



Lincolnshire County Council

NORTH HYKEHAM RELIEF ROAD SELECT LINK ANALYSIS





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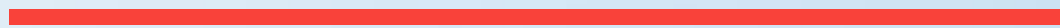


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SELECT LINK ANALYSIS



INTRODUCTION

This appendix provides the full data and analysis used for the select link analysis presented within section 2.5.1 Orbital & Major Road Network.

METHODOLOGY

A select link analysis was undertaken using the Lincolnshire Transport base year model (2016). This was undertaken by selecting particular links on the network and assessing where people are travelling to and from in relation to the selected link. The intention is to demonstrate that users are taking particular routes due to a lack of route choice. The location of the selected links is shown in **Error! Reference source not found.** and includes:

1. A46 south of Pennells roundabout;
2. Meadow Lane;
3. A1434 Newark Road south of the junction with B1003 Tritton Road;
4. A46 south of B1378 Skellingthorpe Road;
5. A15 Sleaford Road north of Bloxholm Lane; and
6. A158 north of Bunker Hill.

Analysis was undertaken on the AM Peak, Inter Peak (IP) and PM Peak as traffic counts data showed that demand is not just limited to peak periods but also extends to the inter-peak, albeit this is not as high as the peak periods.

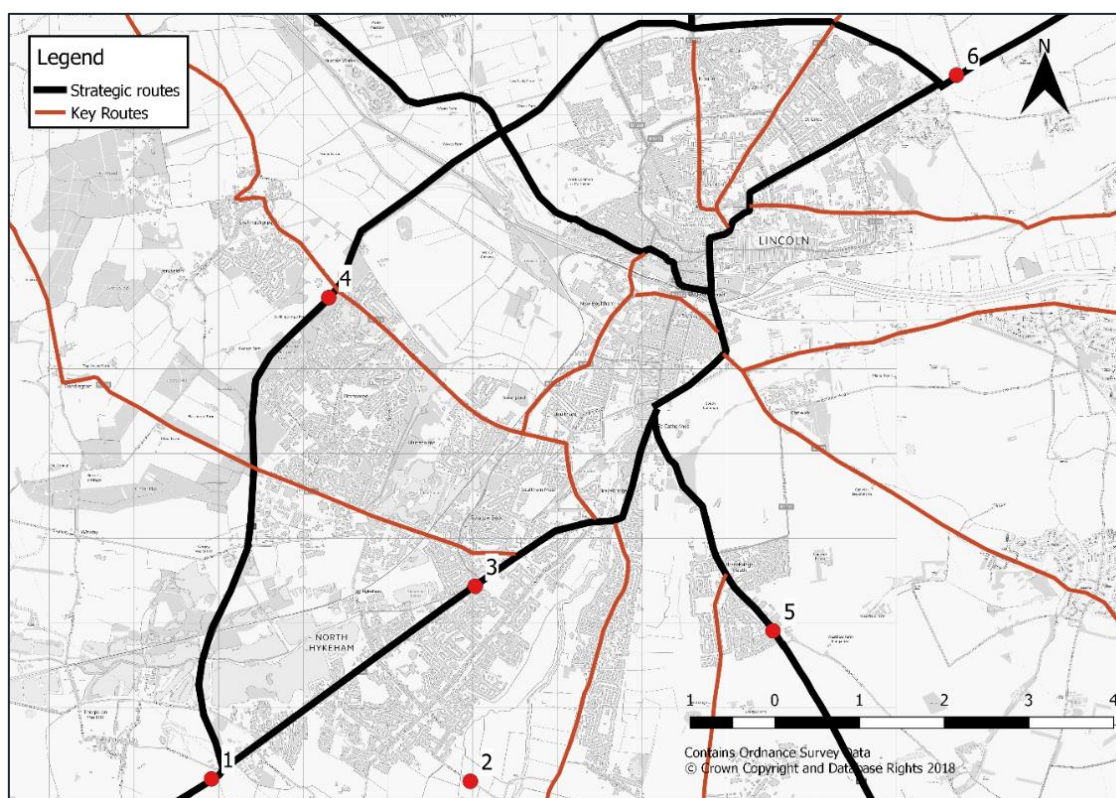


Figure 1 – Selected links

RESULTS

Outputs for the select link analysis have been presented at the end of this Appendix and include Saturn outputs for the AM Peak, IP and PM Peak for the sites presented within **Error! Reference source not found..**

Table 1 provides key observations for maps 1 to 36.

