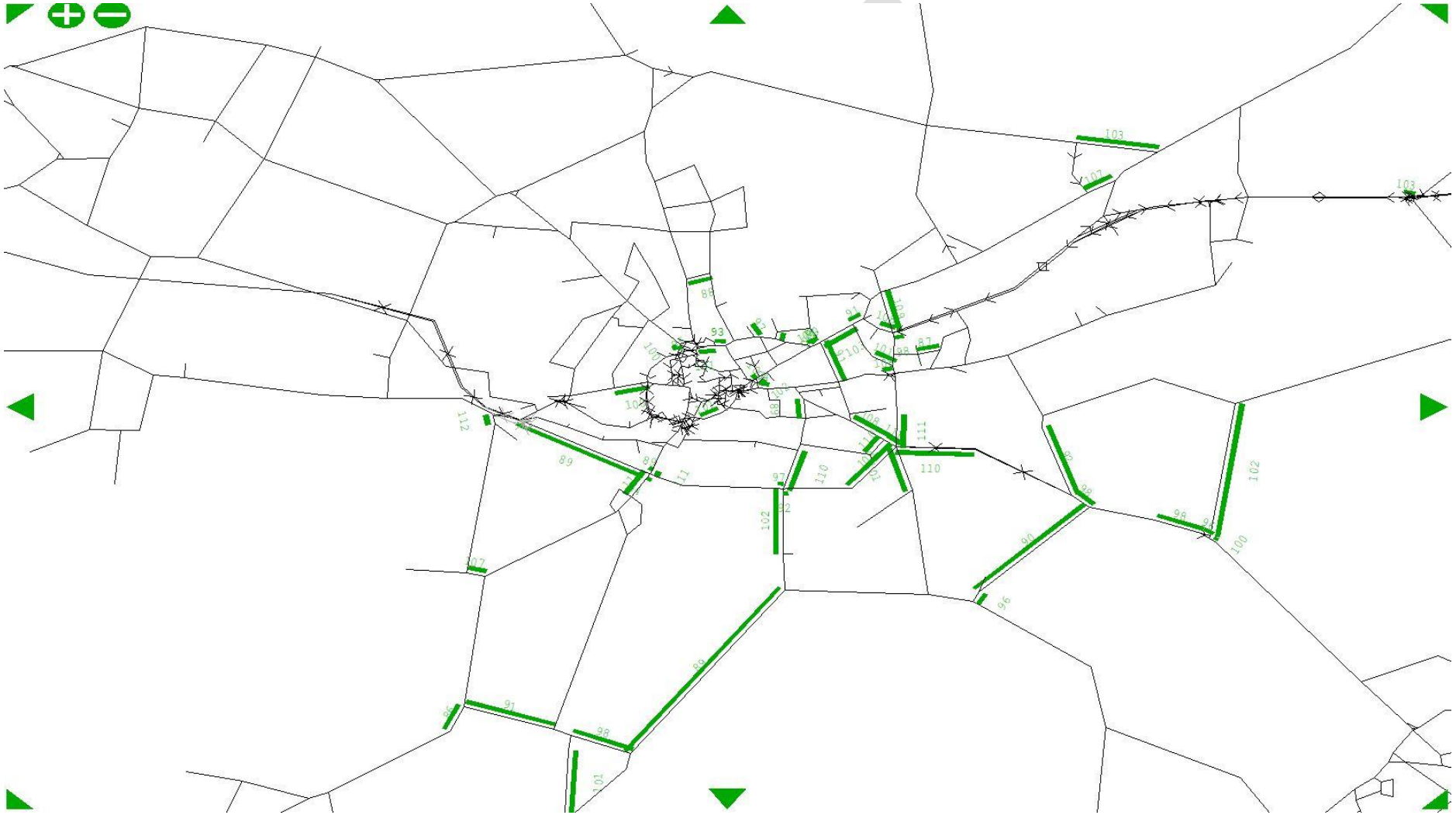
C.4 PM 2026 Local Plan Without Mitigation -V/C (%)



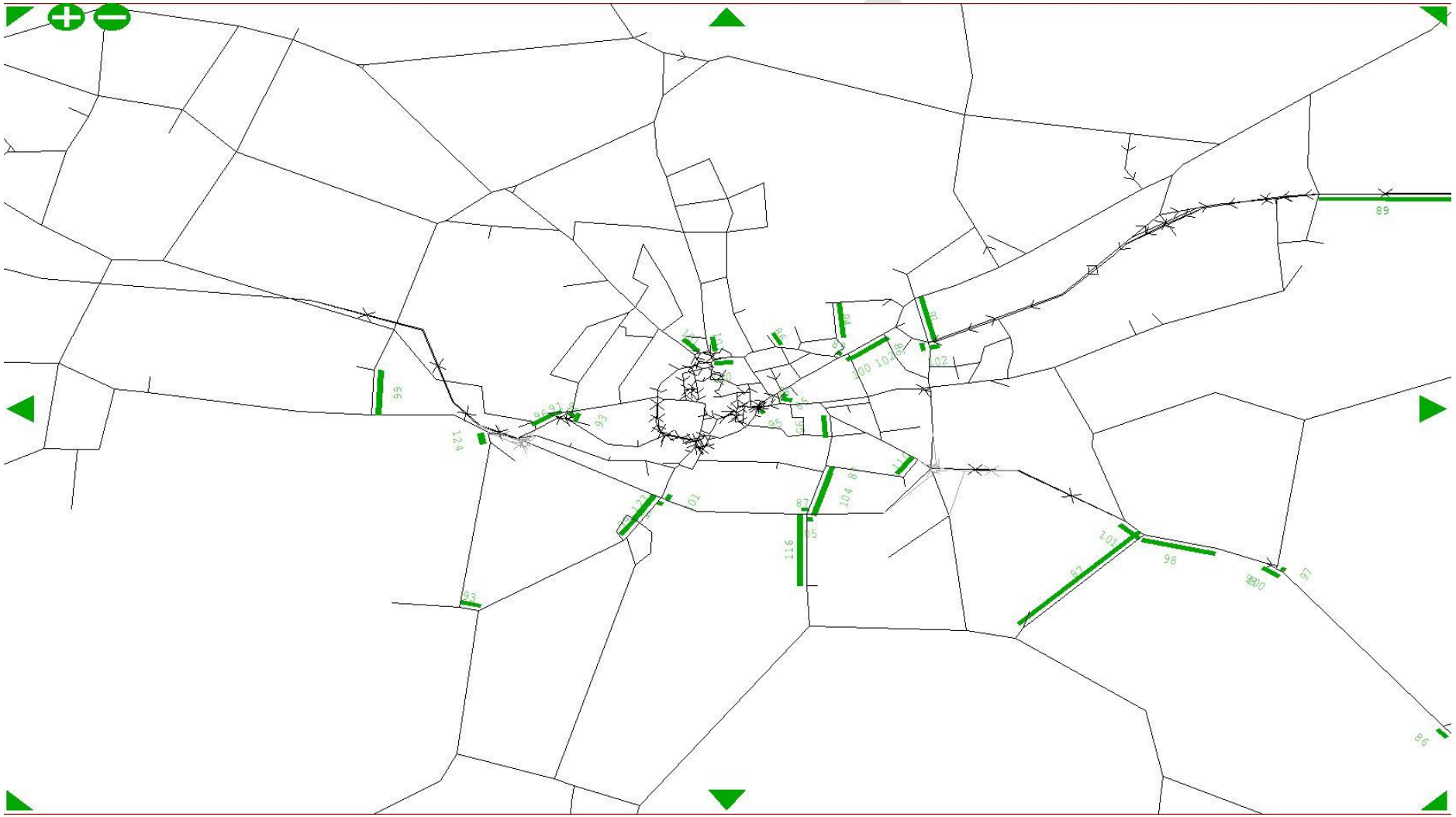
C.5 AM 2026 Local Plan with Fishbourne (No SLR)- STN Mitigation V/C (%)



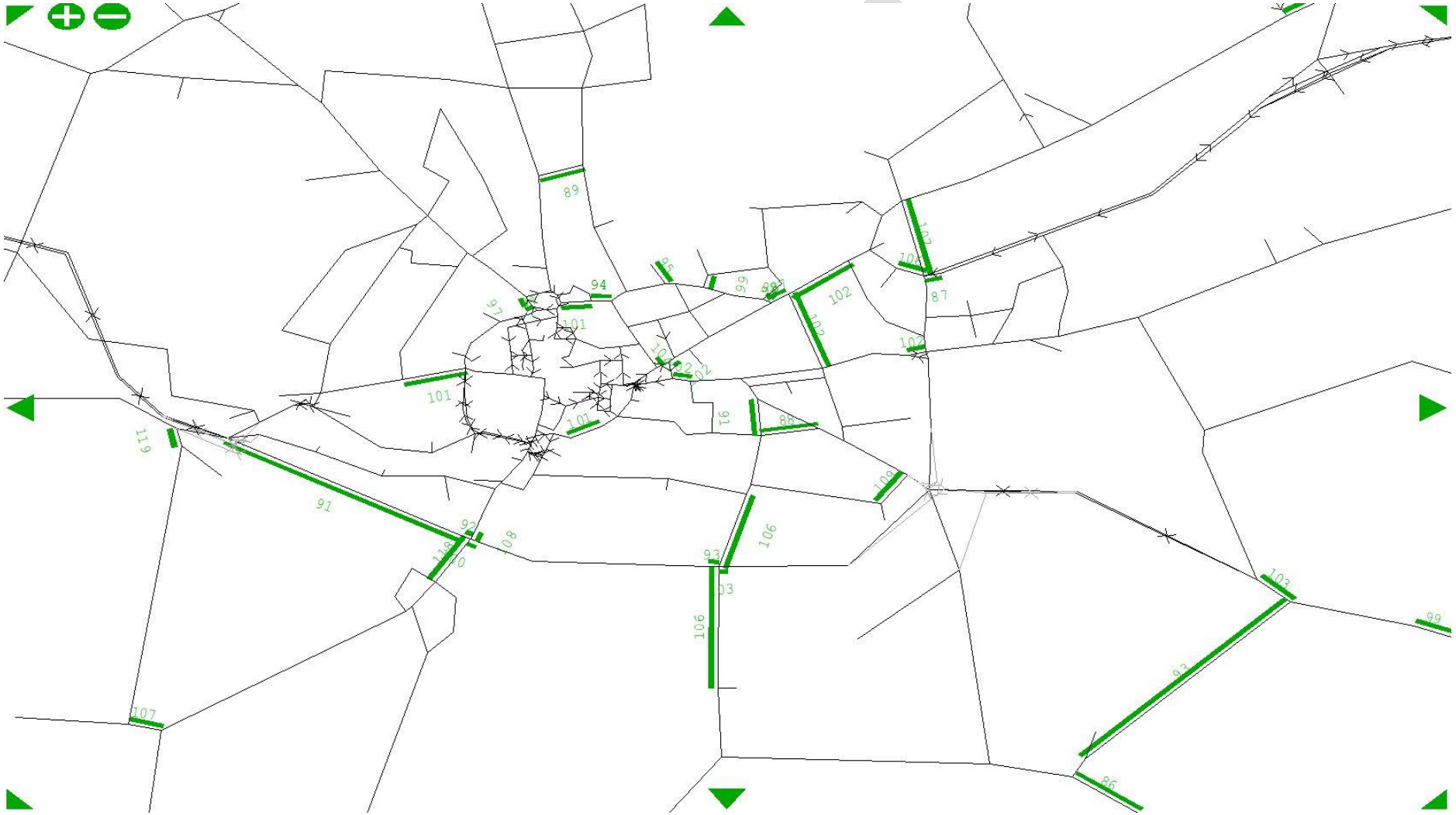
C.6 PM 2026 Local Plan with Fishbourne (No SLR)- STN Mitigation V/C (%)



C.7 AM 2026 Local Plan with Fishbourne (No SLR) and Bognor- STN Mitigation V/C (%)

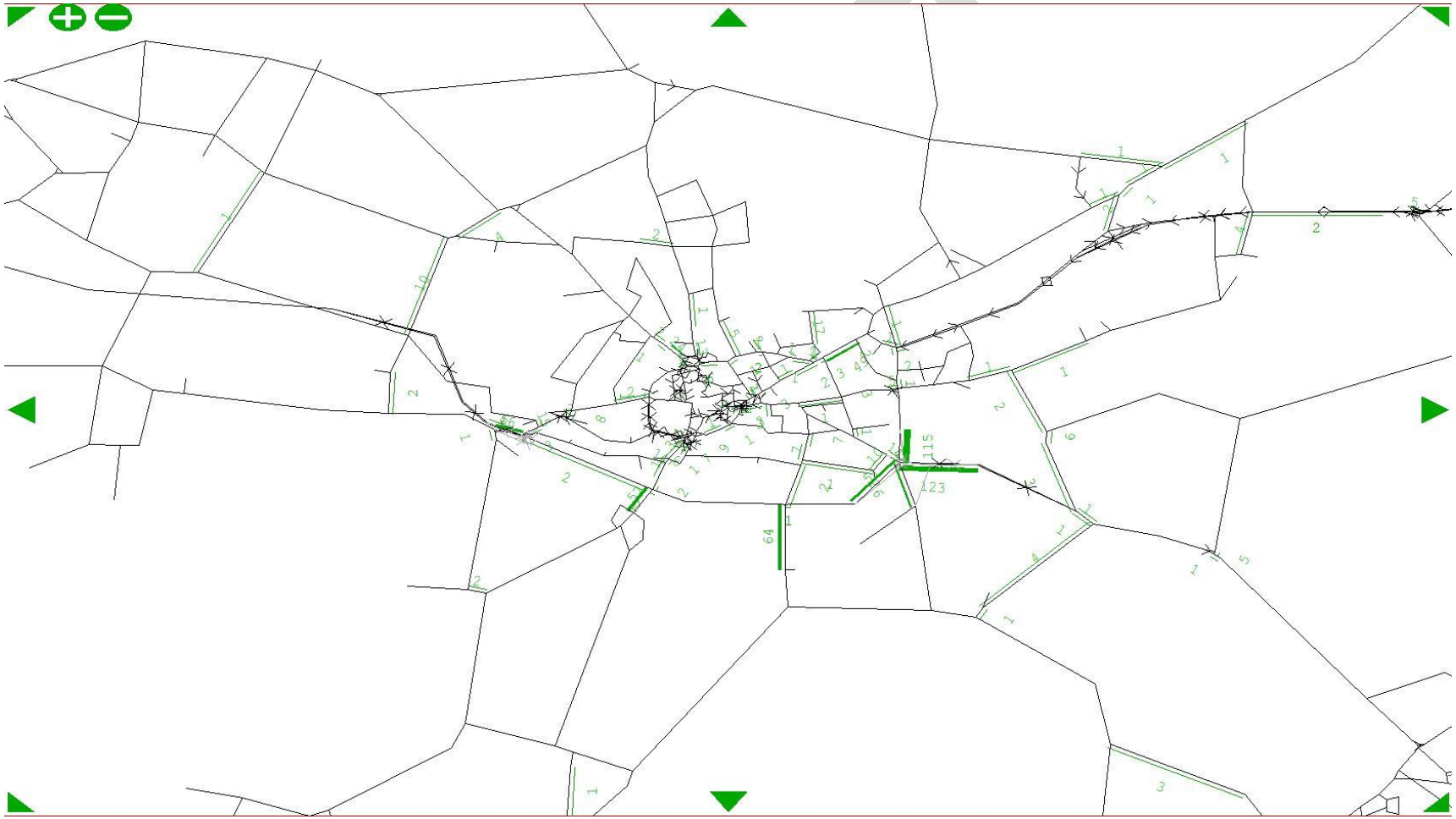


C.8 PM 2026 Local Plan with Fishbourne (No SLR) and Bognor- STN Mitigation V/C (%)

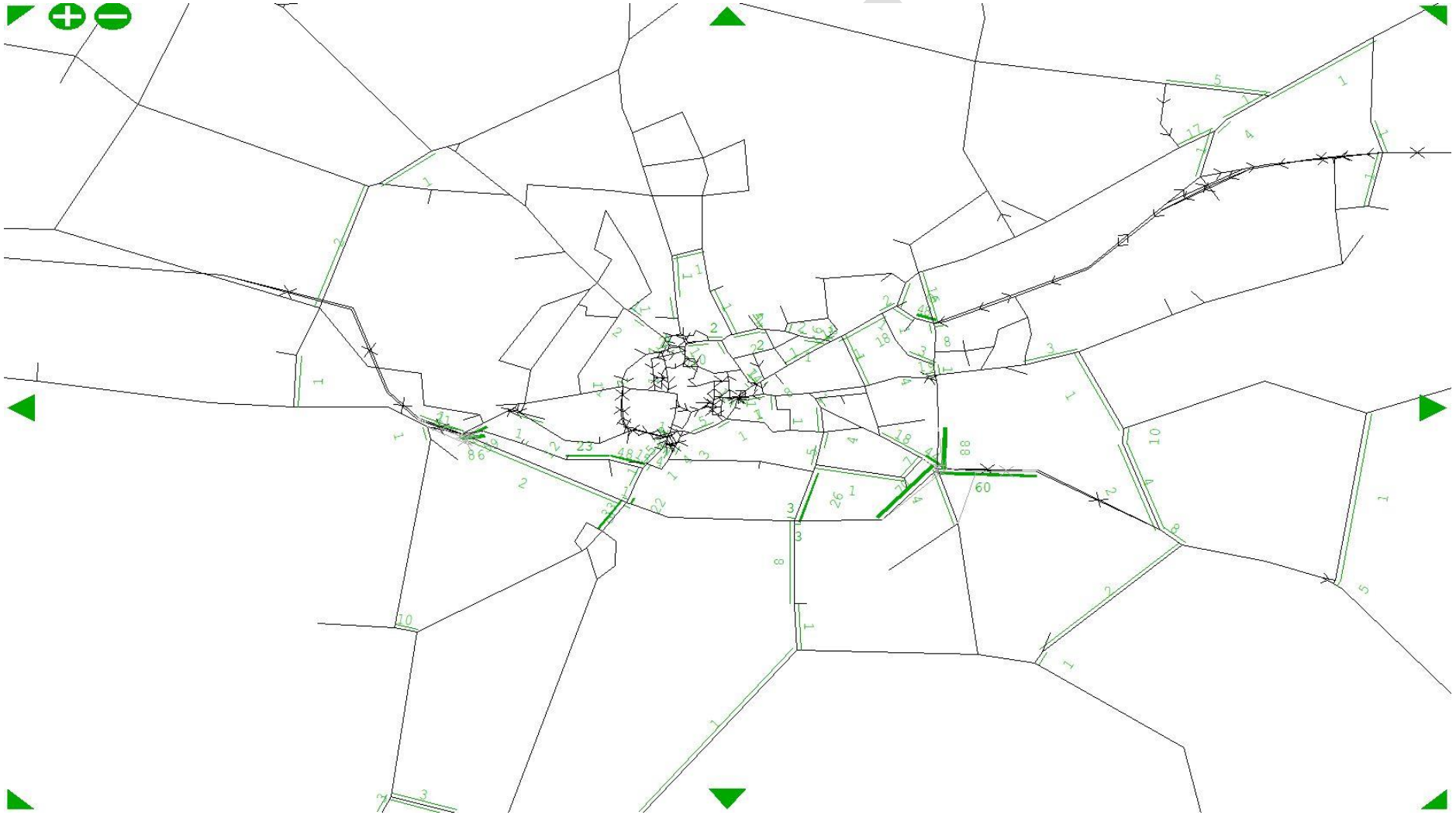


Appendix D 2026 Average Queue Outputs

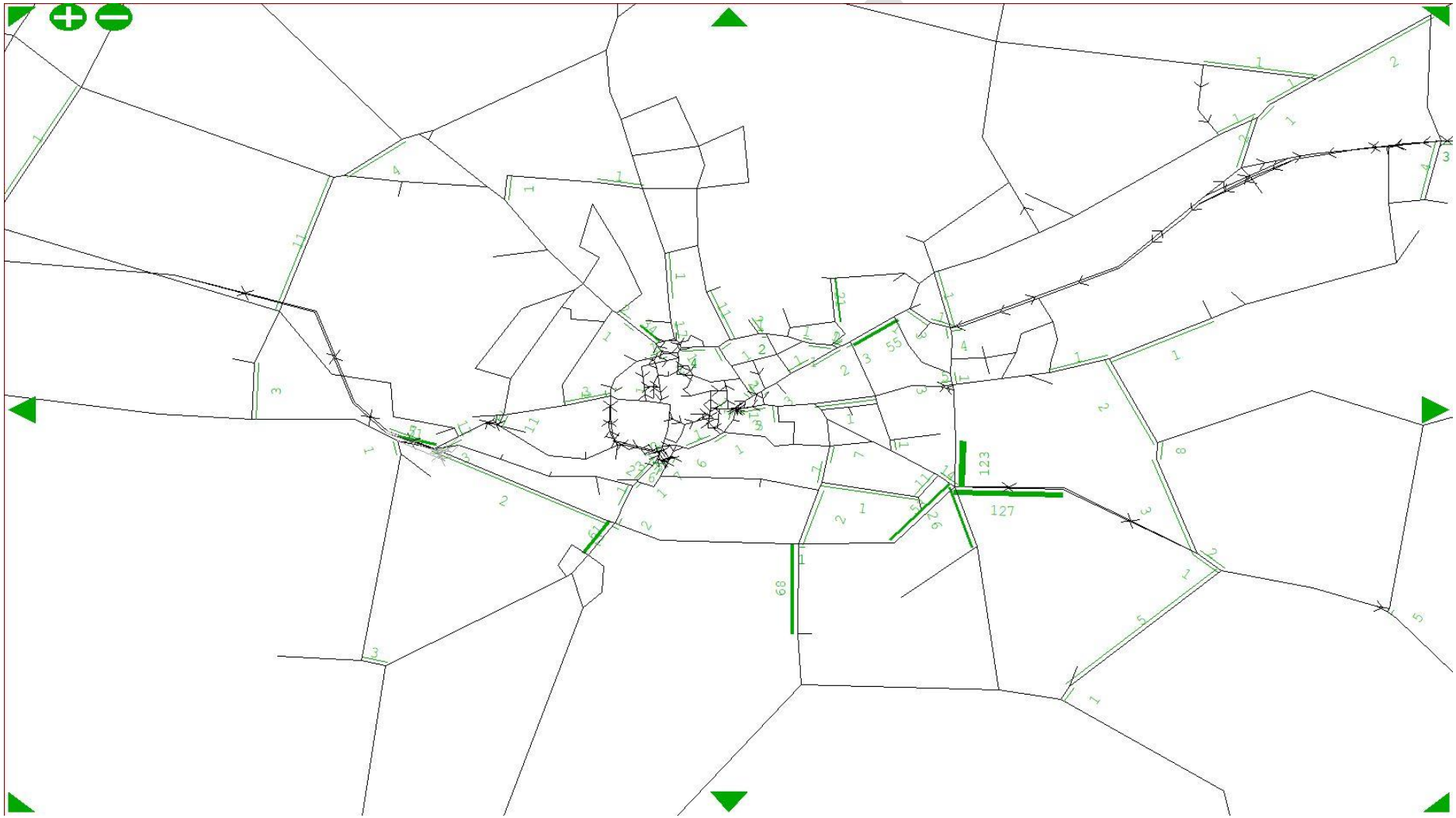
D.1 AM 2026 Reference case AVERAGE QUEUE (PCU)



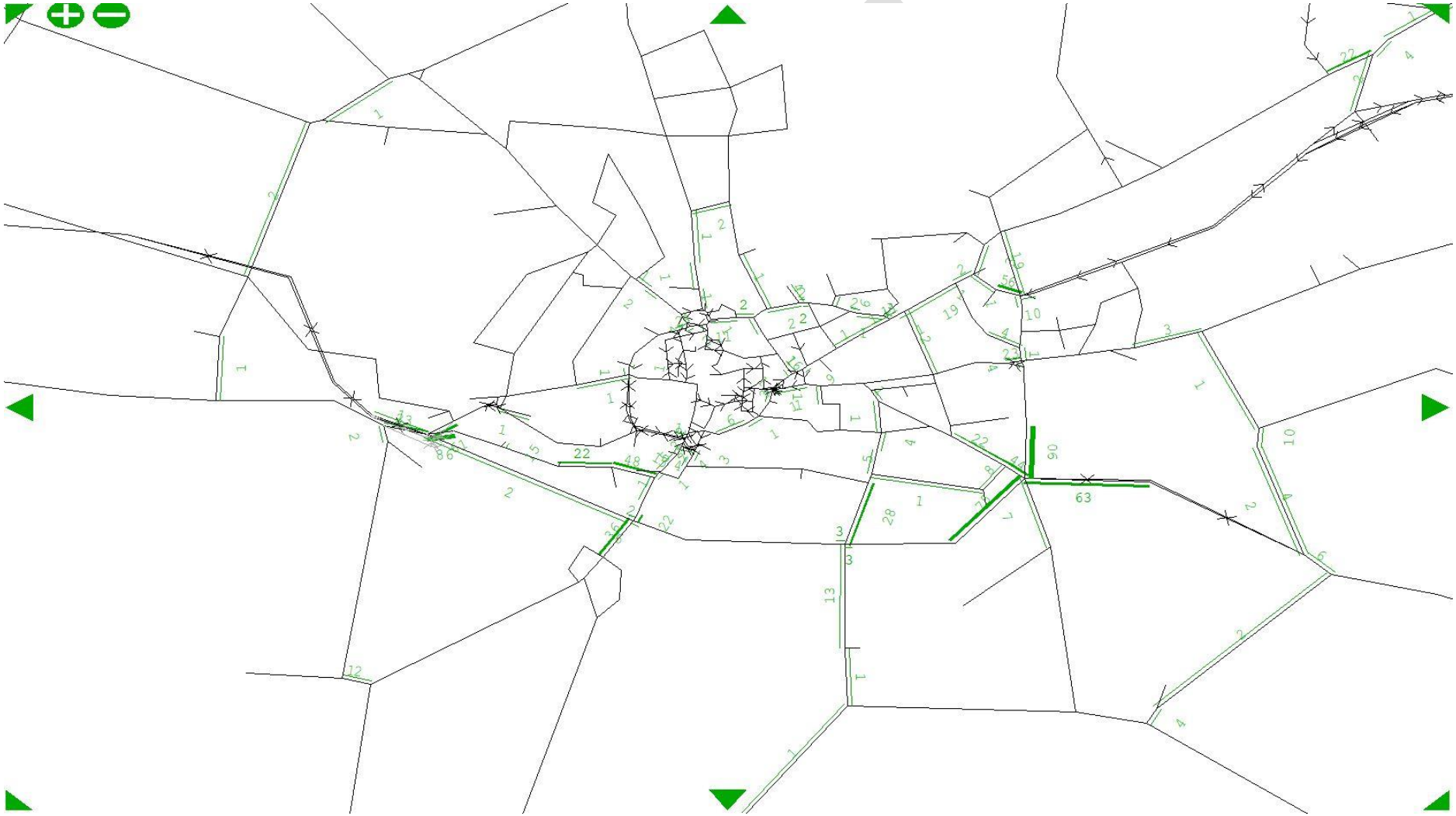
D.2 PM 2026 Reference case AVERAGE QUEUE (PCU)



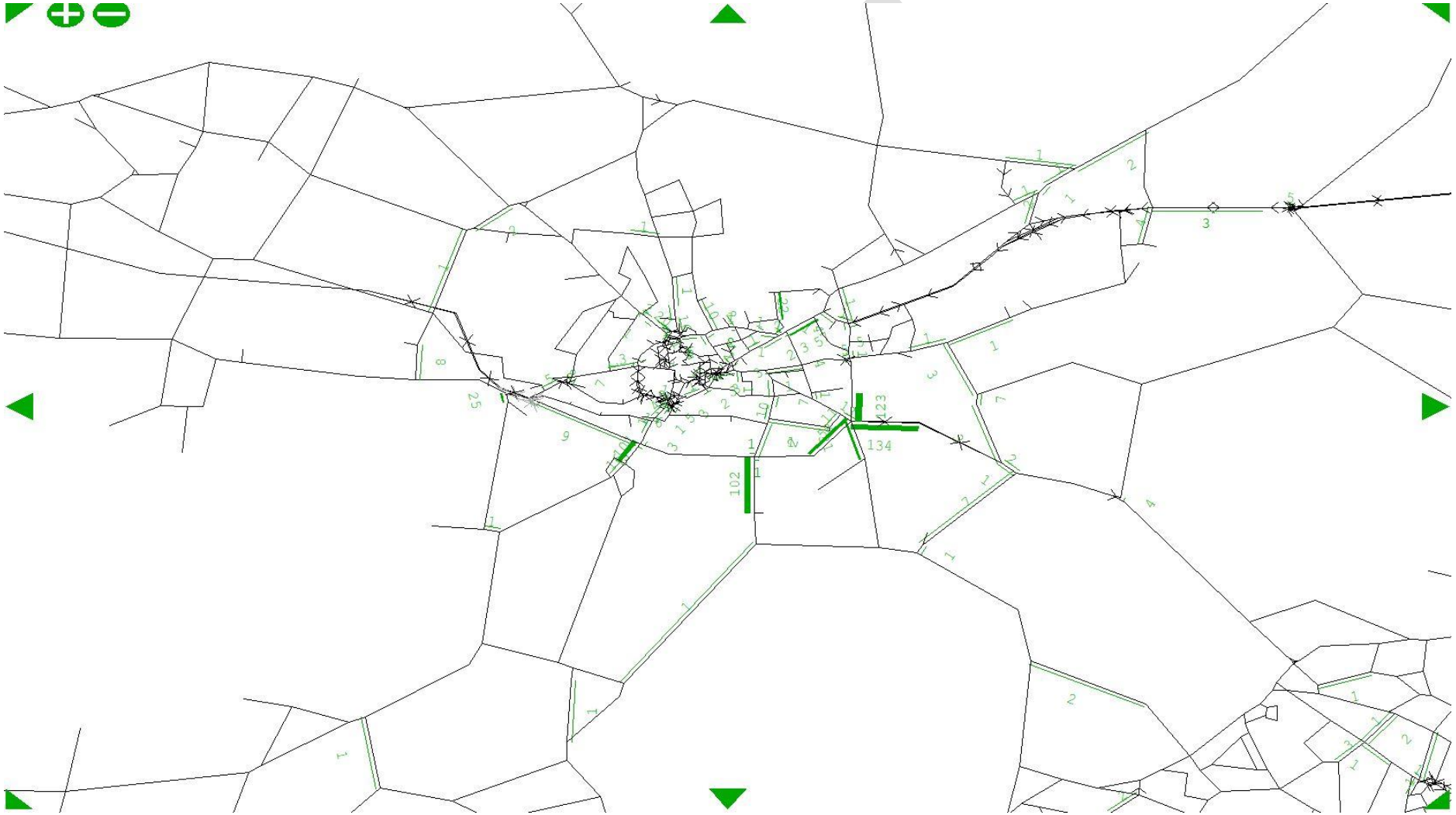
D.3 AM 2026 Local Plan Without Mitigation -AVERAGE QUEUE (PCU)



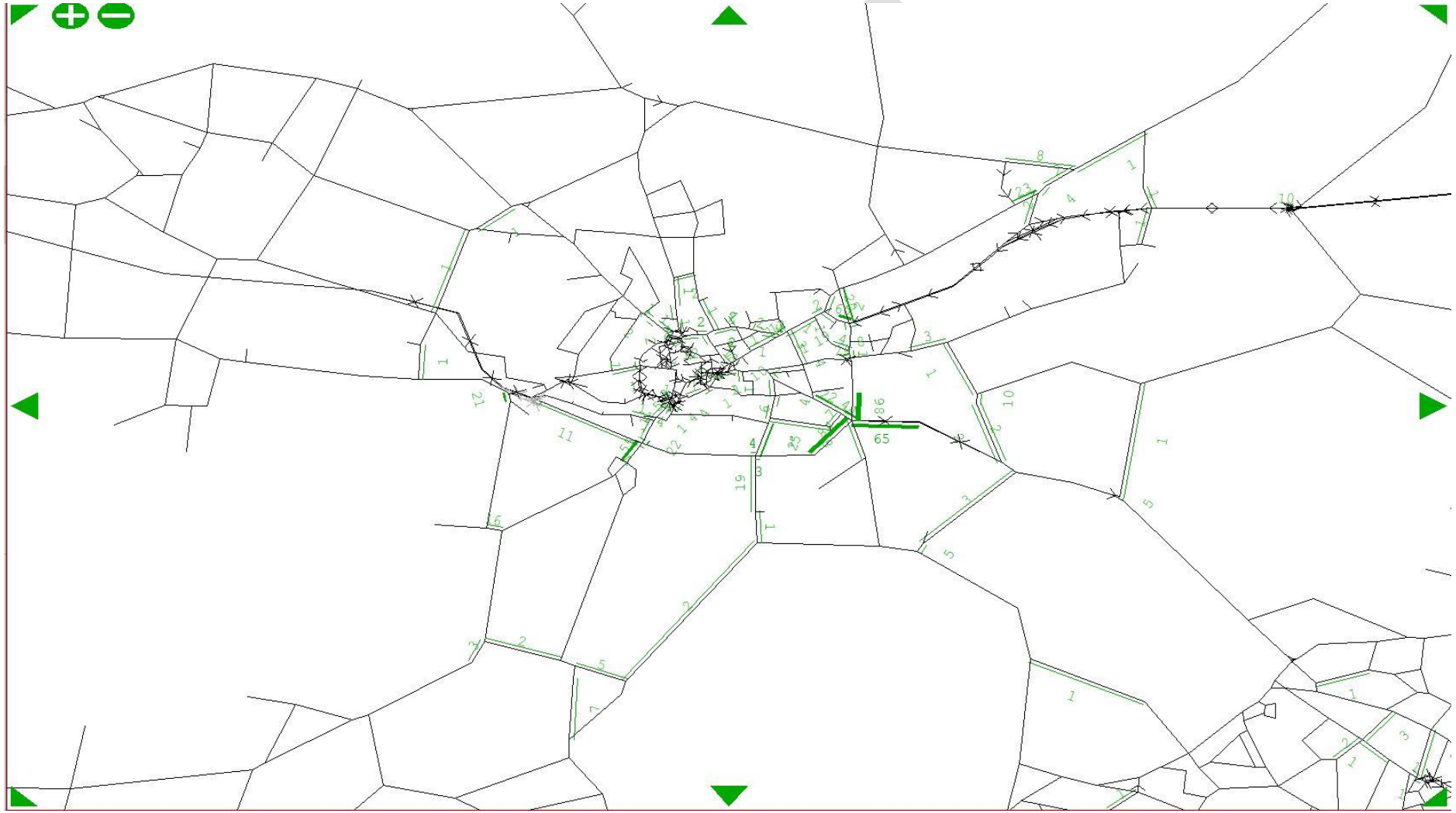
D.4 PM 2026 Local Plan Without Mitigation -AVERAGE QUEUE (PCU)



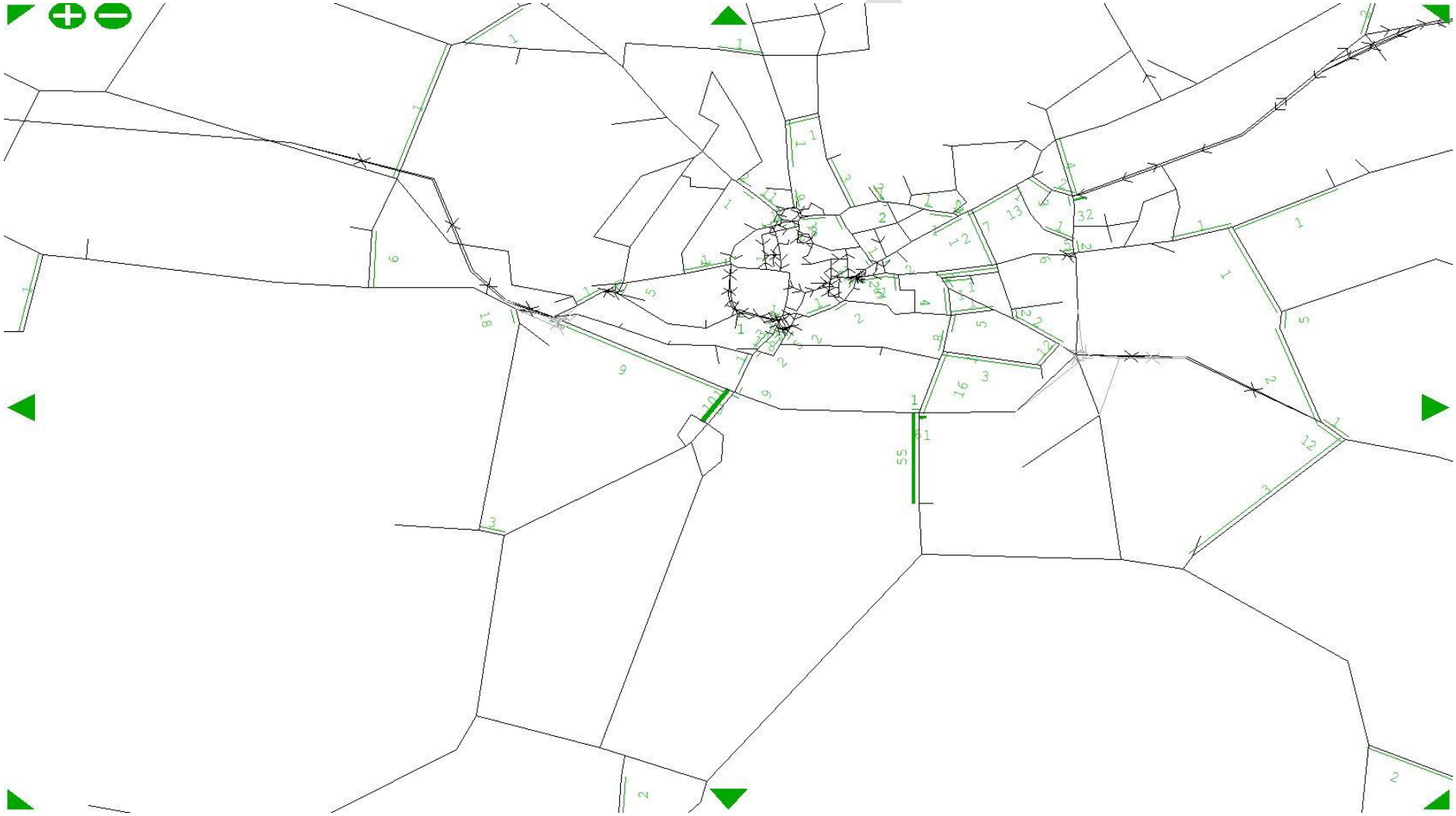
D.5 AM 2026 Local Plan with Fishbourne (No SLR)- STN Mitigation AVERAGE QUEUE (PCU)



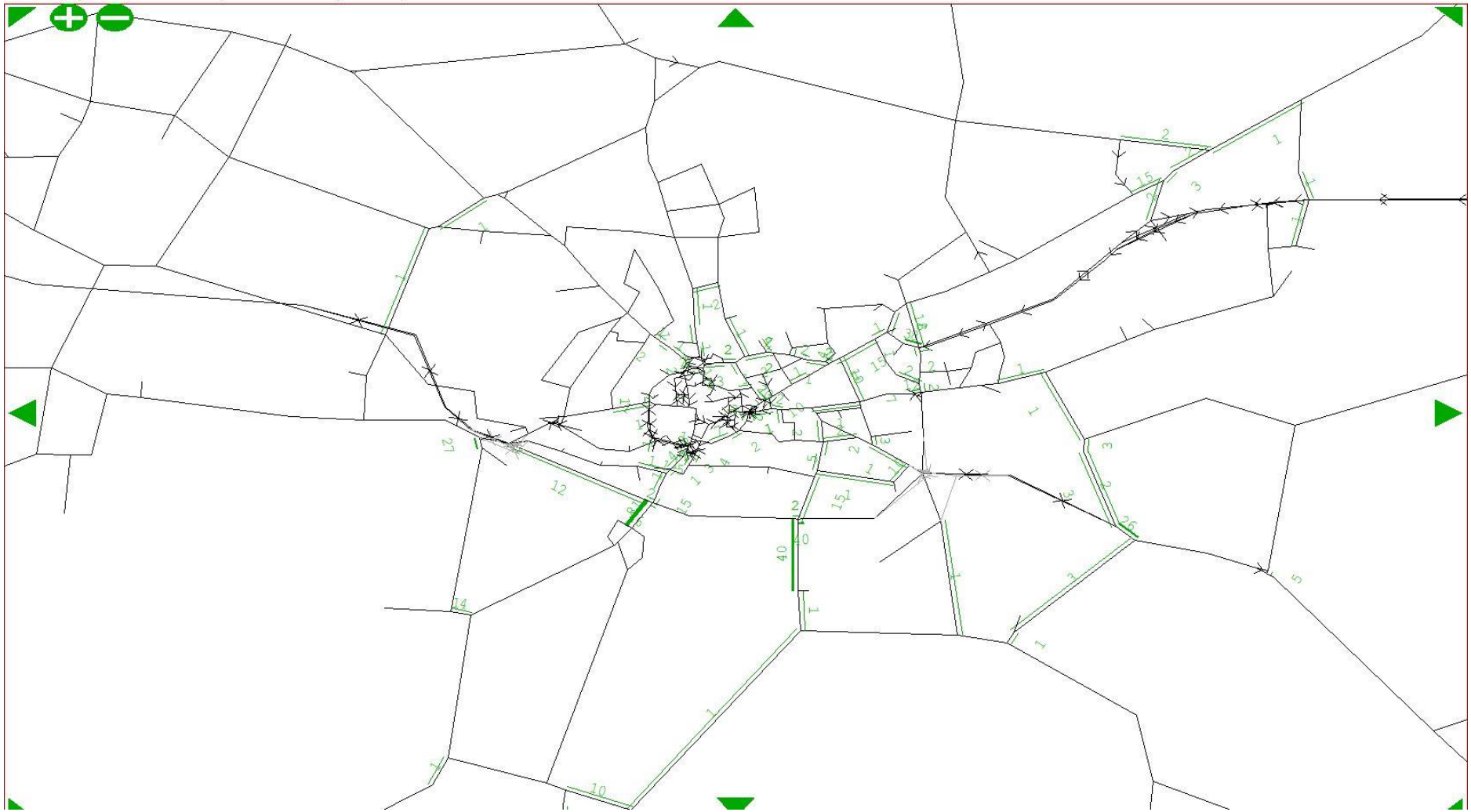
D.6 PM 2026 Local Plan with Fishbourne (No SLR)- STN Mitigation AVERAGE QUEUE (PCU)