Table 1 – Select link analysis

Ref (figure 16)	Location	Analysis
1	A46 south of Pennells roundabout	<p><u>Northbound</u></p> <ul style="list-style-type: none"> ■ Over 75% of traffic originates from the A46/A17/A1 junction and the vast majority of journeys continue on to the A46 orbital route; ■ In the AM Peak 63% of vehicles continue on to the A46 orbital route, in the IP almost 70% and in the PM Peak 72%; ■ Once on the A46 orbital route the flow dissipates on to the local road as journeys continue north with 44-50% of journeys staying on the A46 to B1378 Skellingthorpe Road; 30-40% up to the A15 junction and 15-20% beyond the A15 junction; and ■ Approximately 20-25% of journeys travel from A46 Pennells roundabout and on to A1434 Newark Road. Along Newark Road the flow dissipates on to the local road network with 5-7% of traffic continuing on to cross the River Witham. <p><u>Southbound</u></p> <ul style="list-style-type: none"> ■ Over 70% of traffic converge onto the A46 Penells roundabout from the A46 orbital route; ■ Approximately 50% of traffic joins between the A46 orbital route and B1378 Skellingthorpe junction; and 15% north of A15 junction. Traffic joins onto the A46 between these points predominantly from the Lincoln local road network; ■ Over 20% of traffic joins on from Newark Road; ■ Over 85% of traffic travels southbound on the A46 from Penells roundabout to up to A17/A1/A46 junction; and ■ Approximately 40% of journeys continue on the A46 south of the A17/A1/A46 junction and 16% eastbound on the A1. <p><u>Key point</u></p> <p>There are only two routes which join onto the A46 Penells roundabout which are aligned towards Lincoln and these are the A46 orbital route and Newark Road. As a result, traffic originates or travels north on one of these two routes with a high proportion of northbound traffic dispersing into the Lincoln urban area. It is noted that 15-20% of journeys travel north the length of the orbital route past the A15 junction indicating that these journeys are not destined for Lincoln.</p>
2	Meadow Lane	<p><u>Westbound</u></p> <ul style="list-style-type: none"> ■ Traffic originates from a number of locations and converge onto Meadow Lane and includes Grantham Road via Station Road; Brant Road north of Meadow Lane; and Brant Road south of Meadow Lane where a large percentage of journeys join on from Sleaford Road; ■ The flow in the AM Peak on Meadow Lane is over 50% higher than other time periods; ■ Approximately 30% of traffic continue westbound on to Moor Lane in the peak periods and over 85% in the IP; and ■ The remainder of journeys travelling west dissipate on to the local road network via Lincoln Road or Newark Road indicating local journeys utilise Meadow Lane as an east west link. <p><u>Eastbound</u></p>

		<ul style="list-style-type: none"> ■ The vast majority of journeys originate from the urban area to the west of Meadow Lane north of Moor Lane; ■ Approximately 50% of journeys continue eastbound from Meadow Lane on on to A607 Grantham Road via Station Road; and ■ In the peak periods approximately 28% of traffic travels southbound on Brant Road / Low Road from Meadow Lane with the majority of this traffic continuing on to B1178 and then south on to A15 Sleaford Road. This indicates a proportion of non-local journeys utilise Meadow Lane due to a lack of viable alternative routes. <p><u>Key point</u> Meadow Lane currently forms an important east west link between the radial routes to the south of Lincoln and onto Sleaford Road. It is also the only crossing point of the River Witham to the south of Lincoln. As a result, it currently caters for both local and non-local journeys due to a lack of alternative east west routes to the south of Lincoln.</p>
3	A1434 Newark Road just south of the junction with B1003 Tritton Road	<p><u>Northbound</u></p> <ul style="list-style-type: none"> ■ Approximately 25% of journeys originate from the A46 south of Penells roundabout and the remainder from the urban area north of the A46 Penells roundabout; and ■ An approximate equal split of journeys travel north between the A1434 Newark Road and B1003 Tritton Road. It is noted that regardless which route is taken the vast majority of journeys either travel towards the city centre or dissipate on to the local road network to the north of Lincoln. <p><u>Southbound</u></p> <ul style="list-style-type: none"> ■ The majority of journeys converge onto the A1434 Newark Road from B1003 Tritton Road or from the northern end of Newark Road. However, in the AM Peak a higher percentage of this traffic is from the northern end of Newark Road; and ■ As traffic travels southbound it dissipates on to local roads with approximately 30% of traffic continuing onto the A46 southbound. <p><u>Key point</u> Forms a key radial route for north south journeys between the city centre/the urban area north of Lincoln city centre and the A17/A1/A46 junction. Within the urban area of Lincoln traffic dissipates on/off Newark Road from/to the local road network.</p>
4	A46 south of B1378 Skellingthorpe Road	<p><u>Northbound</u></p> <ul style="list-style-type: none"> ■ Over 50% of journeys originate from the A46 south of Penells roundabout with the remainder joining on from the local road network onto the A46 north of Penells roundabout; ■ The vast majority of journeys (approx. 75%) continue on the A46 orbital route up to the junction with the A15; and ■ From the A46/A15 junction approximately 30% of journeys continue on the orbital route. <p><u>Southbound</u></p> <ul style="list-style-type: none"> ■ Approximately 70% of journeys join on to the A46 at the junction with the A15/Riseholme Road; ■ In the AM peak 57% of journeys travel south on the A46 up to Penells roundabout with this percentage being around 70% in the IP and PM Peak; and

		<ul style="list-style-type: none"> Of the journeys which travel to the junction with A46 Penells roundabout the vast majority continue south toward the A46/A17/A1 junction. <p><u>Key point</u> The A46 forms an important route for strategic traffic with many journeys travelling between the A46/A17/A1 and locations north of Lincoln. This indicates that the A46 orbital route functions as a strategic route for a large percentage of journeys not destined for Lincoln itself.</p>
5	A15 Sleaford Road just north of Bloxholm Lane	<p><u>Northbound</u></p> <ul style="list-style-type: none"> Over 90% of journeys originate from the A15 south of the junction with B1178; Journeys continue north and split between the A15 London Road and B1131/B1188; and North of A15 London Road and B1131/B1188 traffic disperses into the urban area of Lincoln. <p><u>Southbound</u></p> <ul style="list-style-type: none"> Traffic generally originates from the urban area of Lincoln north of South Park; and The A15 London Road and the B1188/B1131 which joins on to the A15 London Road just north of Bracebridge Heath are the two main routes where traffic joins onto the A15 Sleaford Road. Journeys then continue south on A15 Sleaford Road. <p><u>Key point</u> Forms an important radial route into the city centre from the south-east side of Lincoln.</p>
6	A158 north of A15 Bunker Hill	<p><u>Northbound</u></p> <ul style="list-style-type: none"> A split of between 40 to 60% travel from the orbital route A158 or A15 Bunkers Hill depending on the time period; On average 40% of traffic joins on from the orbital route north of A46/Saxilby junction; In the AM peak and IP around 20% of journeys originate from the A46 south of Penells roundabout dropping to 12% in the PM Peak; and Journeys which travel via Bunkers Hill generally originate from the urban area north of Lincoln City Centre. <p><u>Southbound</u></p> <ul style="list-style-type: none"> From the A158/Wragby Road East roundabout approximately 60% of traffic continues on the A158 orbital route and the remainder travels south on Wragby Road East/Bunkers Hill; Approximately 30-35% travel south on the A46 up to Saxilby Road with a large proportion of traffic dispersing into the urban area to the north of Lincoln on route; 15% of journeys travel south the full length of the orbital route and continue on the A46 south of Penells roundabout; and Traffic travelling on Bunkers Hill generally disperses into the urban area of Lincoln north of the city centre. <p><u>Key point</u> A large proportion of traffic originates or travels to the urban area to north of Lincoln via Bunkers Hill or A158/A46 orbital route. It is noted that approximately 15 to 20% of traffic travel the full length of the A46 orbital route suggesting there</p>

		is a significant demand for strategic traffic wishing to bypass Lincoln and this traffic is currently choosing the A46 orbital route as the optimum route.
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Table 1 shows that approximately 15 to 20% of traffic utilising the A46 travel the full length of the orbital route indicating that these are strategic journeys which do not originate and are not destined for Lincoln. The remainder of traffic which utilises the A46 orbital route dissipates into the urban area or originates from this area.

The A1434 Newark Road forms a key radial route between the urban area of Lincoln and the A46/A17/A1 junction. Select link analysis shows that the majority of traffic dissipates on/off Newark Road from/to the local road network. This indicates that the majority of journeys utilising Newark Road are destined or originate from the urban area of Lincoln with around 30% travelling to/from the A46 south of Penells roundabout.

Meadow Lane currently forms an important east west link between the radial routes to the south of Lincoln and onto Sleaford Road. It is also the only crossing point of the River Witham to the south of Lincoln. As a result, it caters for both local and non-local journeys due to a lack of alternative east west routes to the south of Lincoln. This is reflected by traffic outputs showing the majority of journeys originating and destined for the urban area of Lincoln and just under 30% of journeys which do not originate or are not destined for the local urban area indicating these journeys are using Meadow Lane as a through route.

The A15 Sleaford Road forms a key radial route to the south east of Lincoln. The vast majority of journeys originate or are destined for the urban area of Lincoln.

CONCLUSION

This appendix has used the Lincolnshire transport base year model (2016) to undertake a select link analysis. It has shown:

- Up to 20% of traffic using the A46 travel along its full length indicating that these are strategic journeys which do not originate and are not destined for Lincoln;
- The A1434 Newark Road forms a key link between the urban area of Lincoln and the A46/A17/A1 junction with the majority of journeys originating or destined for the urban area of Lincoln and 30% originating or destined for the A46 south of Penells roundabout; and
- Meadow Lane forms an important east west link between the radial routes in the south of Lincoln with 30% of the journeys continuing or originating further afield than the local urban area.