D.7 AM 2026 Local Plan with Fishbourne (No SLR) and Bognor- STN Mitigation AVERAGE QUEUE (PCU)

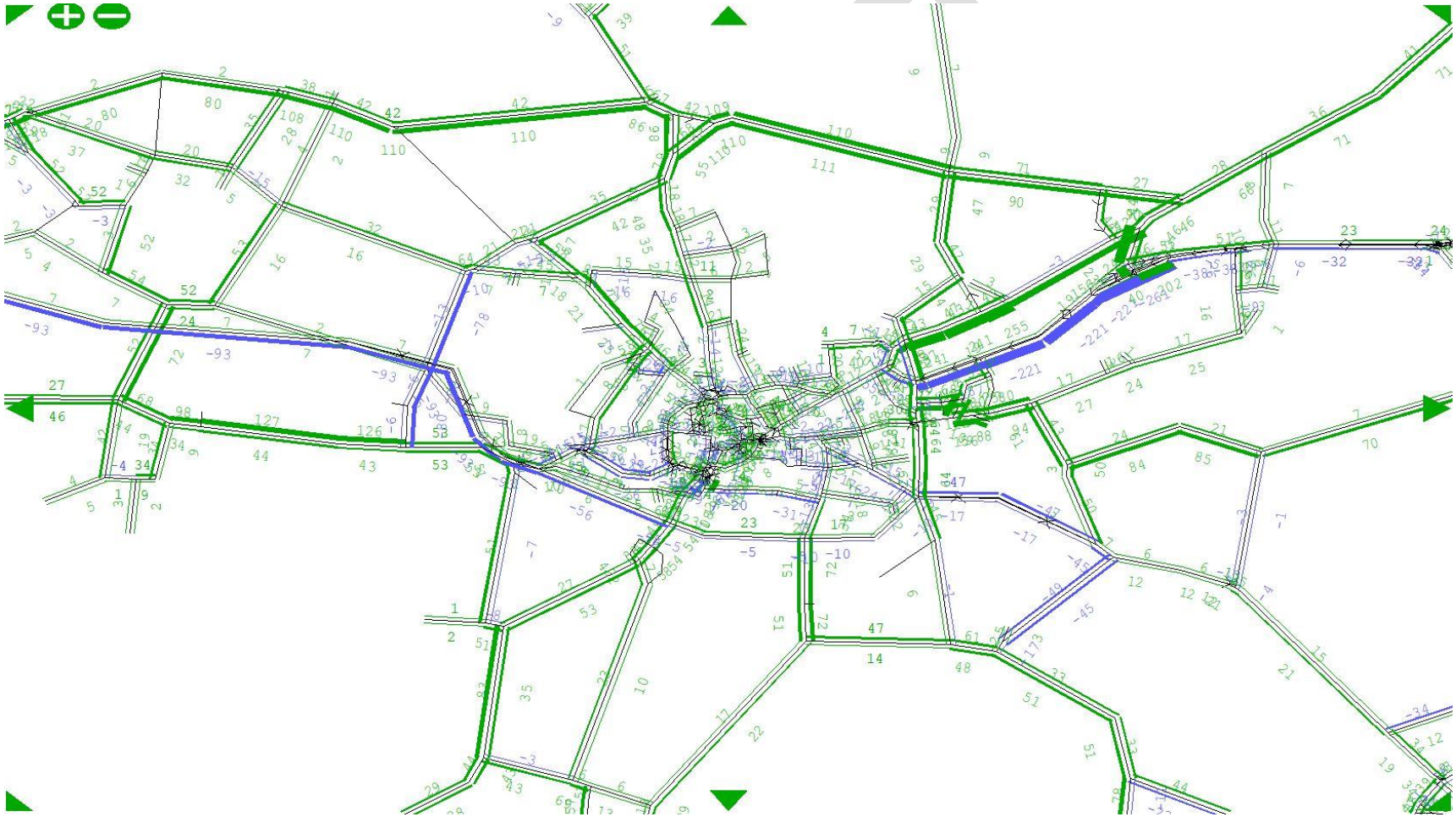


D.8 PM 2026 Local Plan with Fishbourne (No SLR) and Bognor- STN Mitigation AVERAGE QUEUE (PCU)

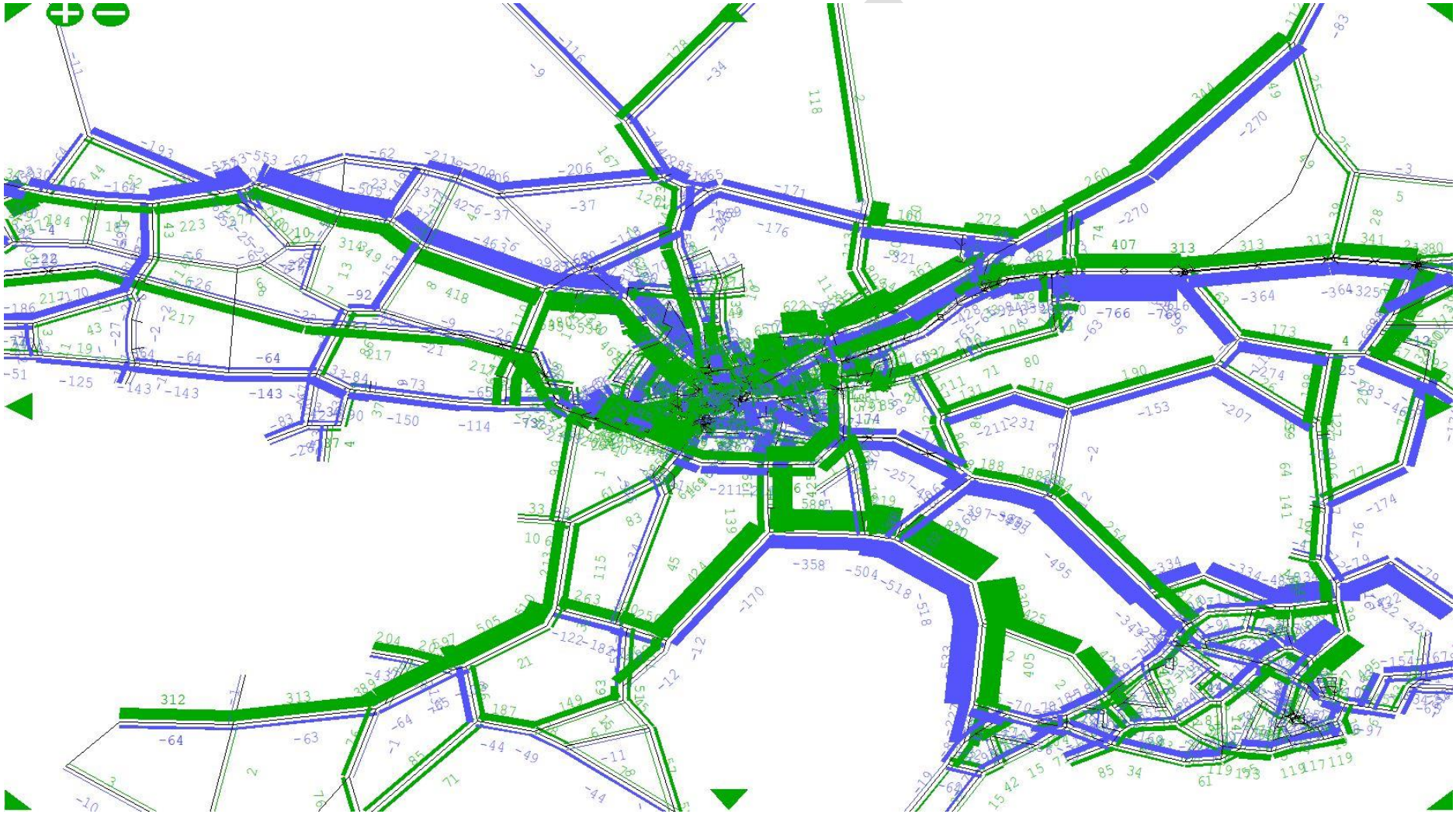


Appendix E 2031 Flow Changes Scenario

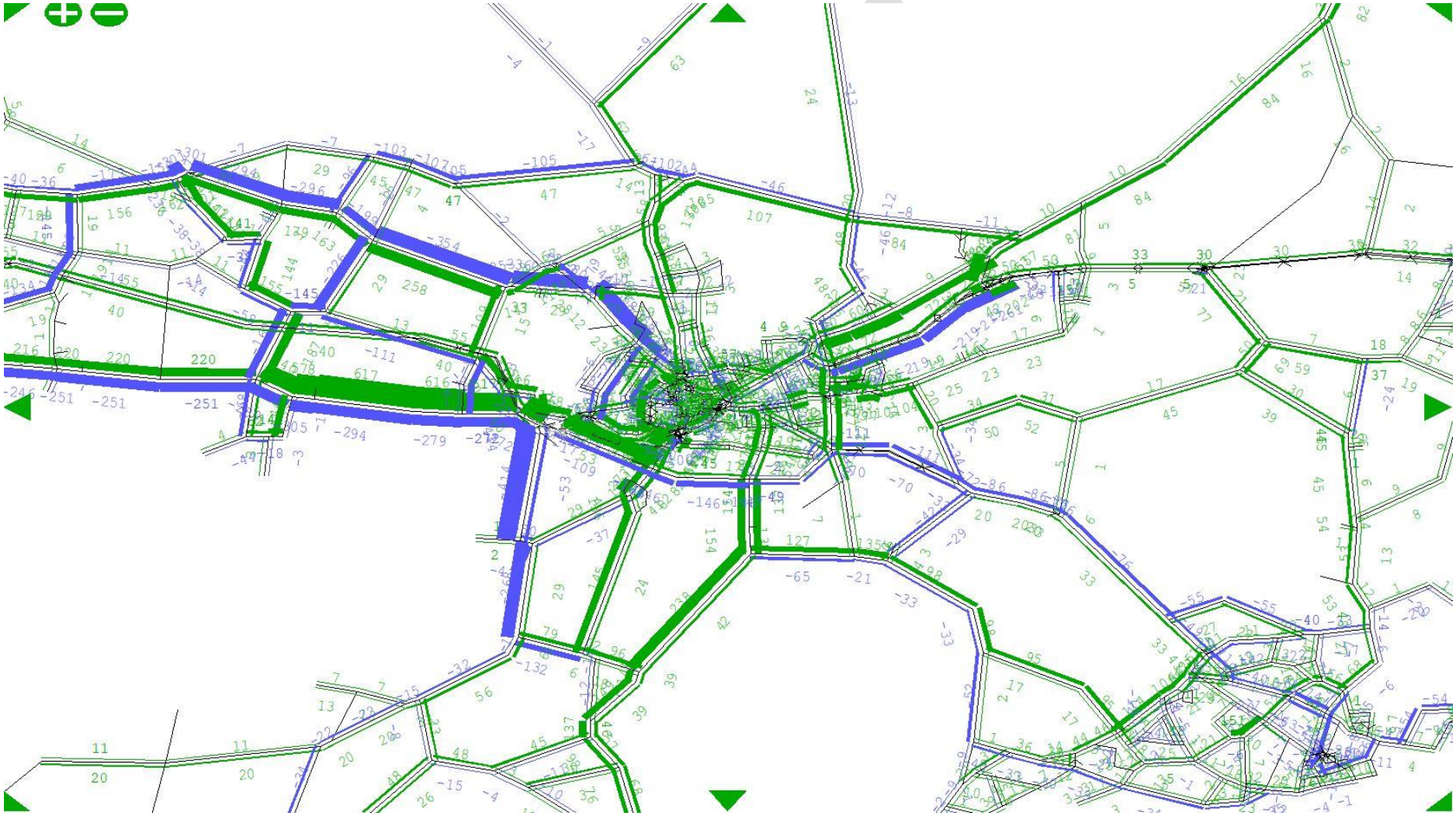
E.1 AM 2031 Local Plan with No Mitigation minus 2031 Reference Case



E.2 PM 2031 Local Plan with No Mitigation minus 2031 Reference Case

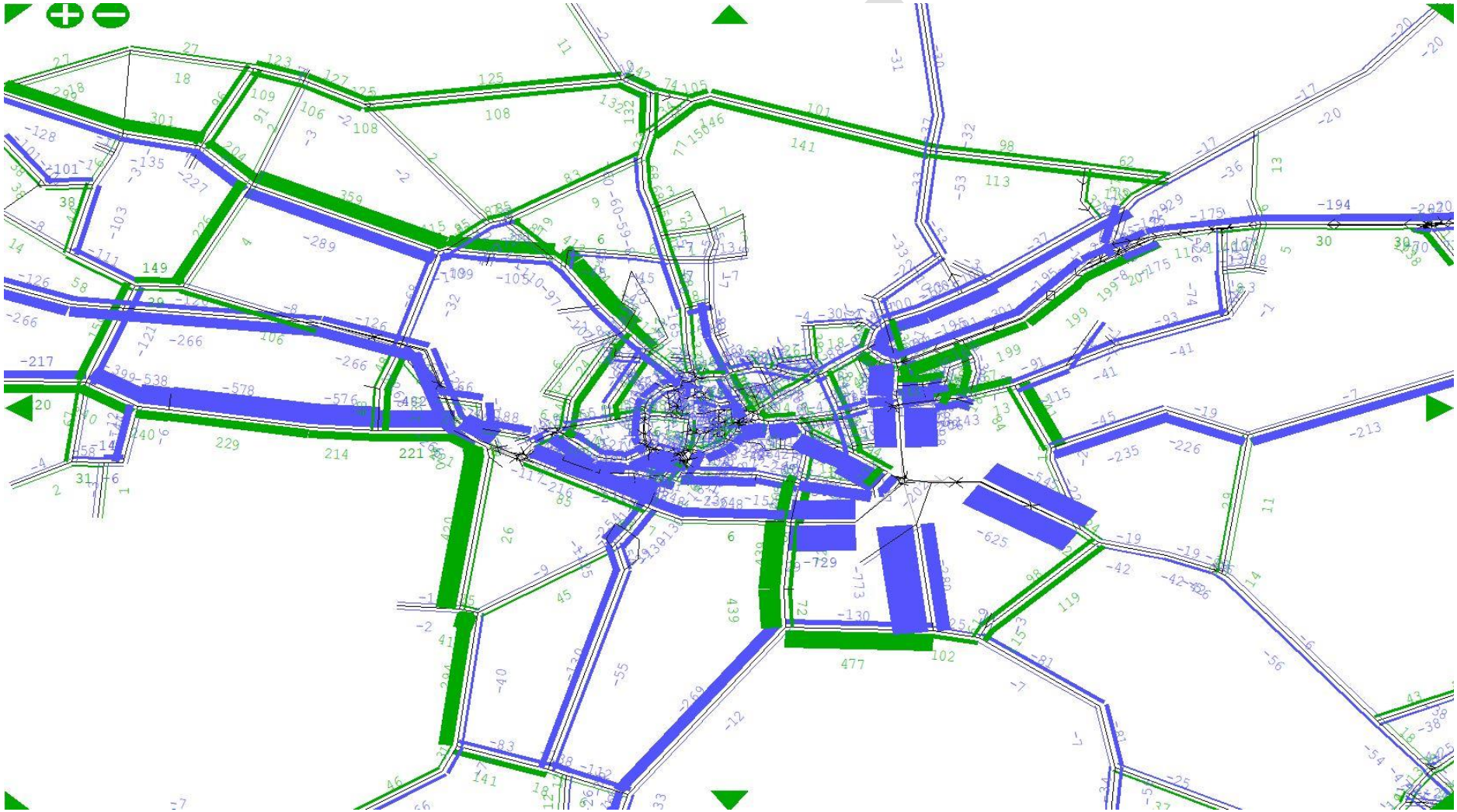


E.3 AM- 2031 Local Plan with Fishbourne (No SLR)- STN Mitigation minus 2031 Reference Case



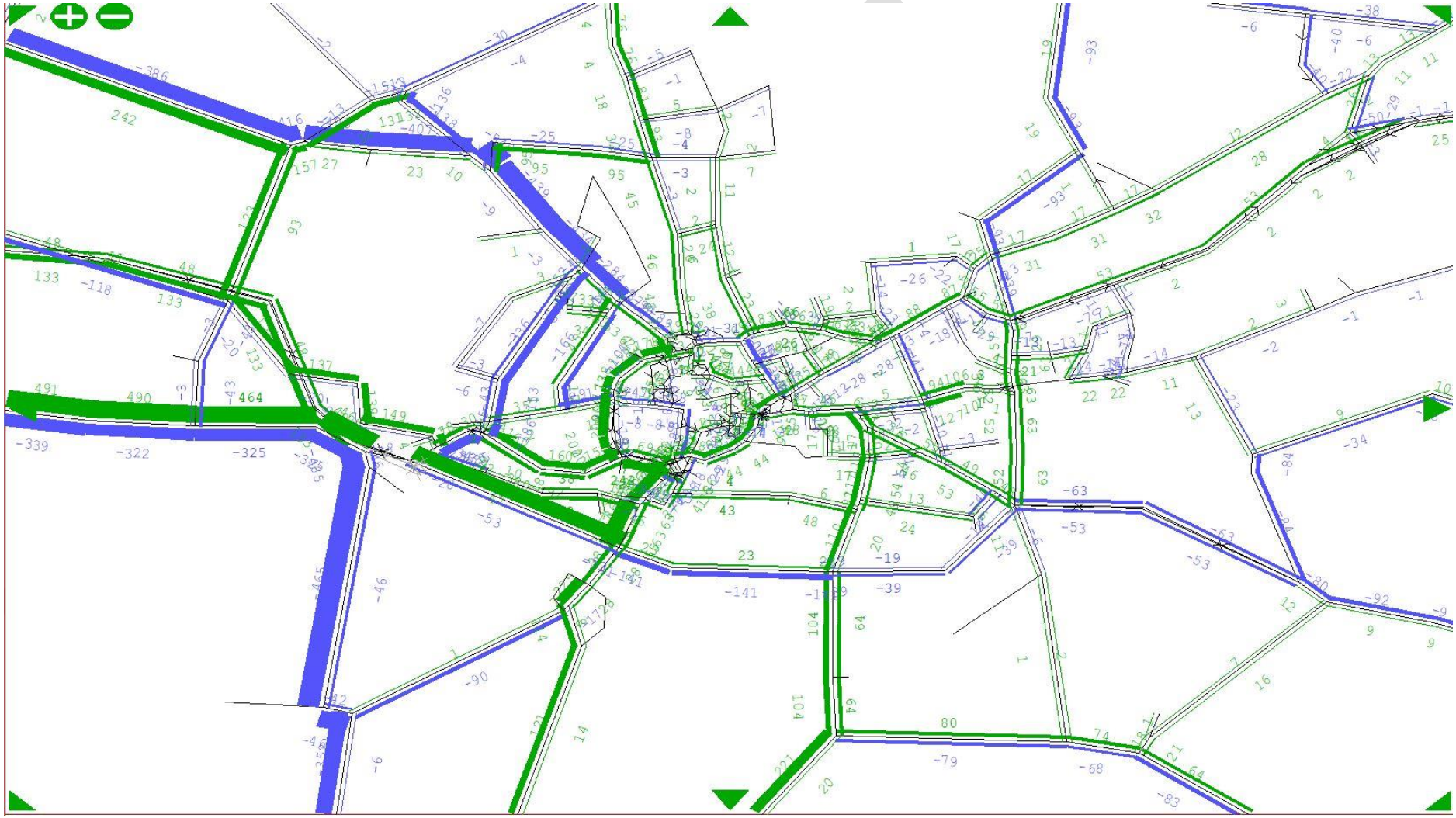
E.4 PM 2031 Local Plan with Fishbourne (No SLR)- STN Mitigation minus 2031 Reference Case