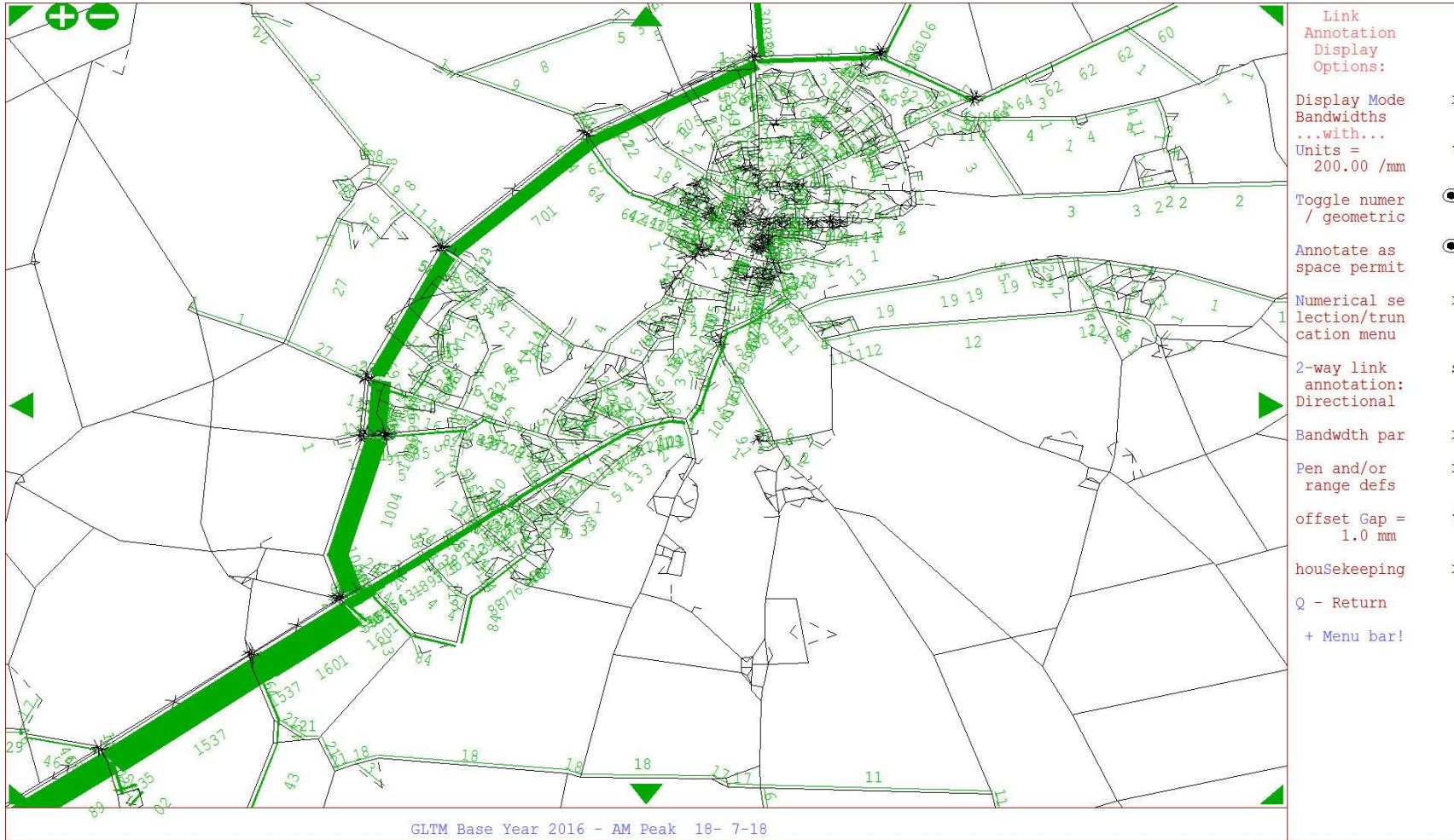


Figure 2 – A46 south of Penells roundabout AM Peak southbound

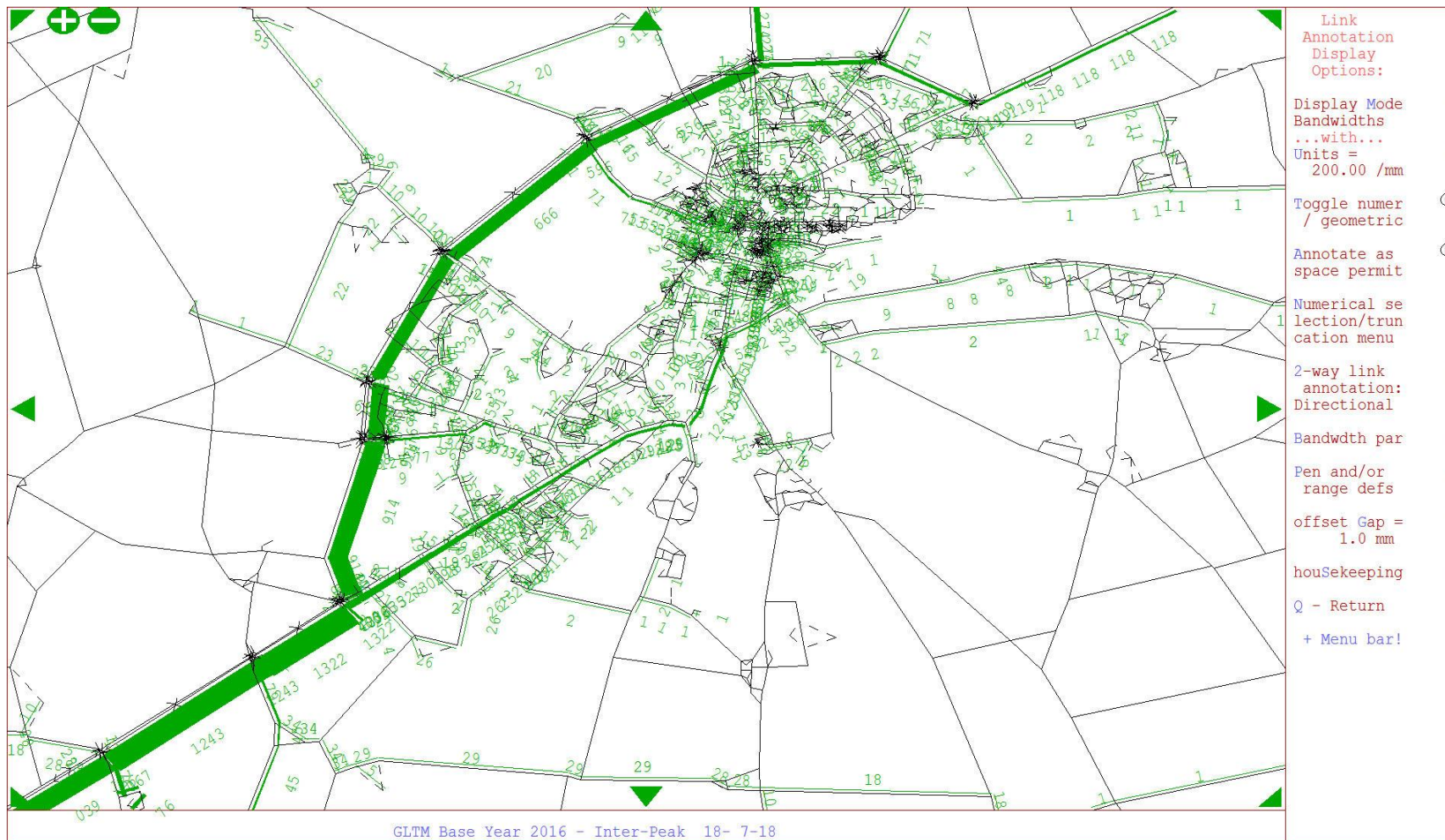