E.5 AM 2031 Local Plan with Fishbourne (No SLR)- STN Mitigation and Bognor minus 2031 Reference Case

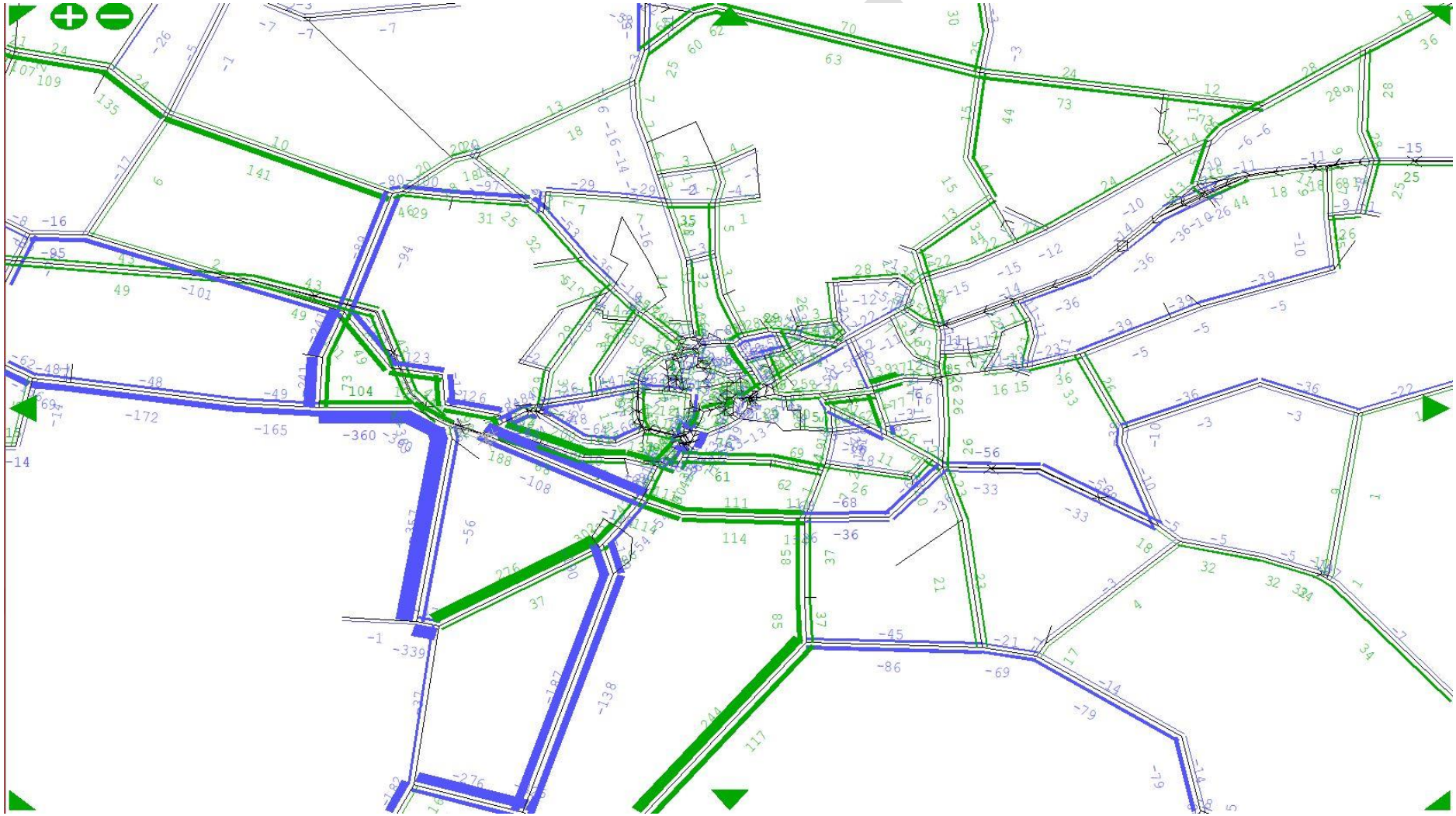


E.6 PM 2031 Local Plan with Fishbourne (No SLR)- STN Mitigation and Bognor minus 2031 Reference Case

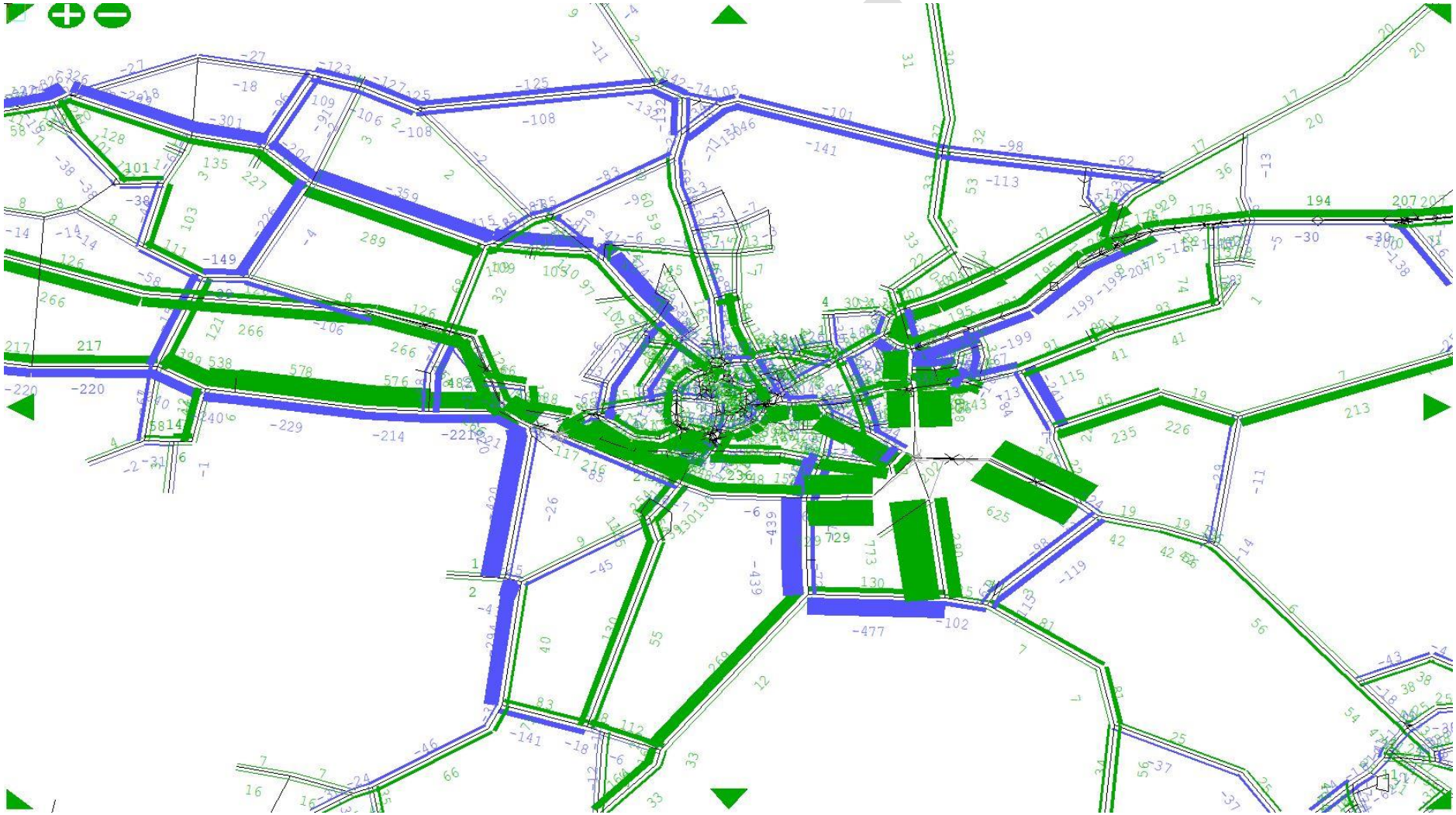
E.7 AM 2031 Local Plan with Fishbourne (No SLR)- STN Mitigation minus 2031 Local plan Without Mitigation



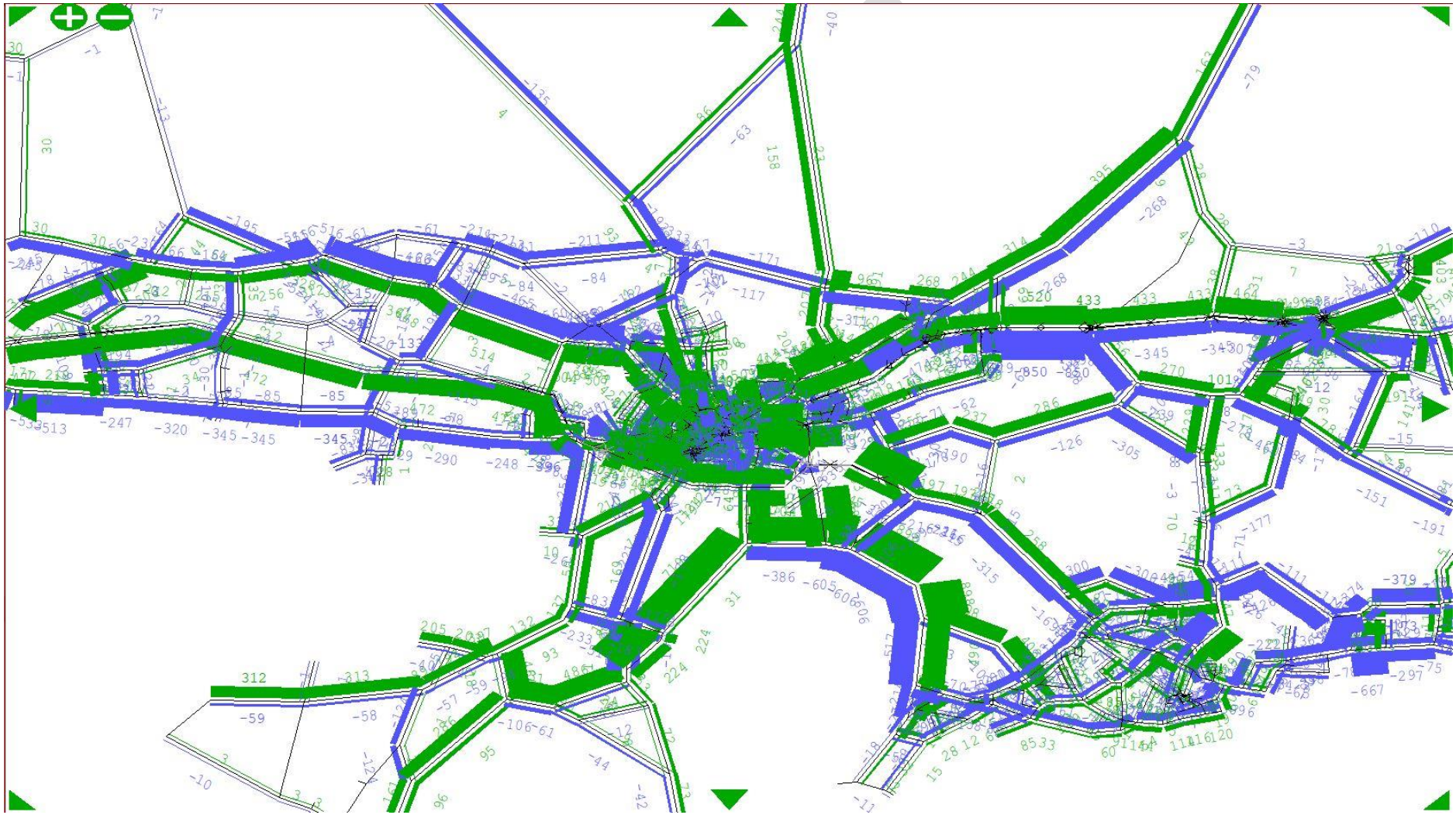
E.8 PM 2031 Local Plan with Fishbourne (No SLR)- STN Mitigation minus 2031 Local plan Without Mitigation



E.9 AM 2031 Local Plan with Fishbourne (No SLR)- STN Mitigation and Bognor minus 2031 Local plan Without Mitigation

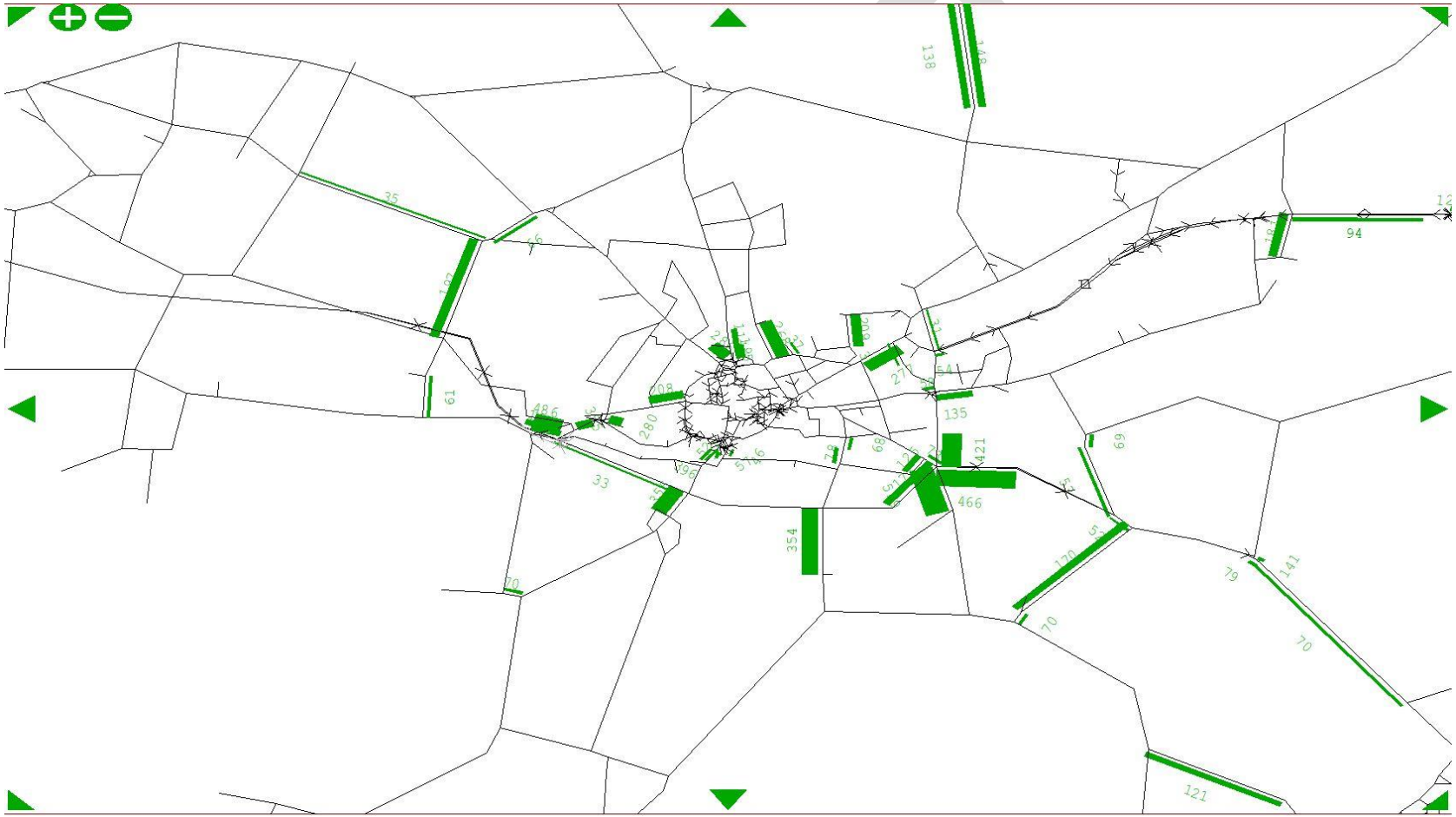


E.10 PM 2031 Local Plan with Fishbourne (No SLR)- STN Mitigation and Bognor minus 2031 Local plan Without Mitigation