Figure 3 – A46 south of Penells roundabout Inter-Peak southbound

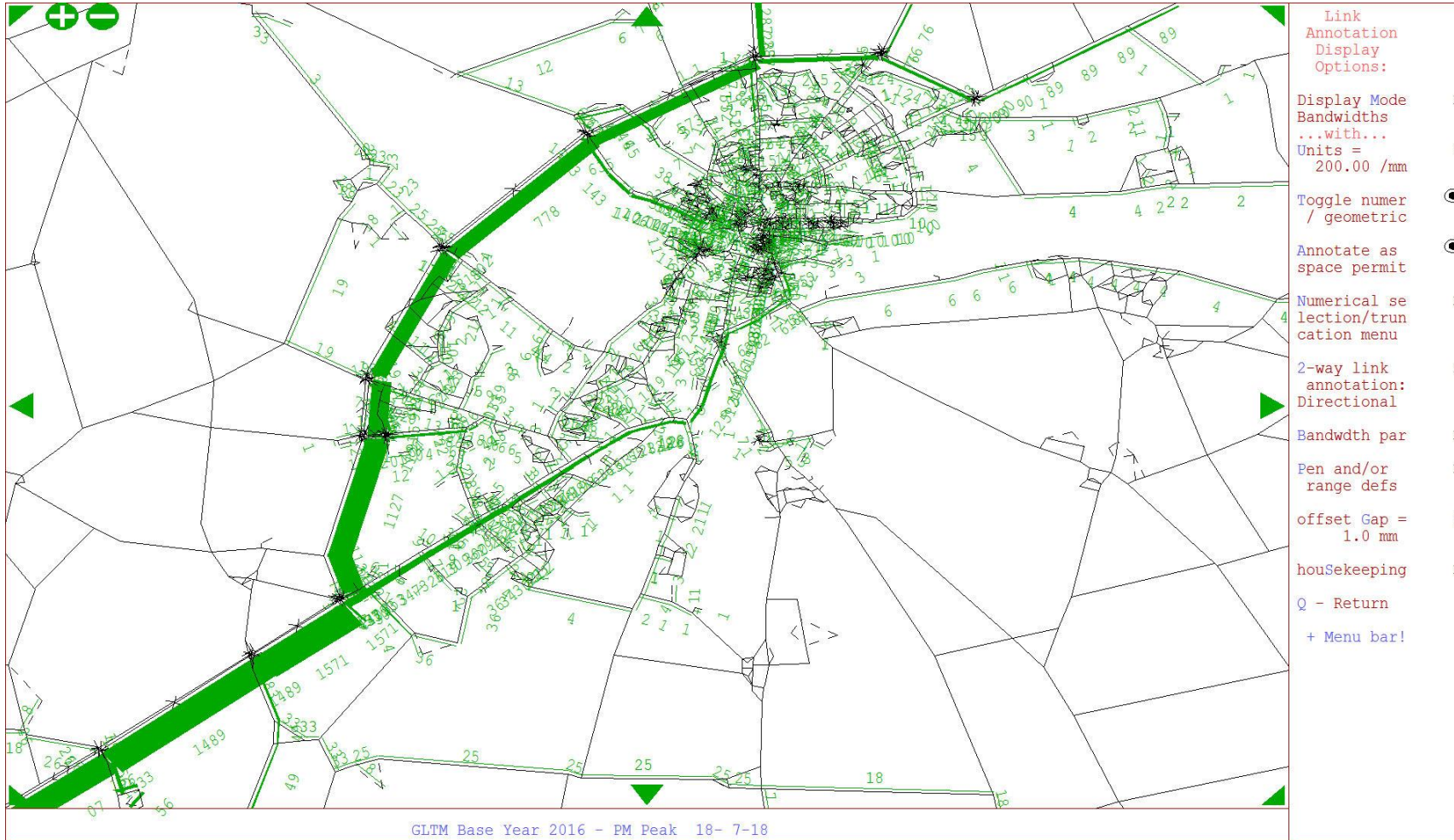


Figure 4 - A46 south of Penells roundabout PM Peak southbound

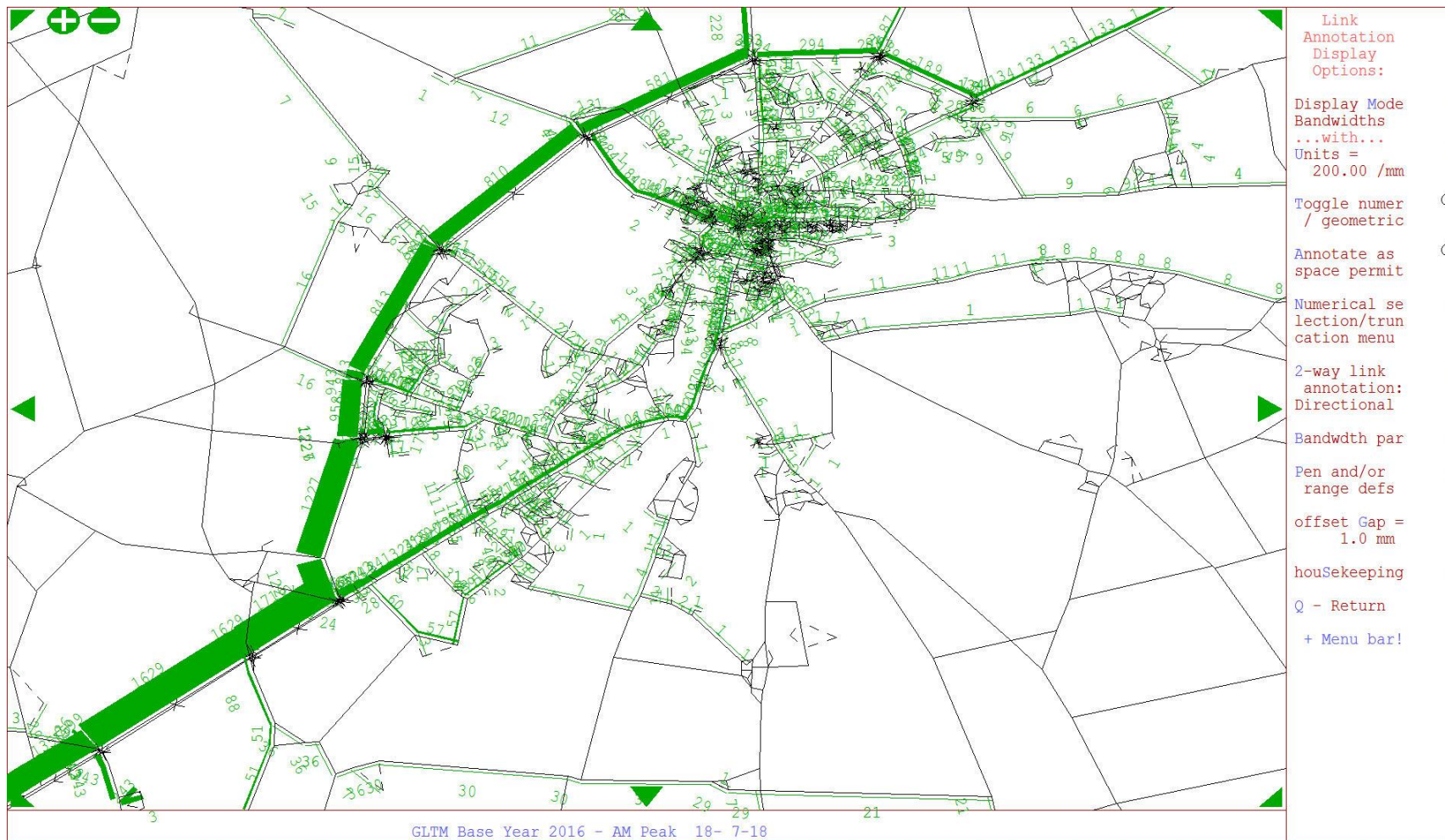


Figure 5 – A46 south of Penells roundabout AM Peak northbound