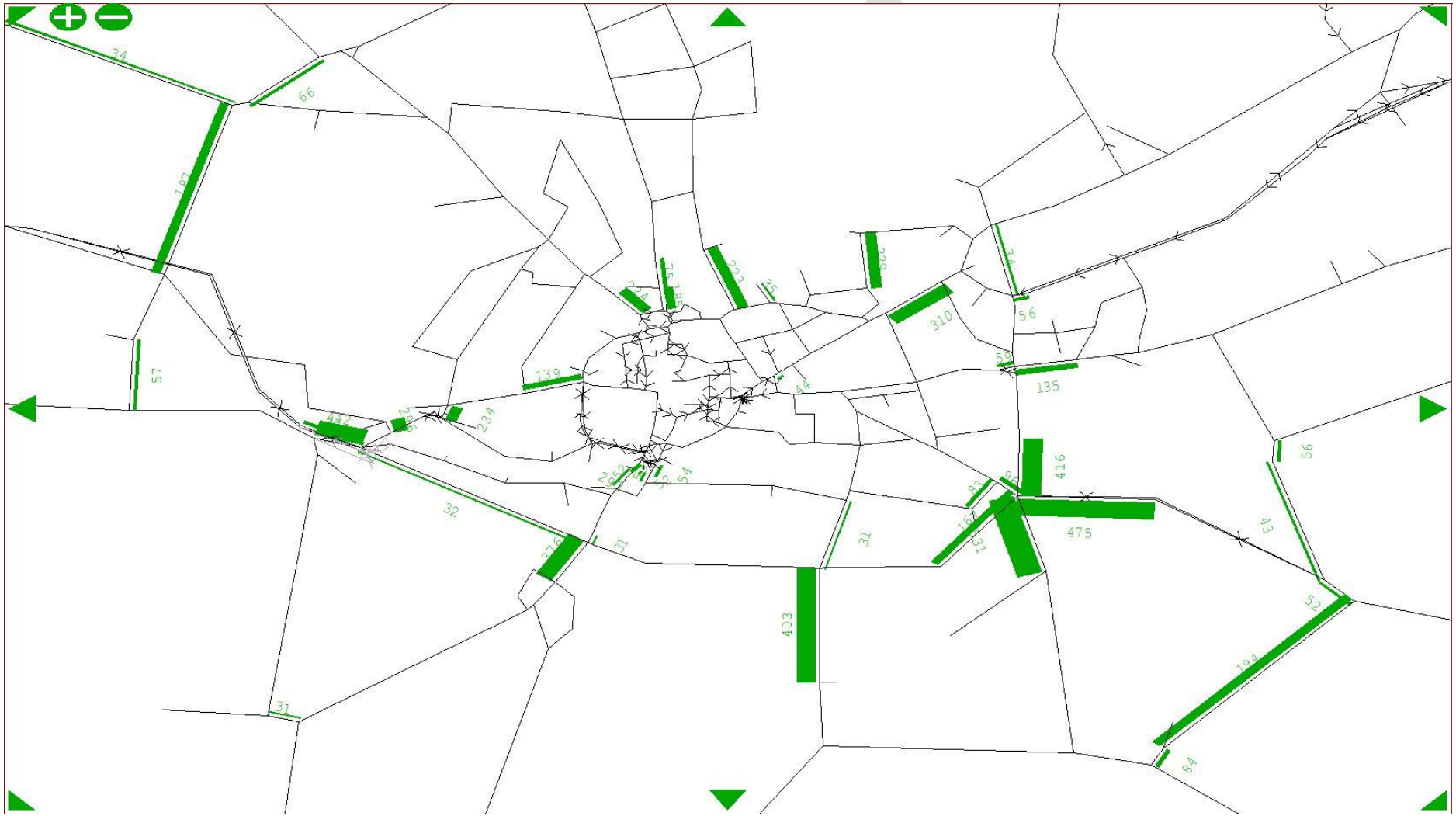


Appendix F 2031 Link Delays Output

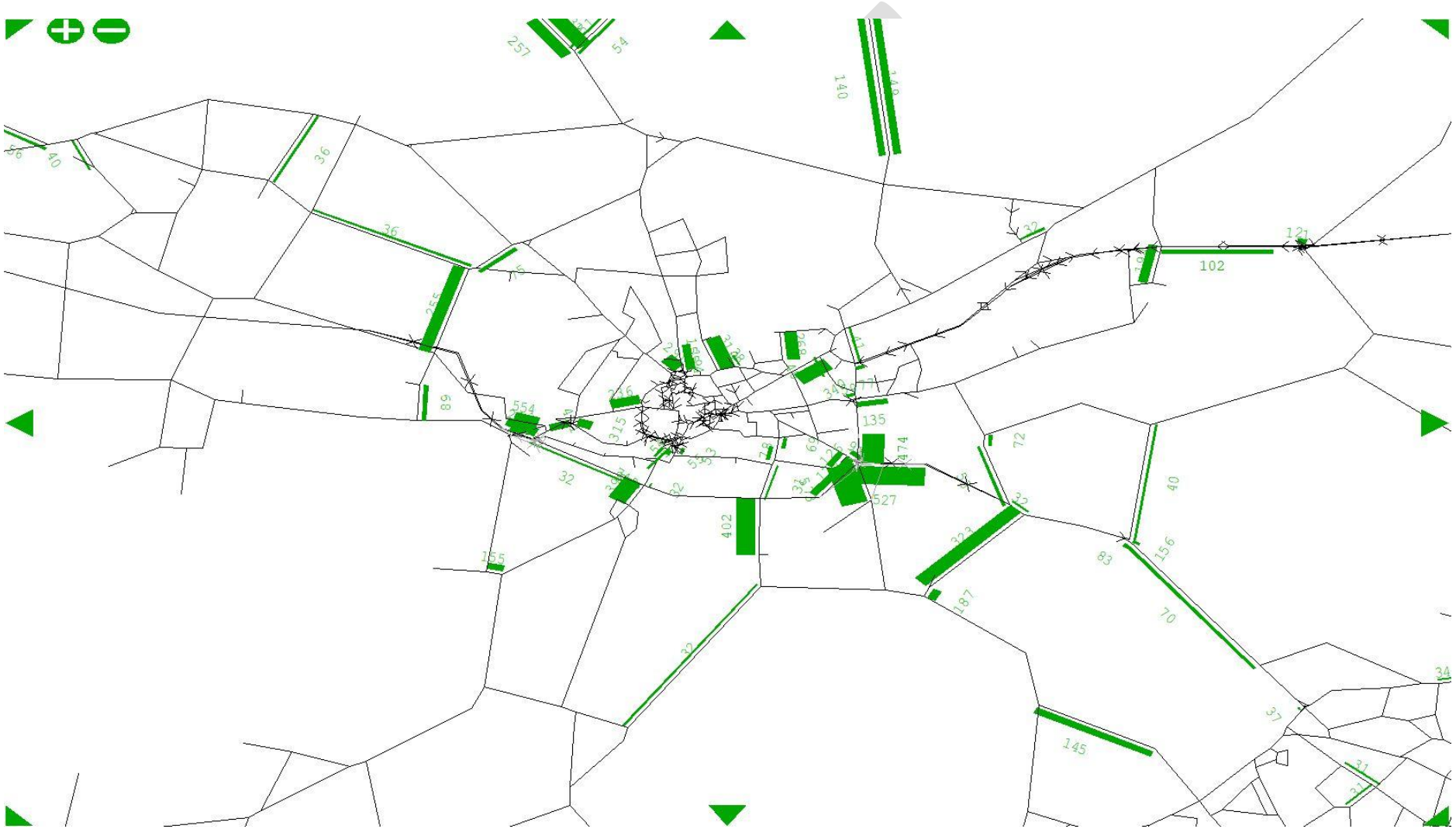
F.1 AM 2031 Reference case -Delay (seconds)



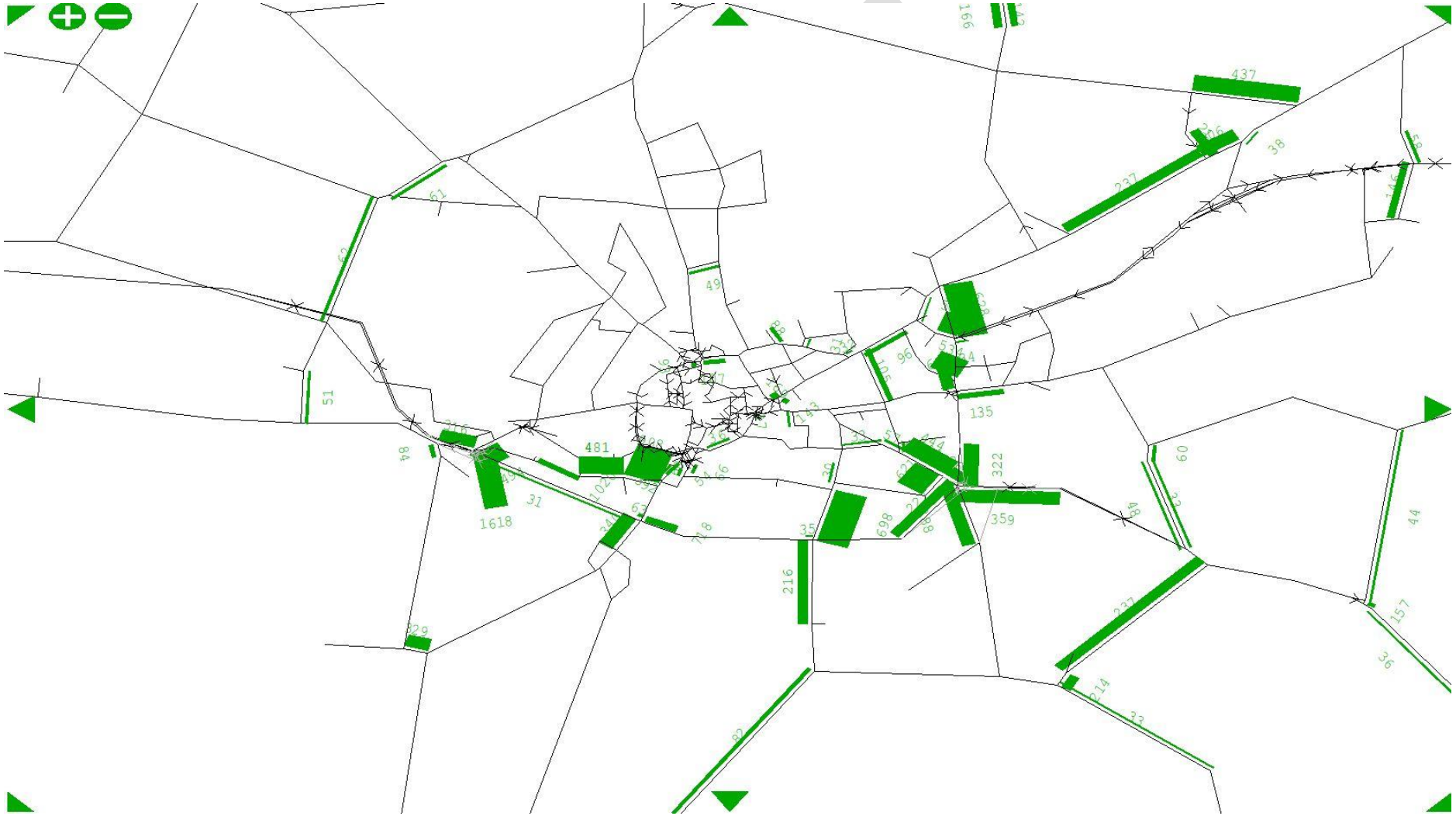
F.2 PM 2031 Reference case -Delay (seconds)



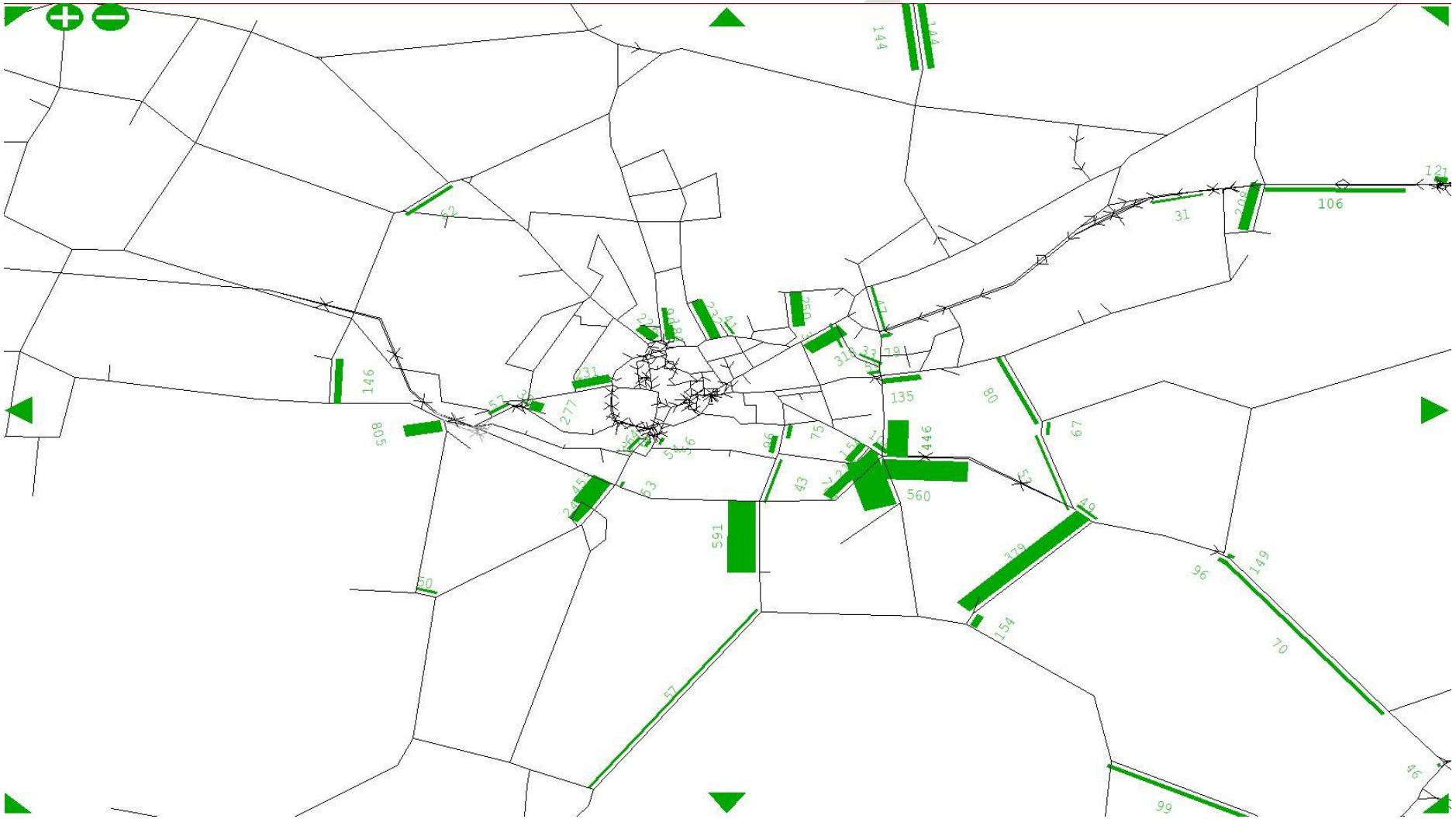
F.3 AM 2031 Local Plan Without Mitigation -Delay (seconds)



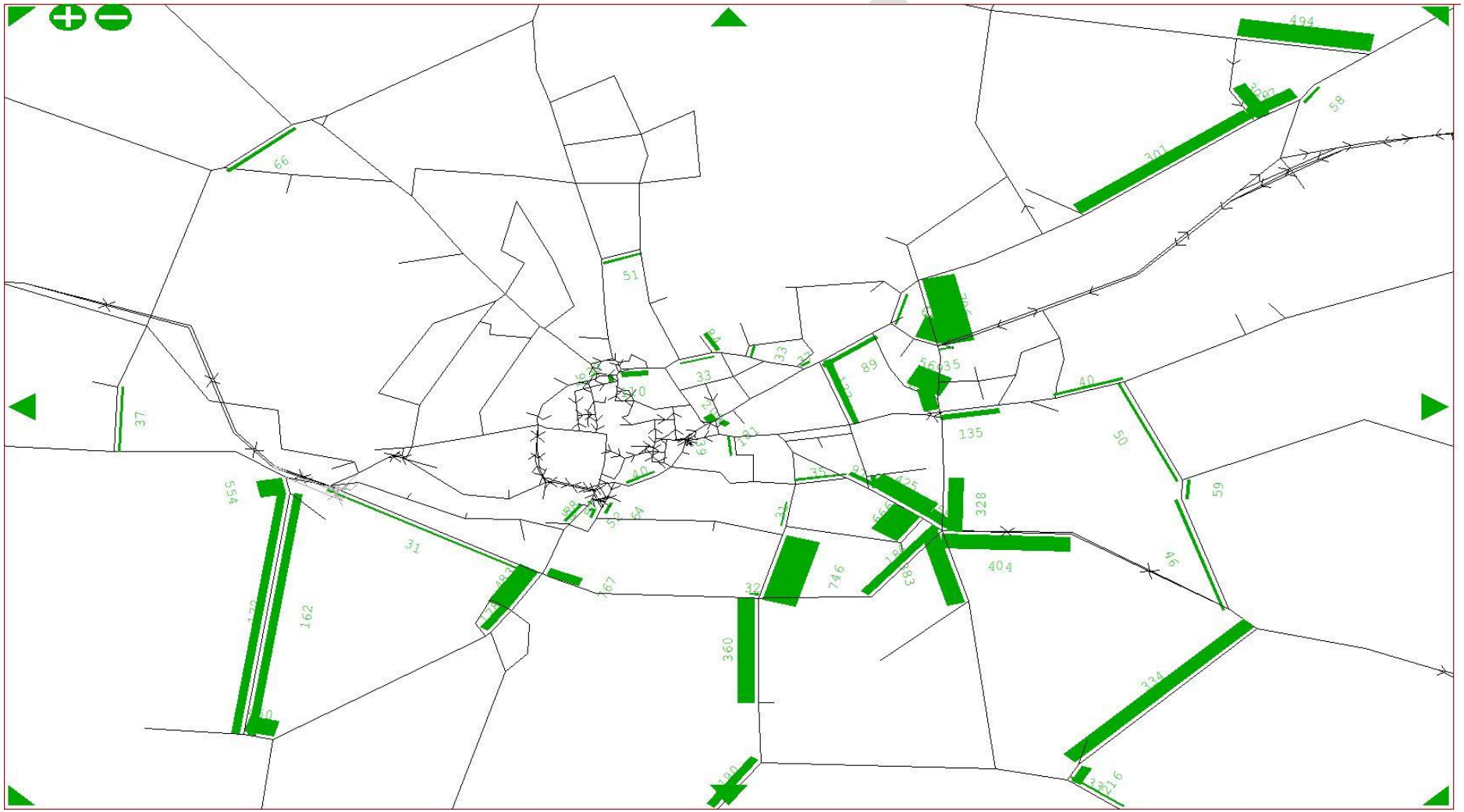
F.4 PM 2031 Local Plan Without Mitigation -Delay (seconds)



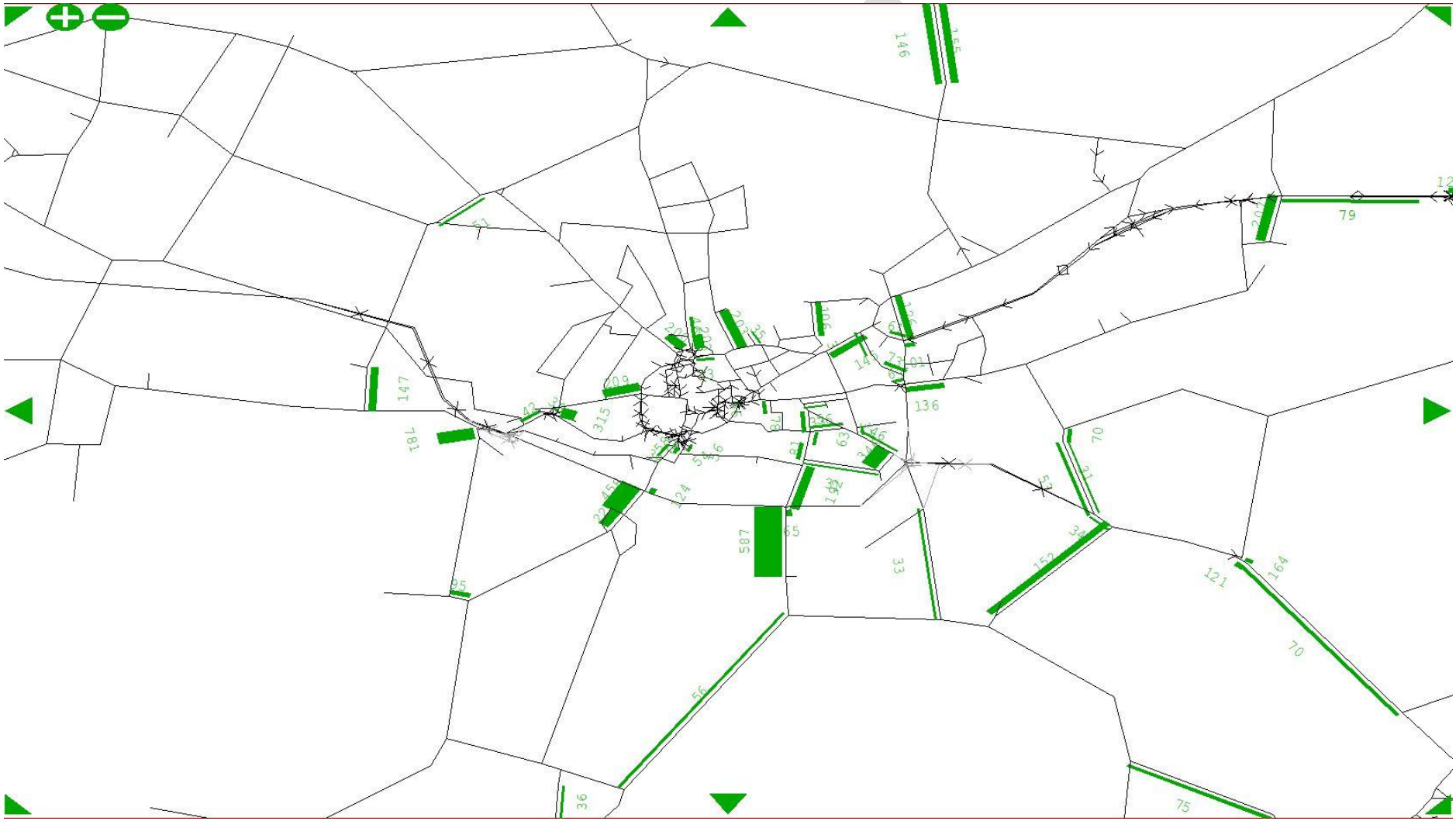
F.5 AM 2031 Local Plan with Fishbourne (No SLR)- STN Mitigation Delay (seconds)