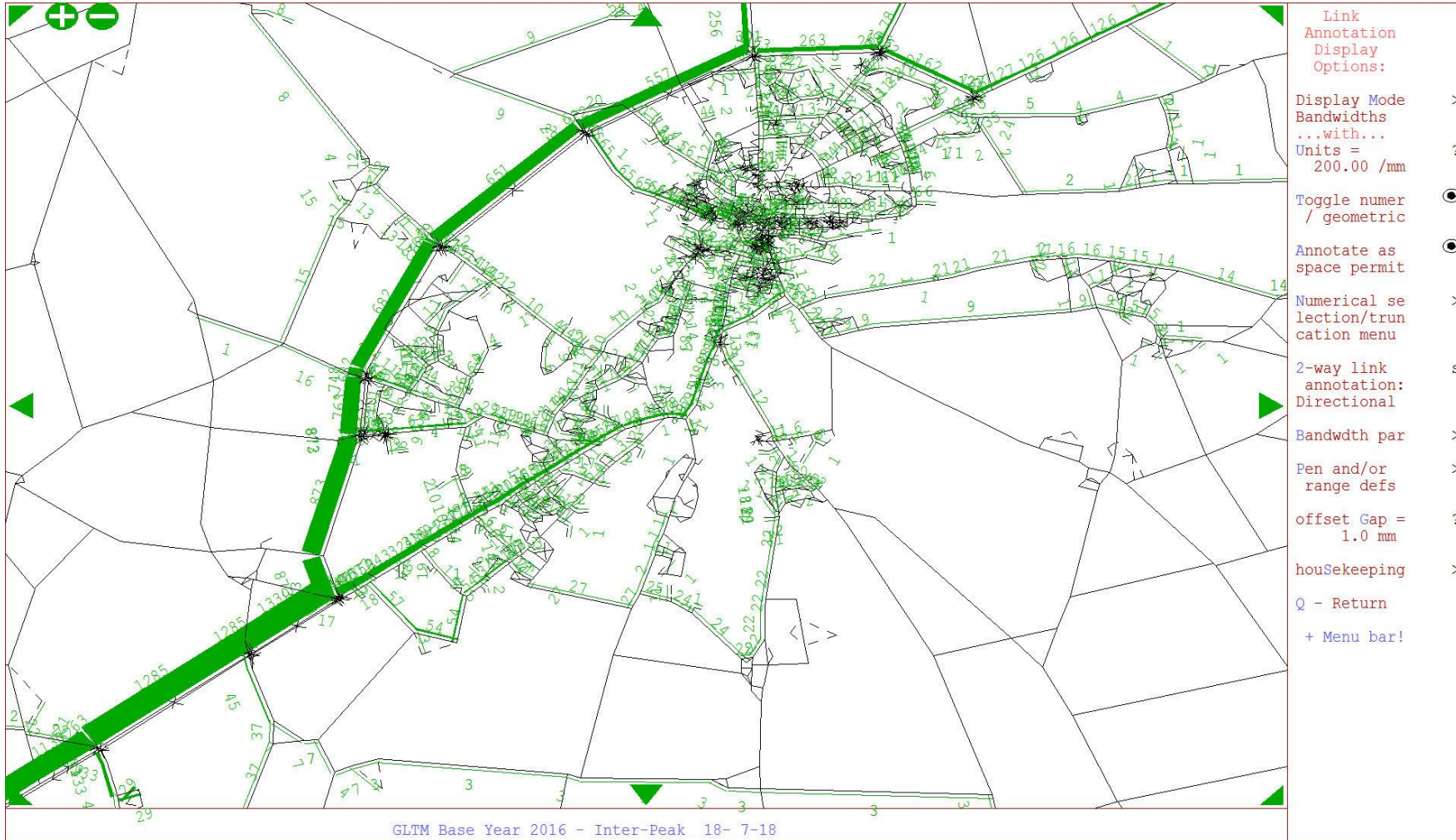


Figure 6 – A46 south of Penells roundabout Inter-Peak northbound

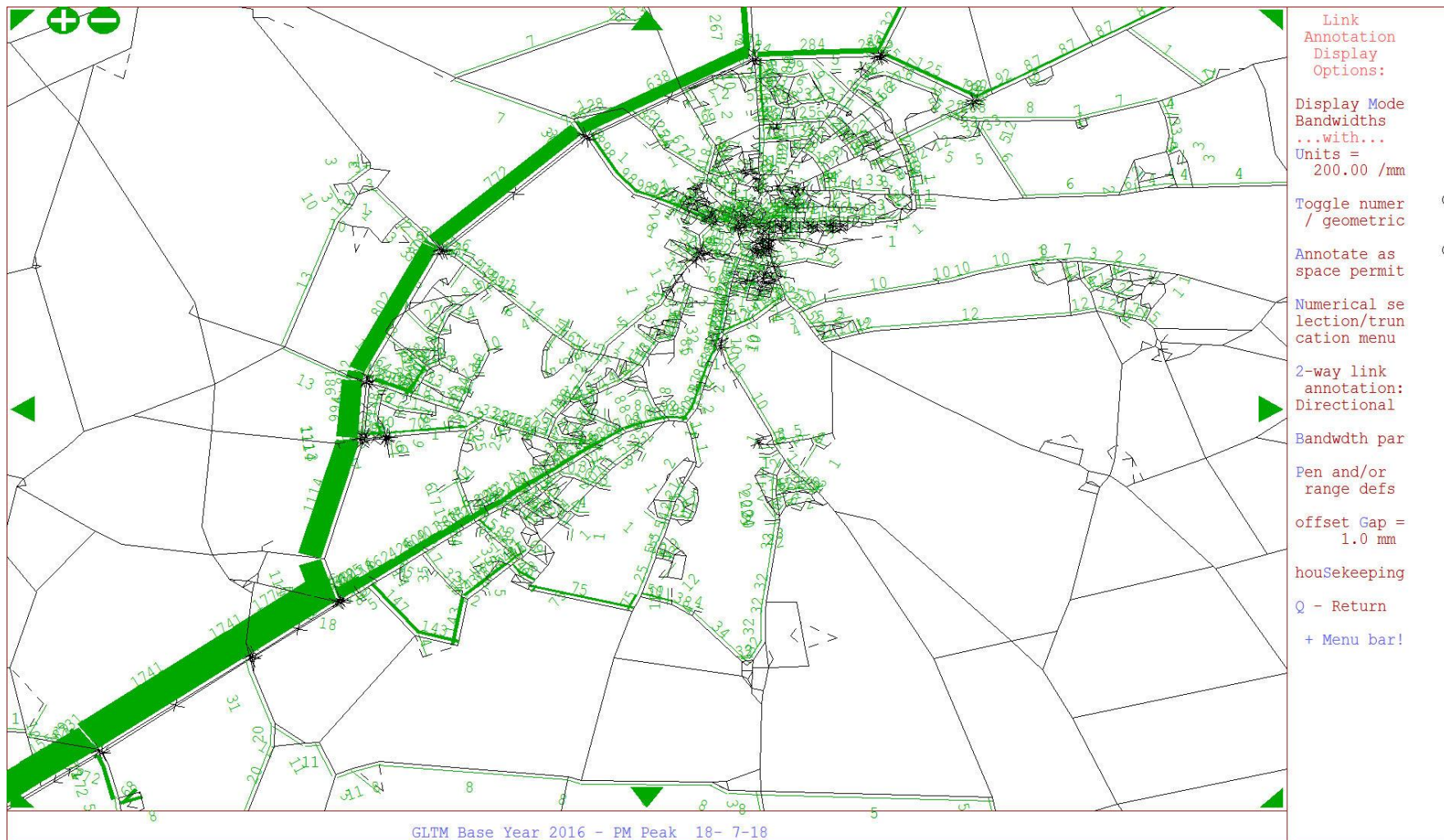