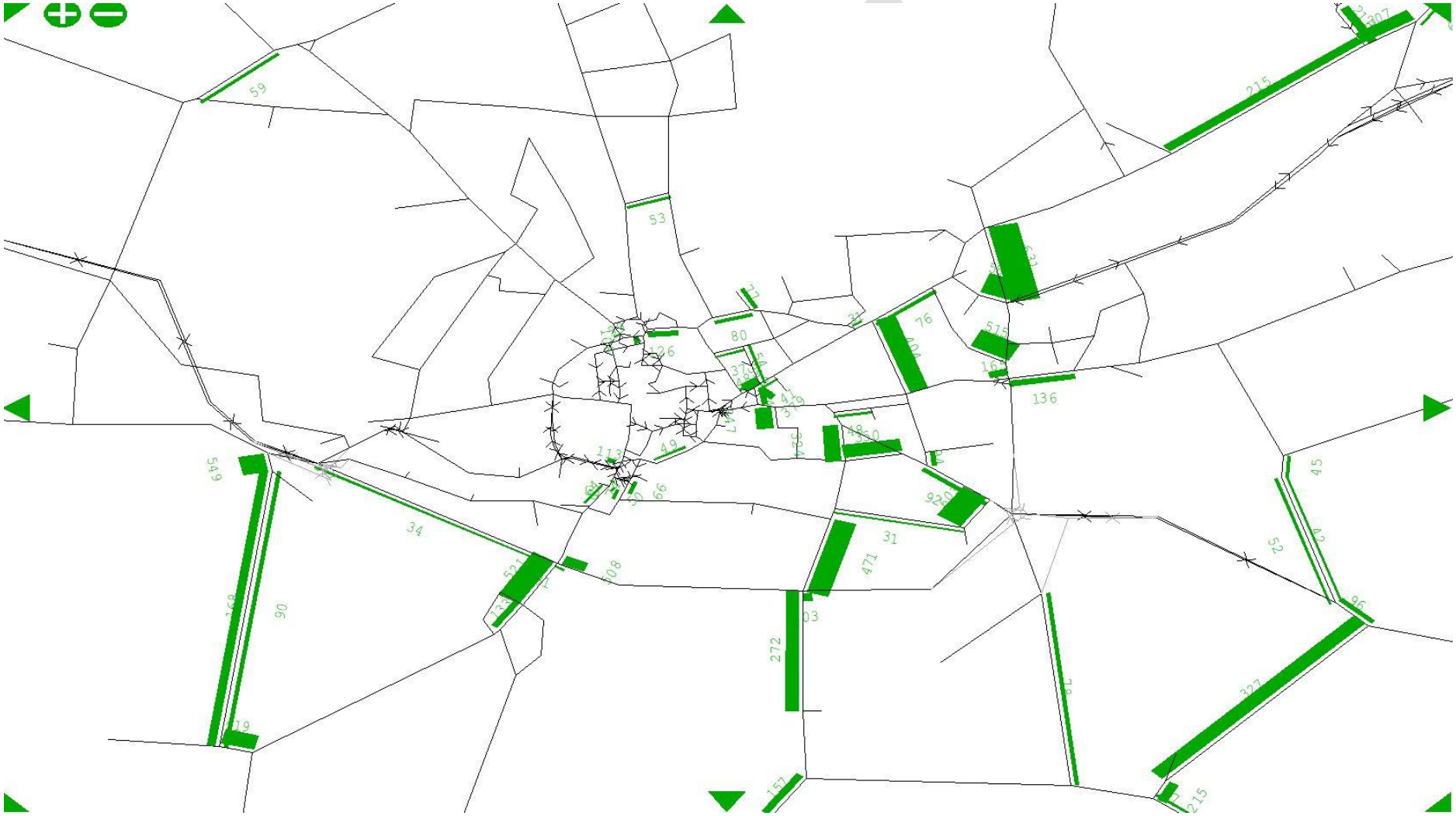
F.6 PM 2031 Local Plan with Fishbourne (No SLR)- STN Mitigation Delay (seconds)



F.7 AM 2031 Local Plan with Fishbourne (No SLR) and Bognor- STN Mitigation Delay (seconds)

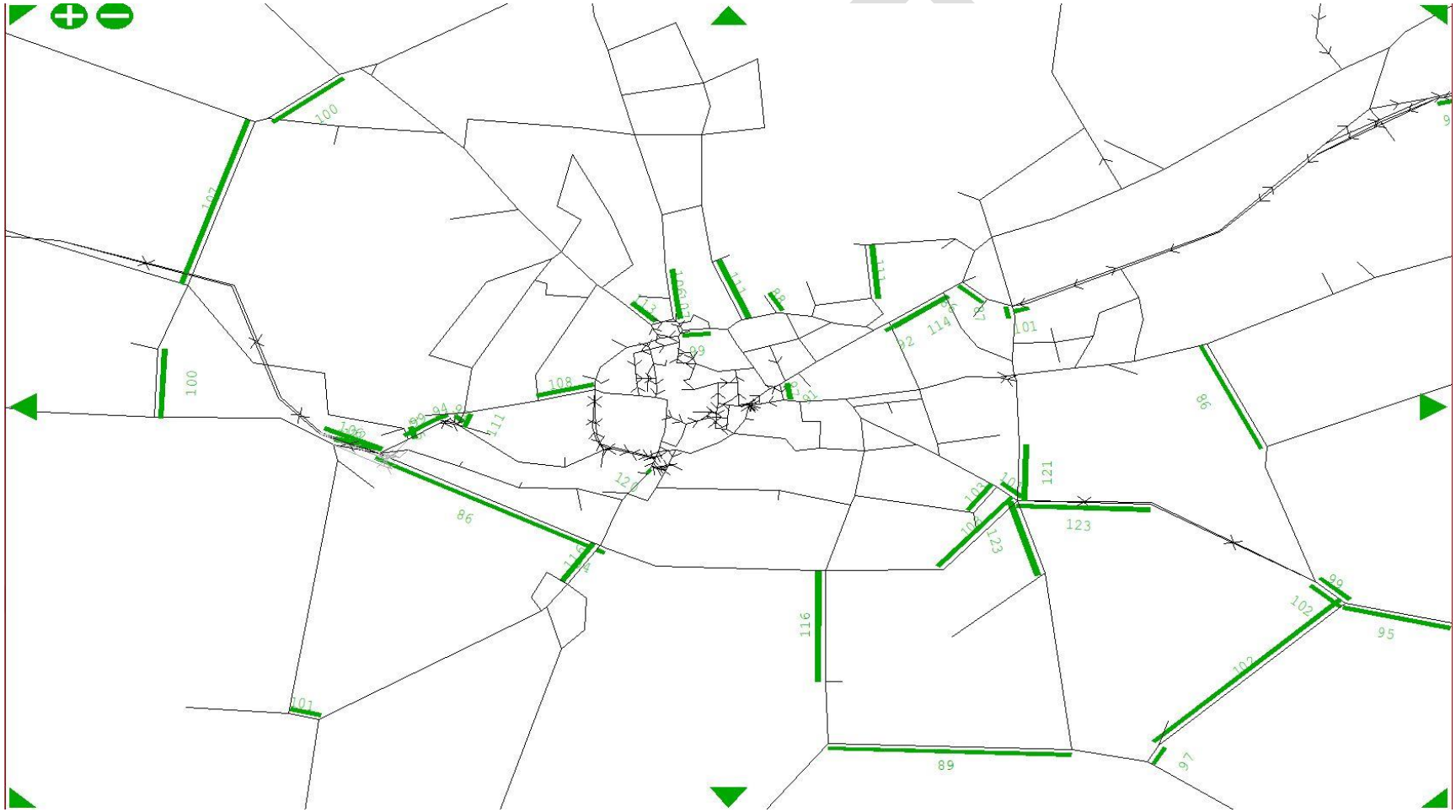


F.8 PM 2031 Local Plan with Fishbourne (No SLR) and Bognor- STN Mitigation Delay (seconds)

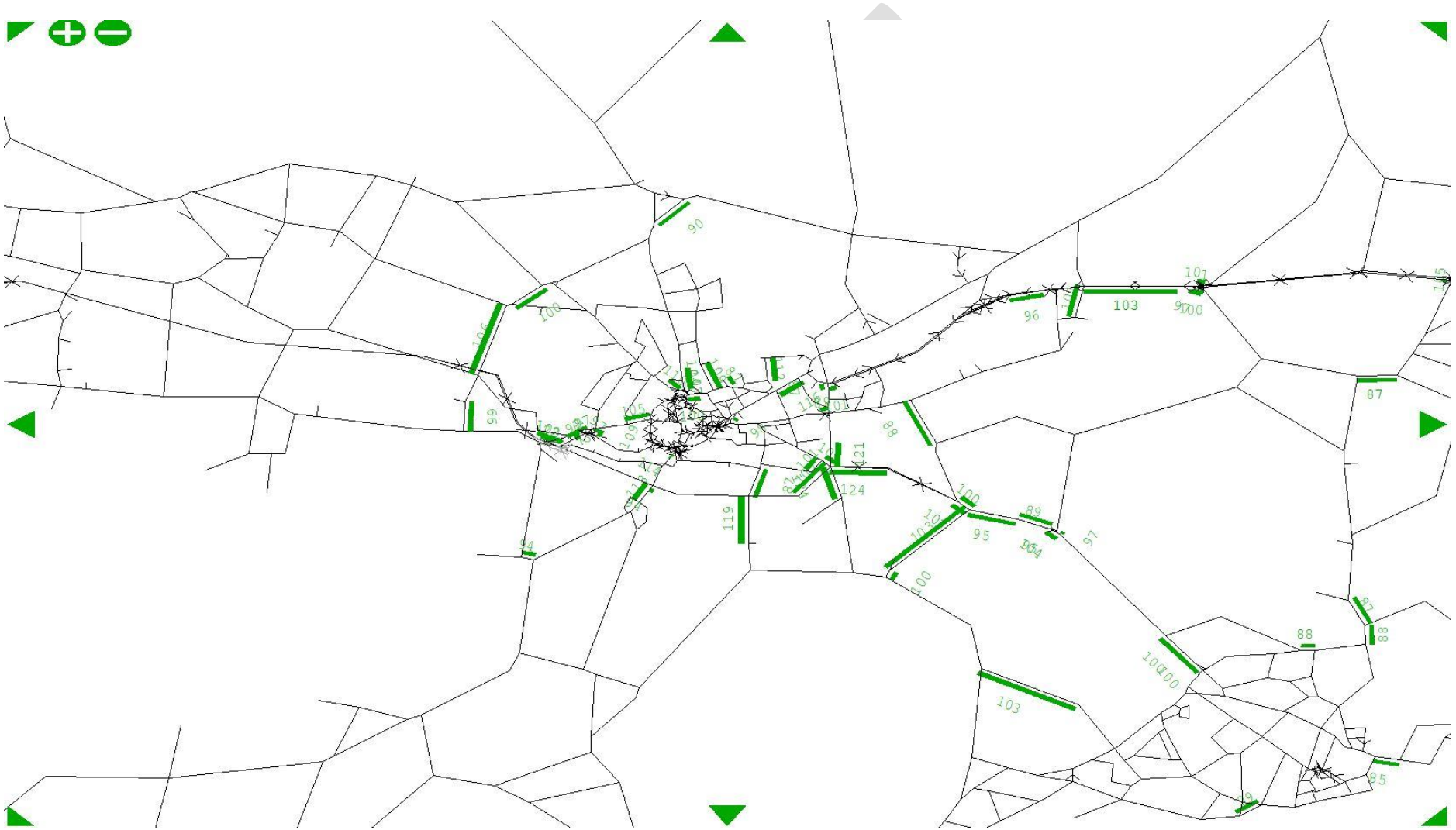


Appendix G 2031 V/C Outputs

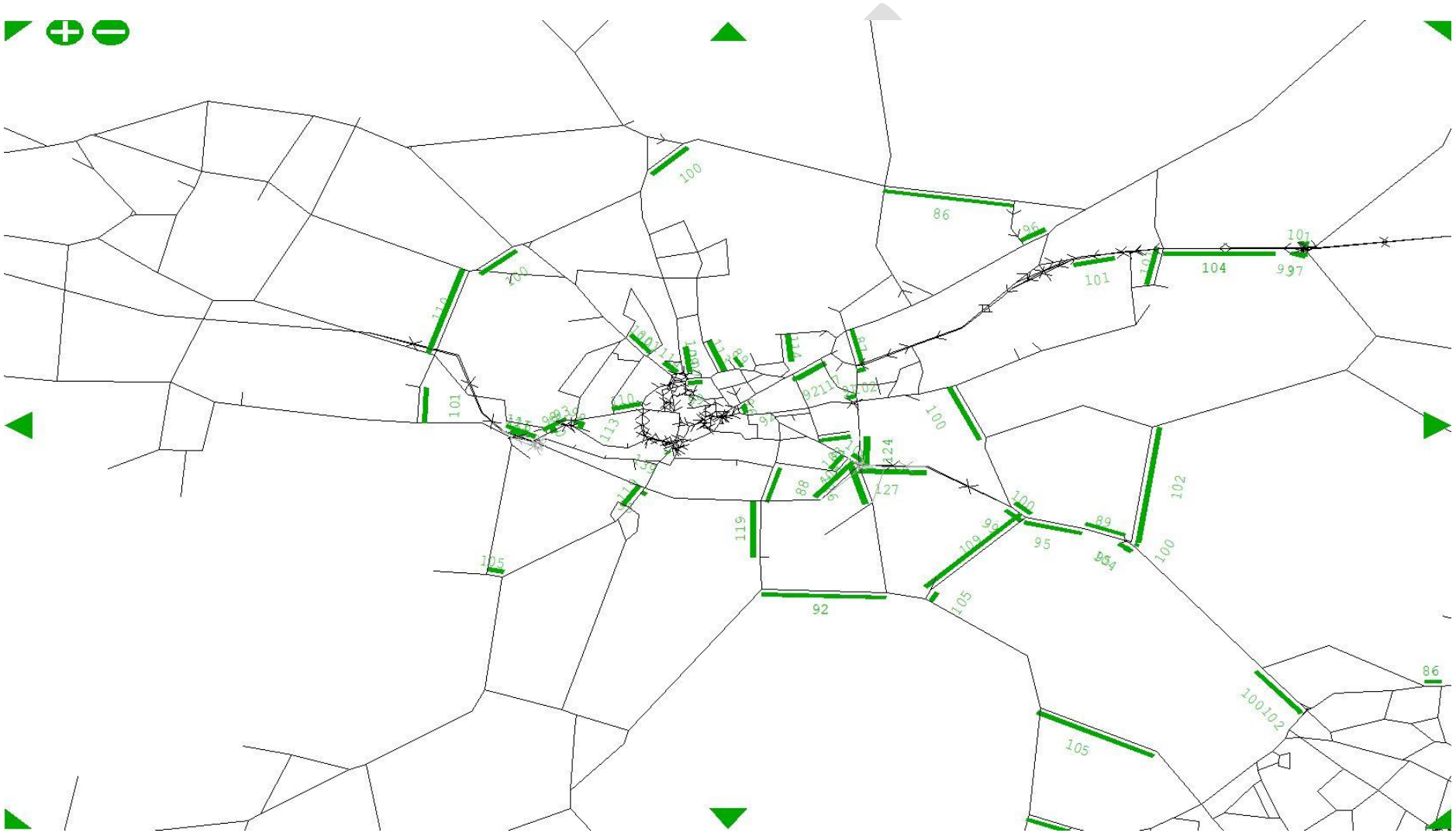
G.1 AM 2031 Reference case V/C (%)



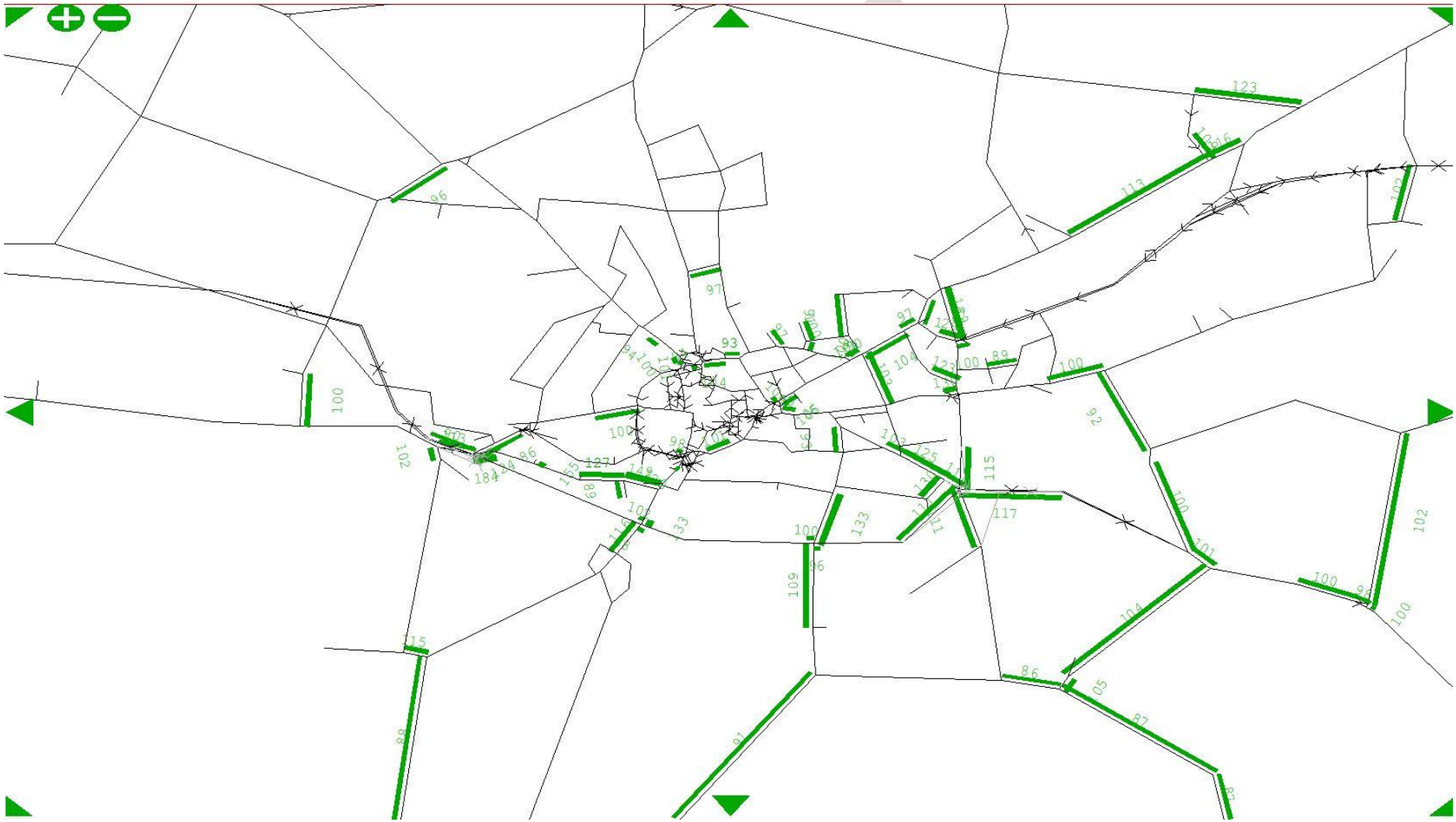
G.2 PM 2031 Reference case V/C (%)



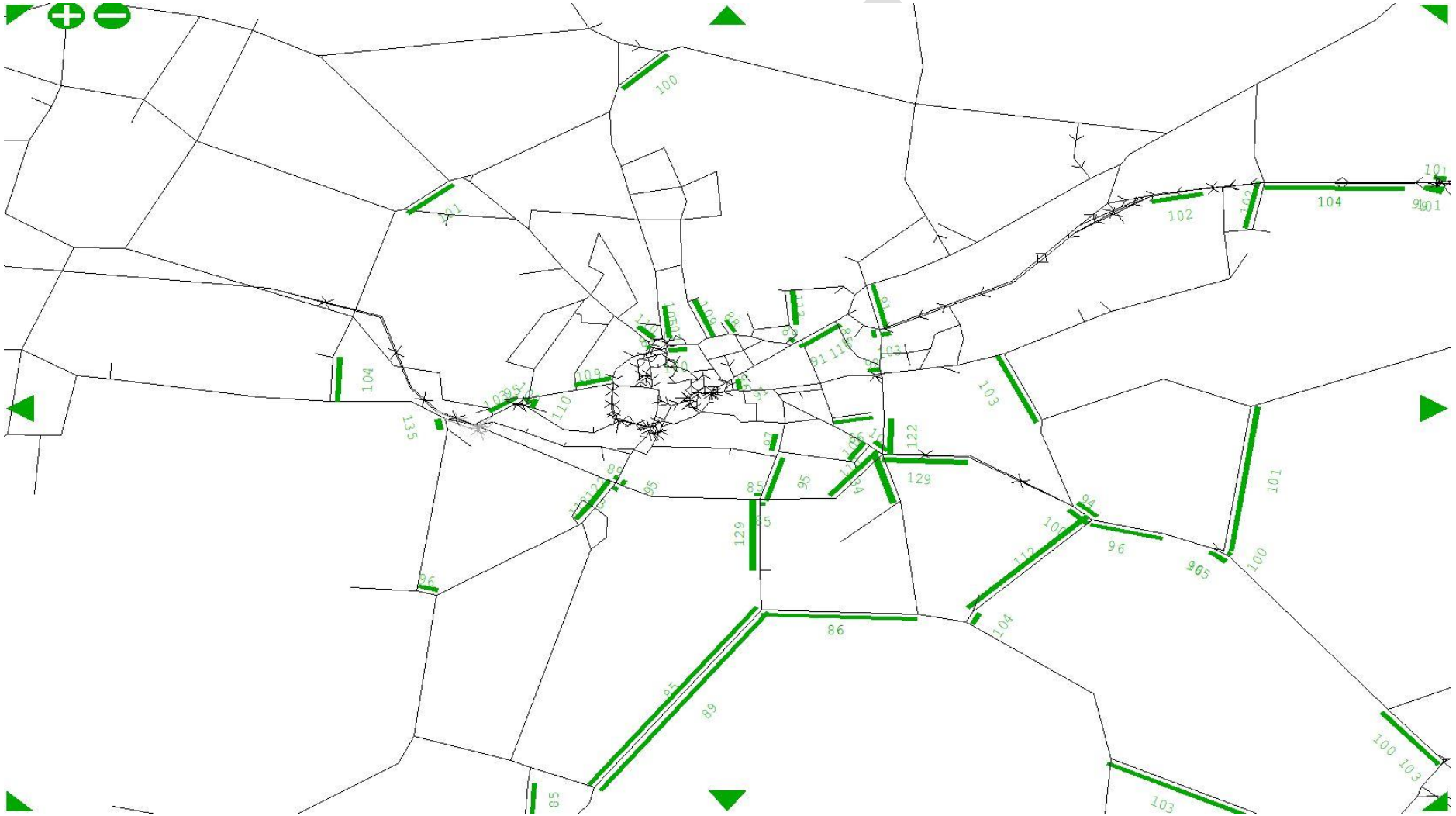
G.3 AM 2031 Local Plan Without Mitigation -V/C (%)



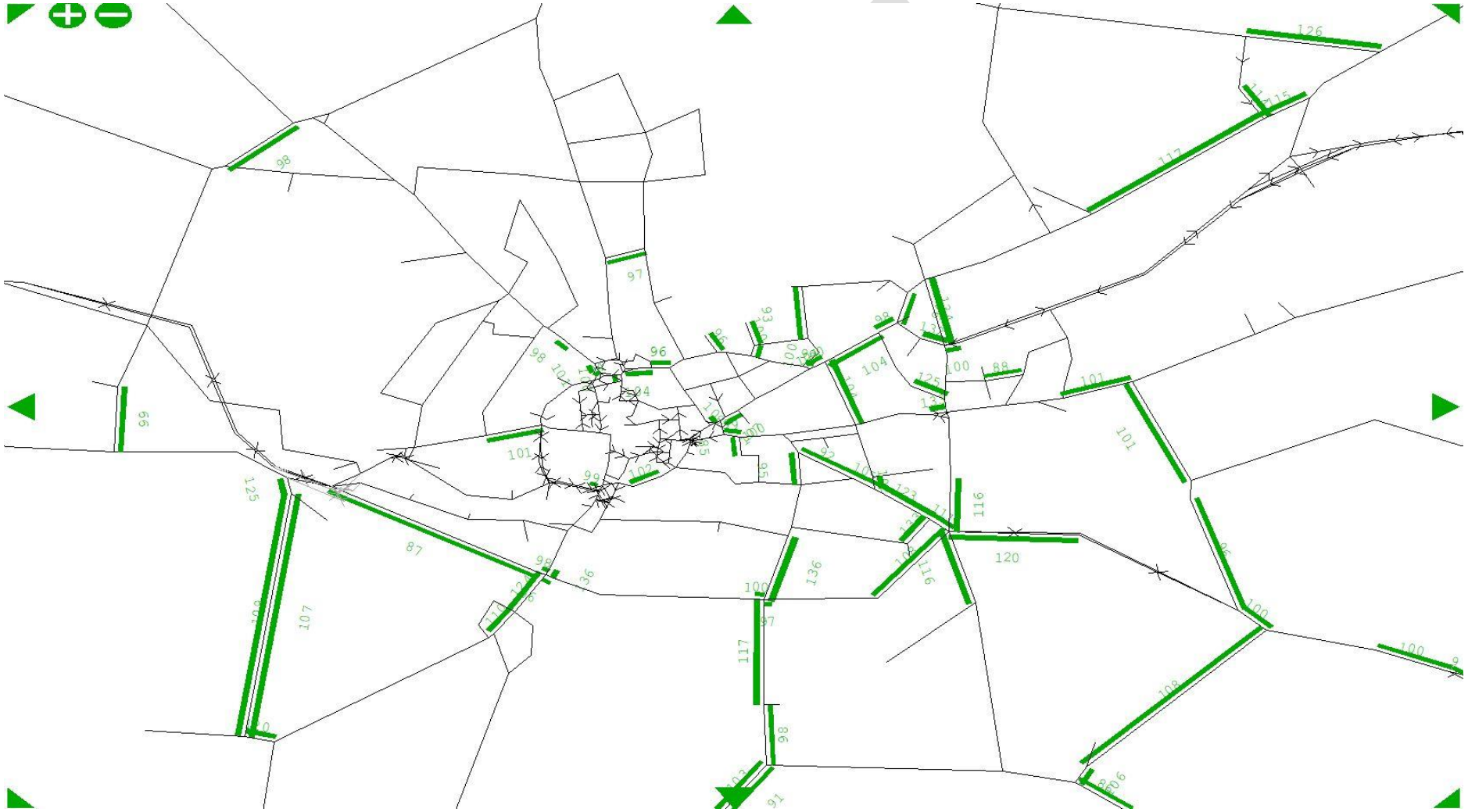
G.4 PM 2031 Local Plan Without Mitigation -V/C (%)



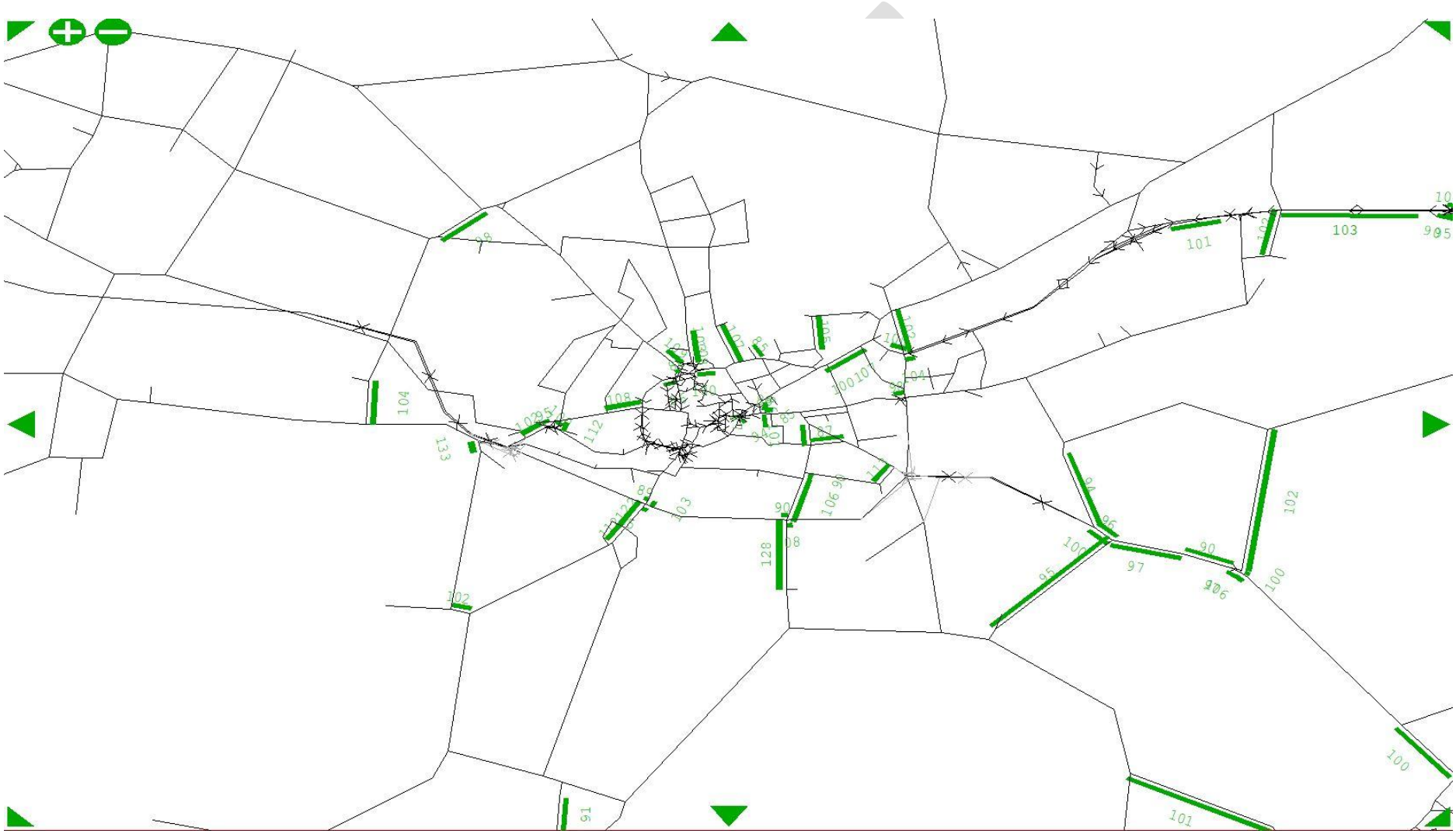
G.5 AM 2031 Local Plan with Fishbourne (No SLR)- STN Mitigation V/C (%)



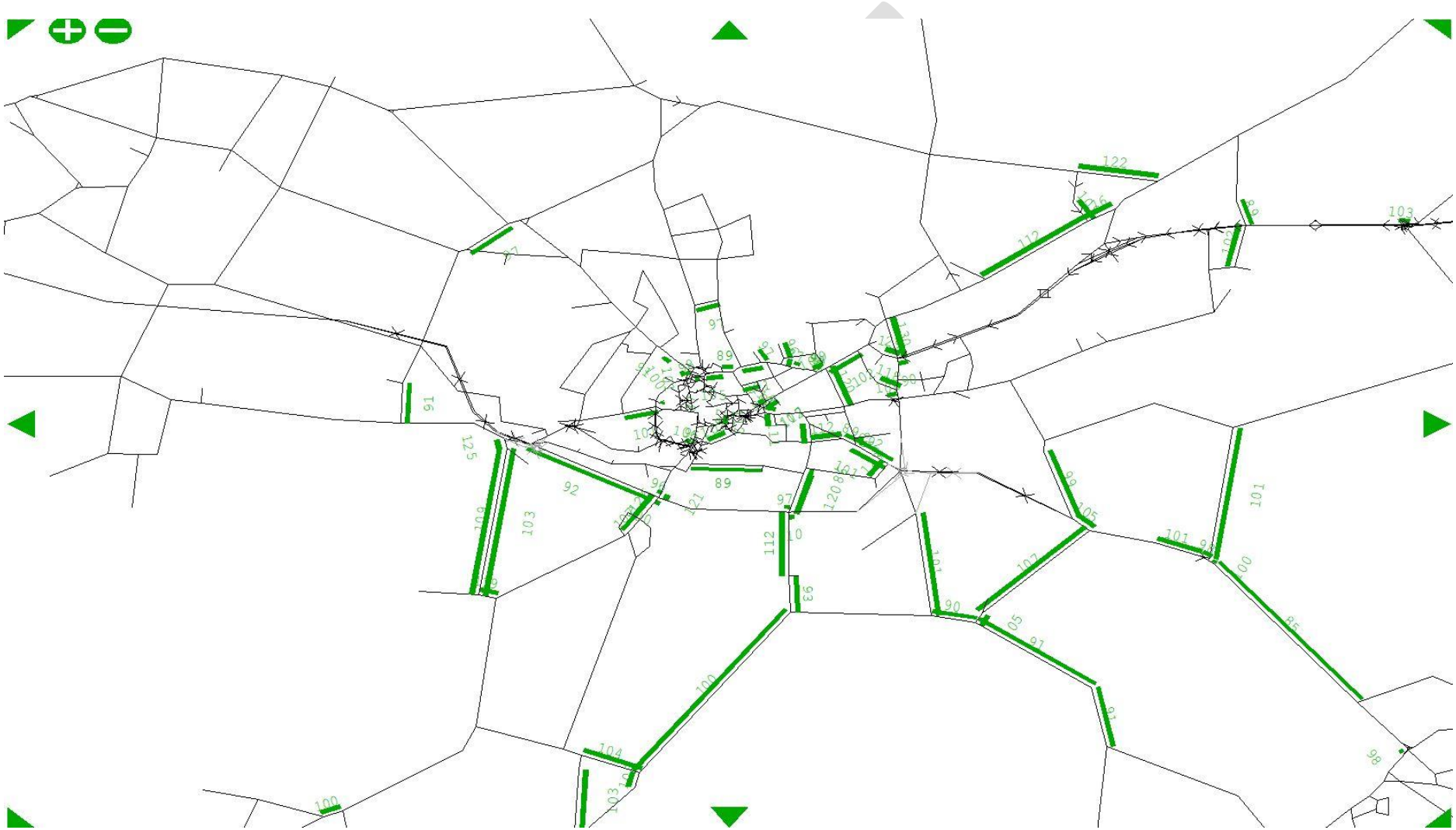
G.6 PM 2031 Local Plan with Fishbourne (No SLR)- STN Mitigation V/C (%)



G.7 AM 2031 Local Plan with Fishbourne (No SLR) and Bognor- STN Mitigation V/C (%)

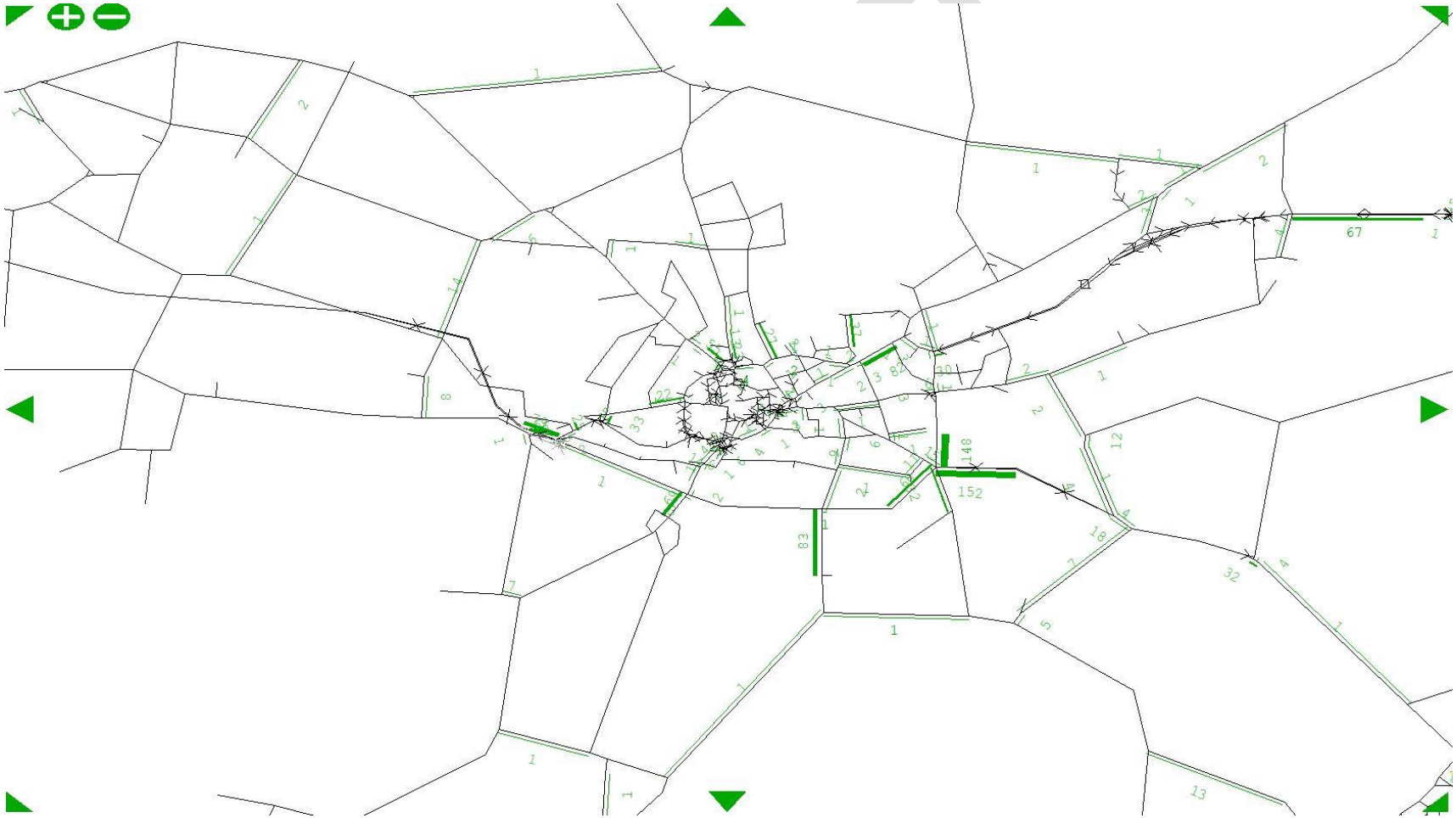


G.8 PM 2031 Local Plan with Fishbourne (No SLR) and Bognor- STN Mitigation V/C (%)

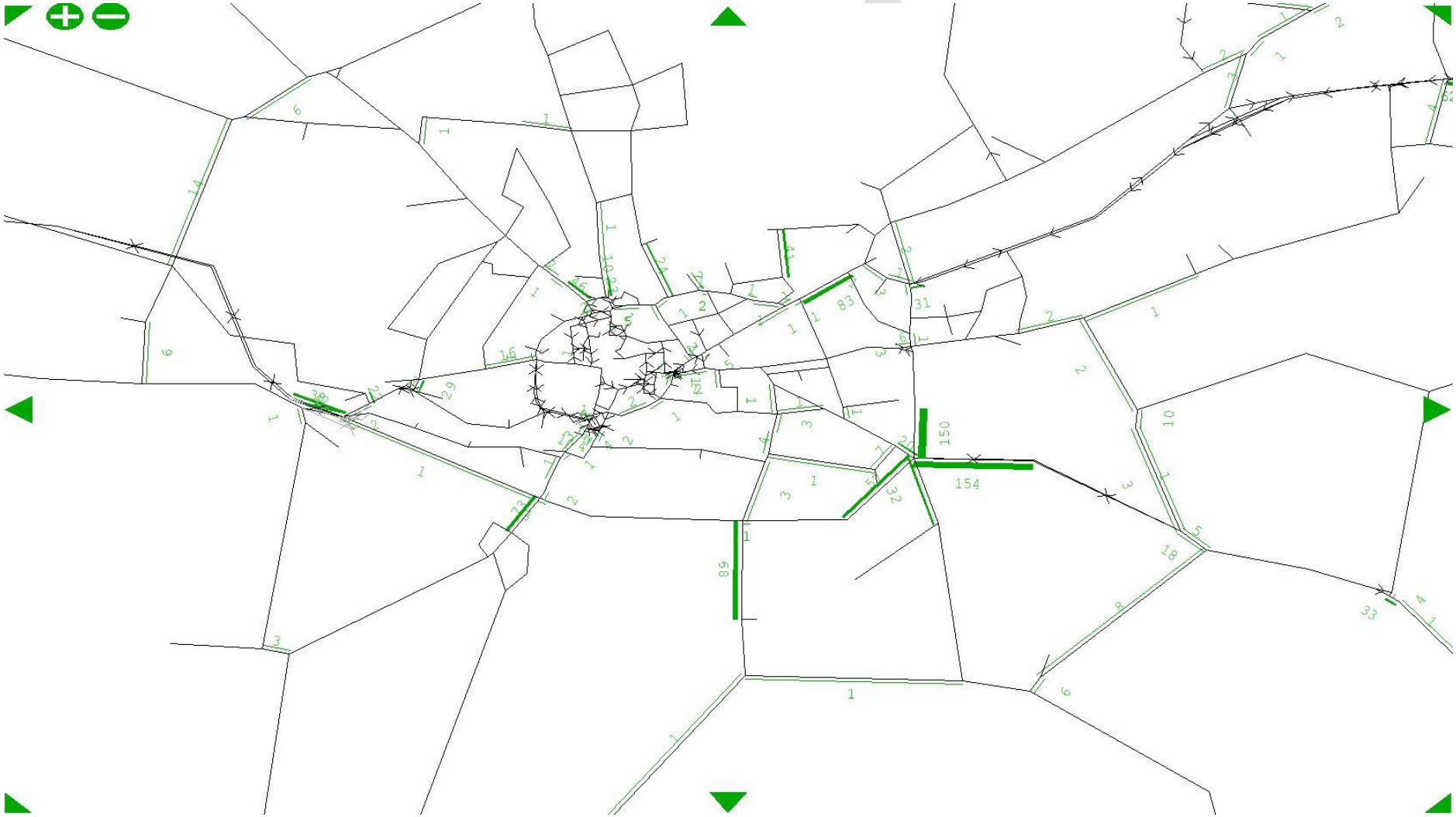


Appendix H 2031 Average Queue Outputs

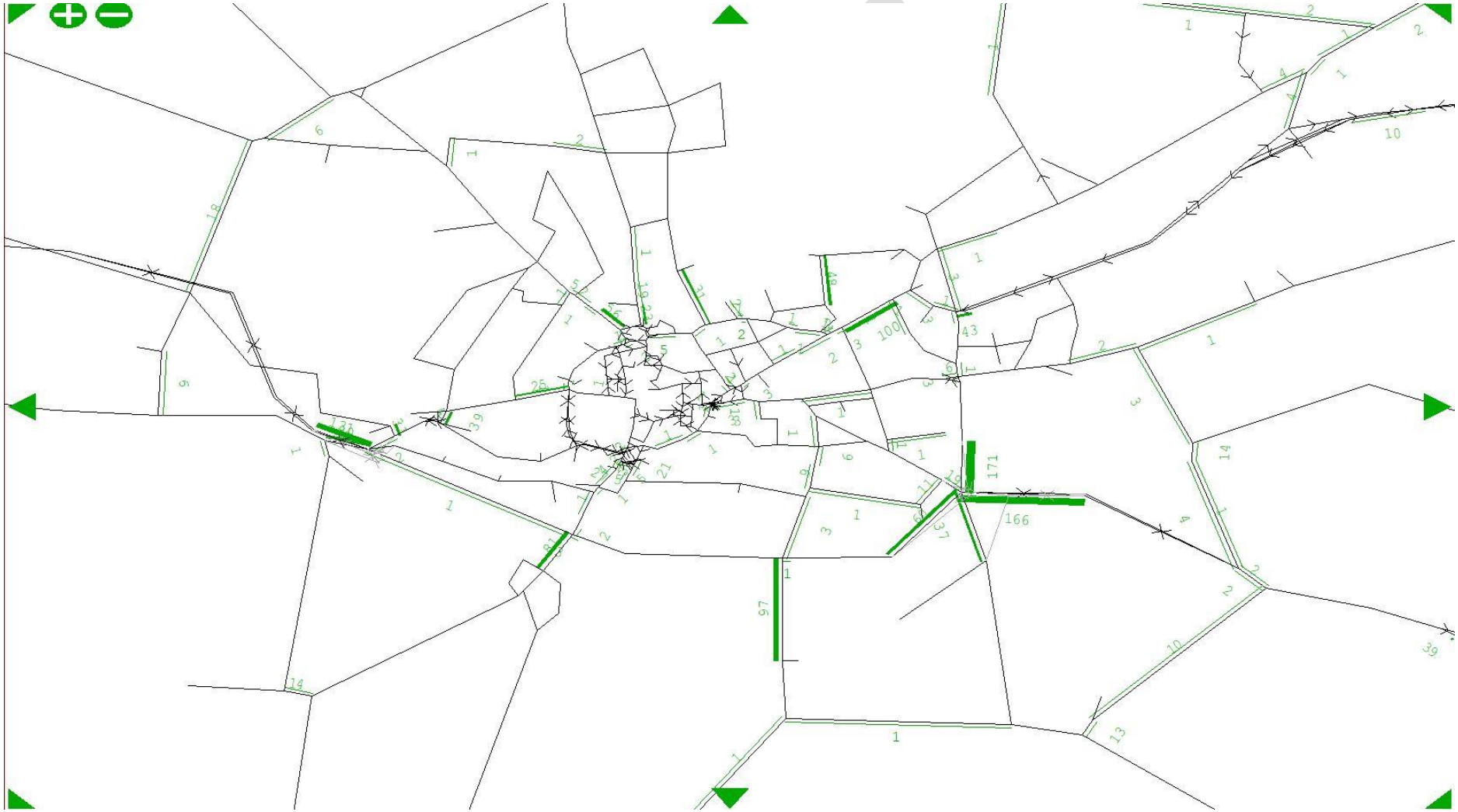
H.1 AM 2031 Reference case AVERAGE QUEUE (PCU)



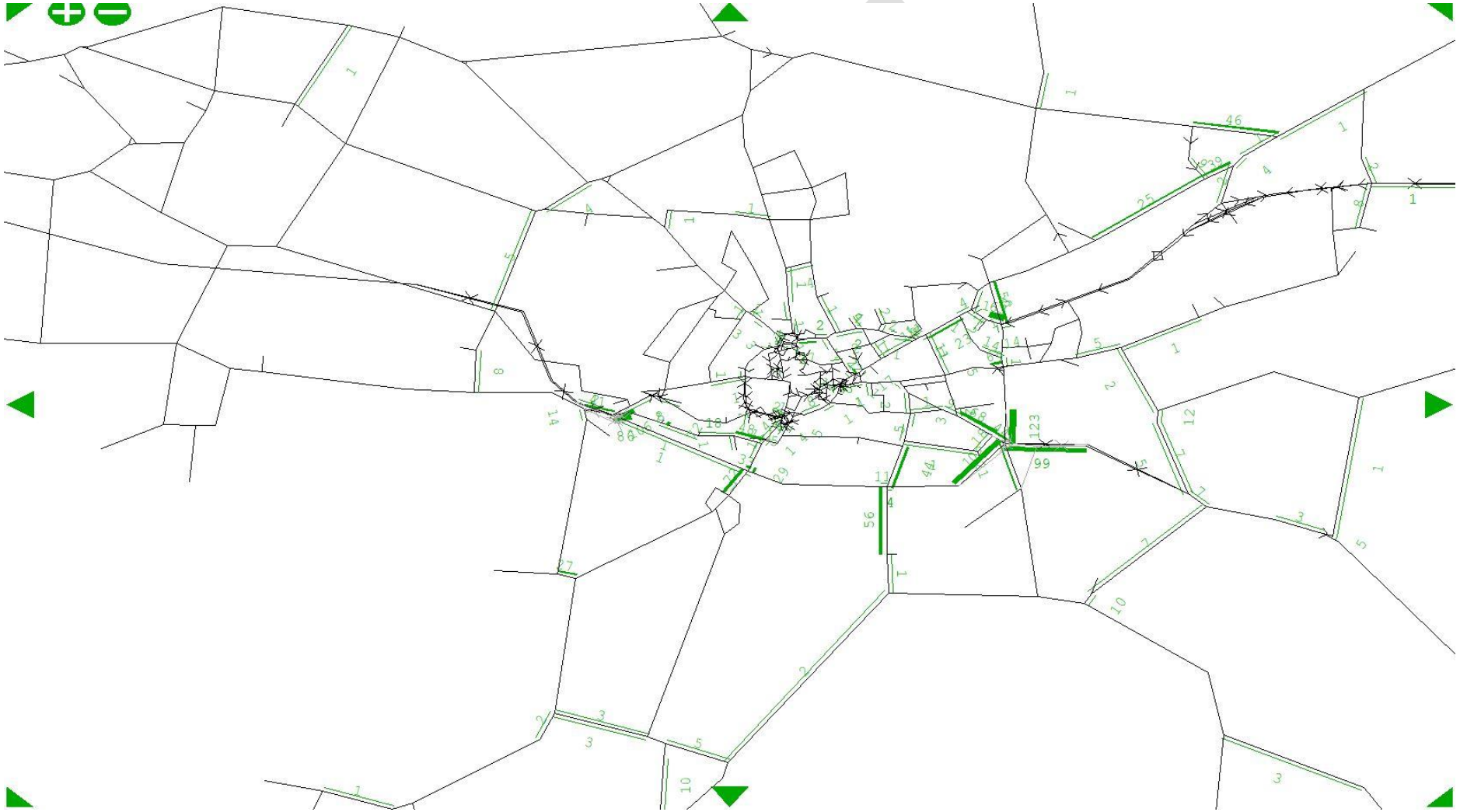
H.2 PM 2031 Reference case AVERAGE QUEUE (PCU)



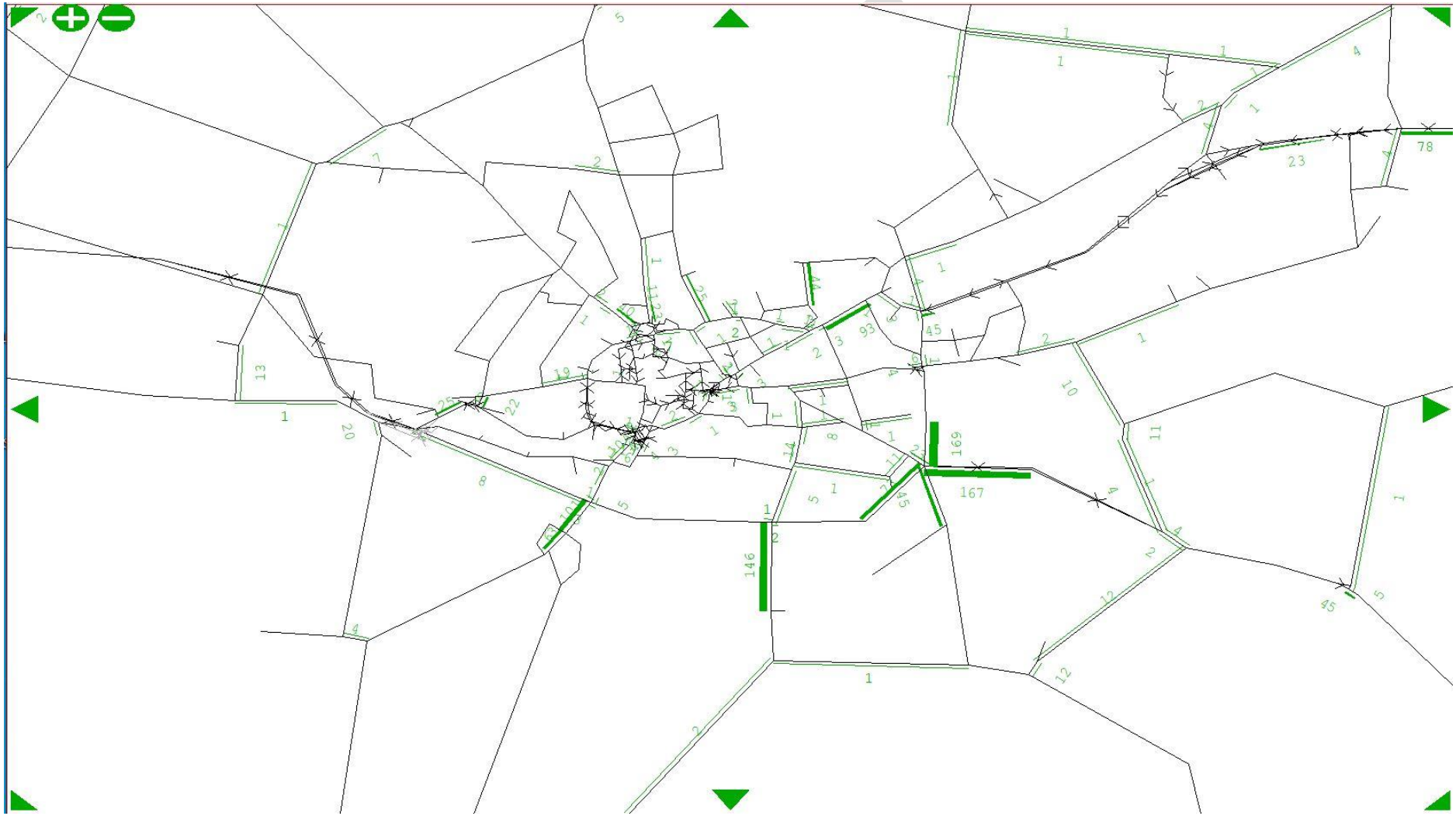
H.3 AM 2031 Local Plan Without Mitigation -AVERAGE QUEUE (PCU)



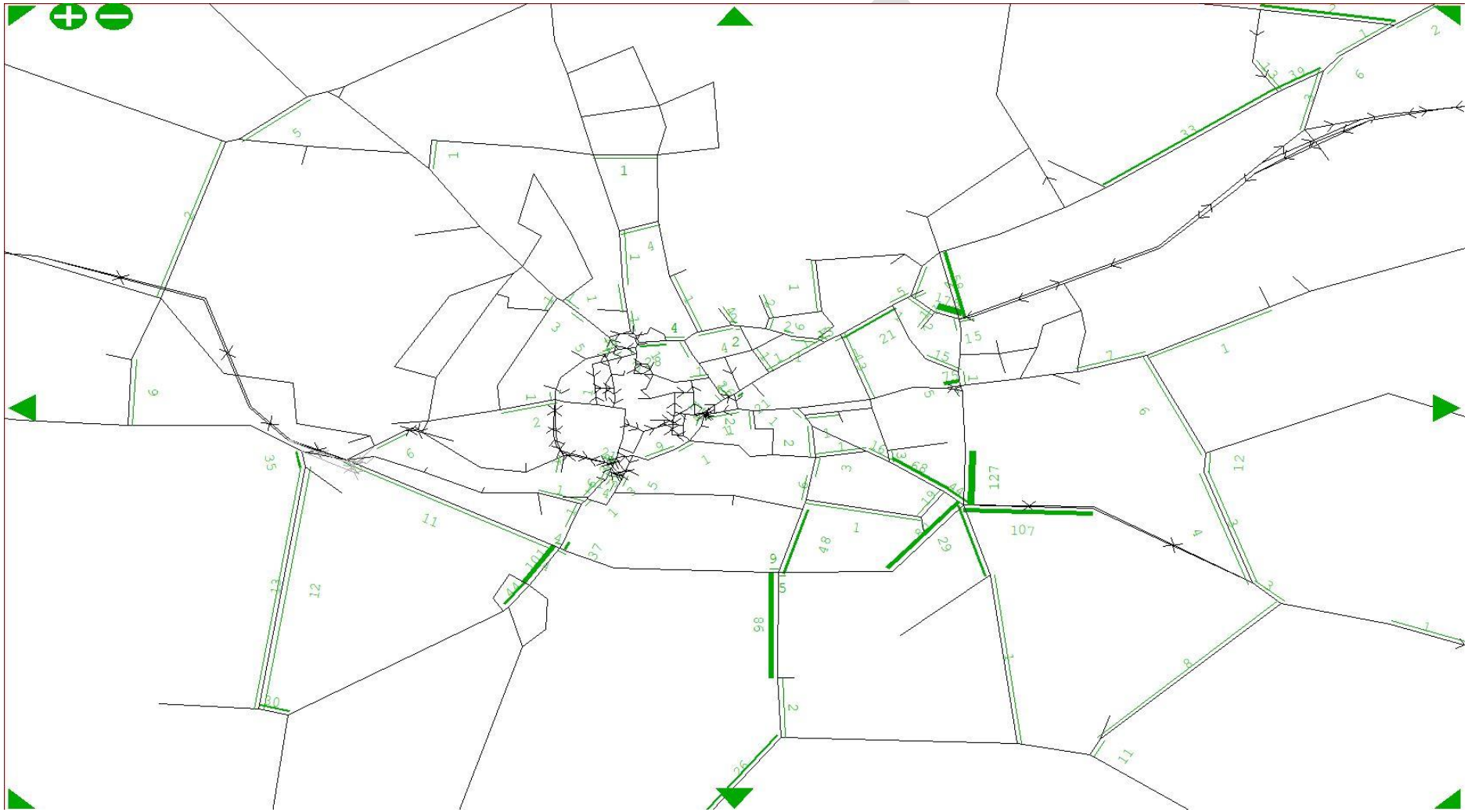
H.4 PM 2031 Local Plan Without Mitigation -AVERAGE QUEUE (PCU)



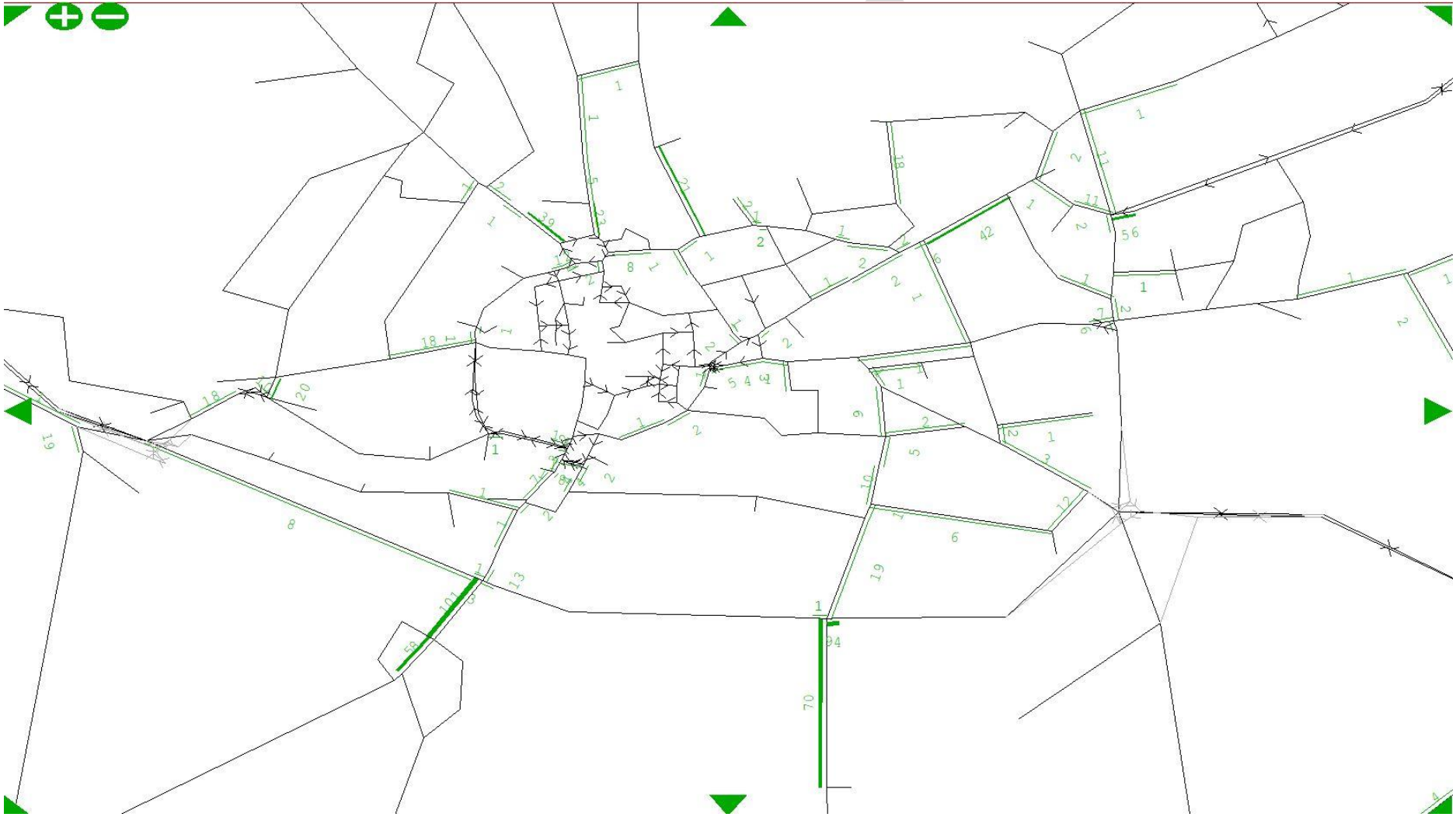
H.5 AM 2031 Local Plan with Fishbourne (No SLR)- STN Mitigation AVERAGE QUEUE (PCU)



H.6 PM 2031 Local Plan with Fishbourne (No SLR)- STN Mitigation AVERAGE QUEUE (PCU)



H.7 AM 2031 Local Plan with Fishbourne (No SLR) and Bognor- STN Mitigation AVERAGE QUEUE (PCU)



H.8 PM 2031 Local Plan with Fishbourne (No SLR) and Bognor- STN Mitigation AVERAGE QUEUE (PCU)