Figure 7 – A46 south of Penells roundabout PM Peak northbound

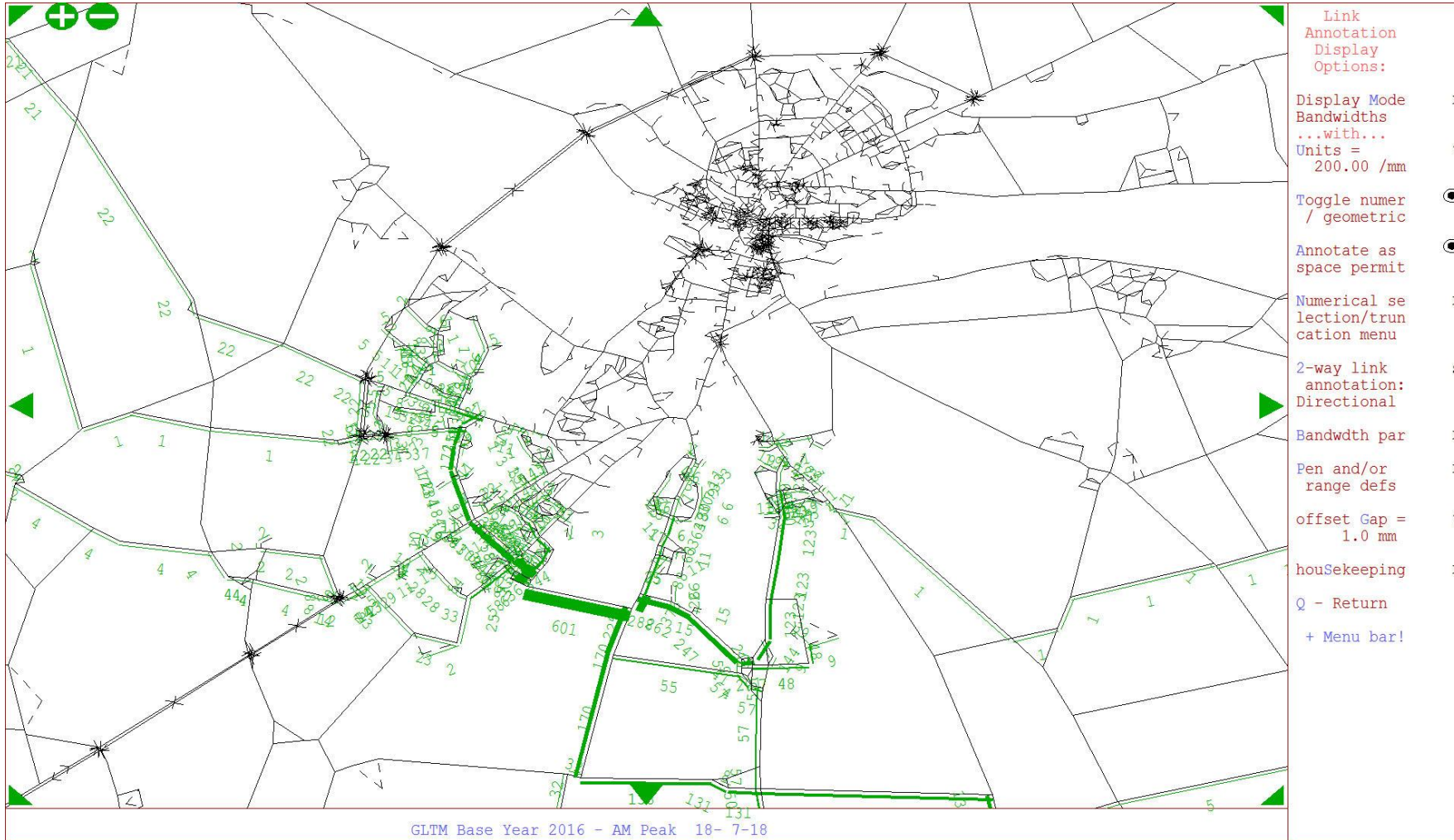


Figure 8 – Meadow Lane AM Peak westbound

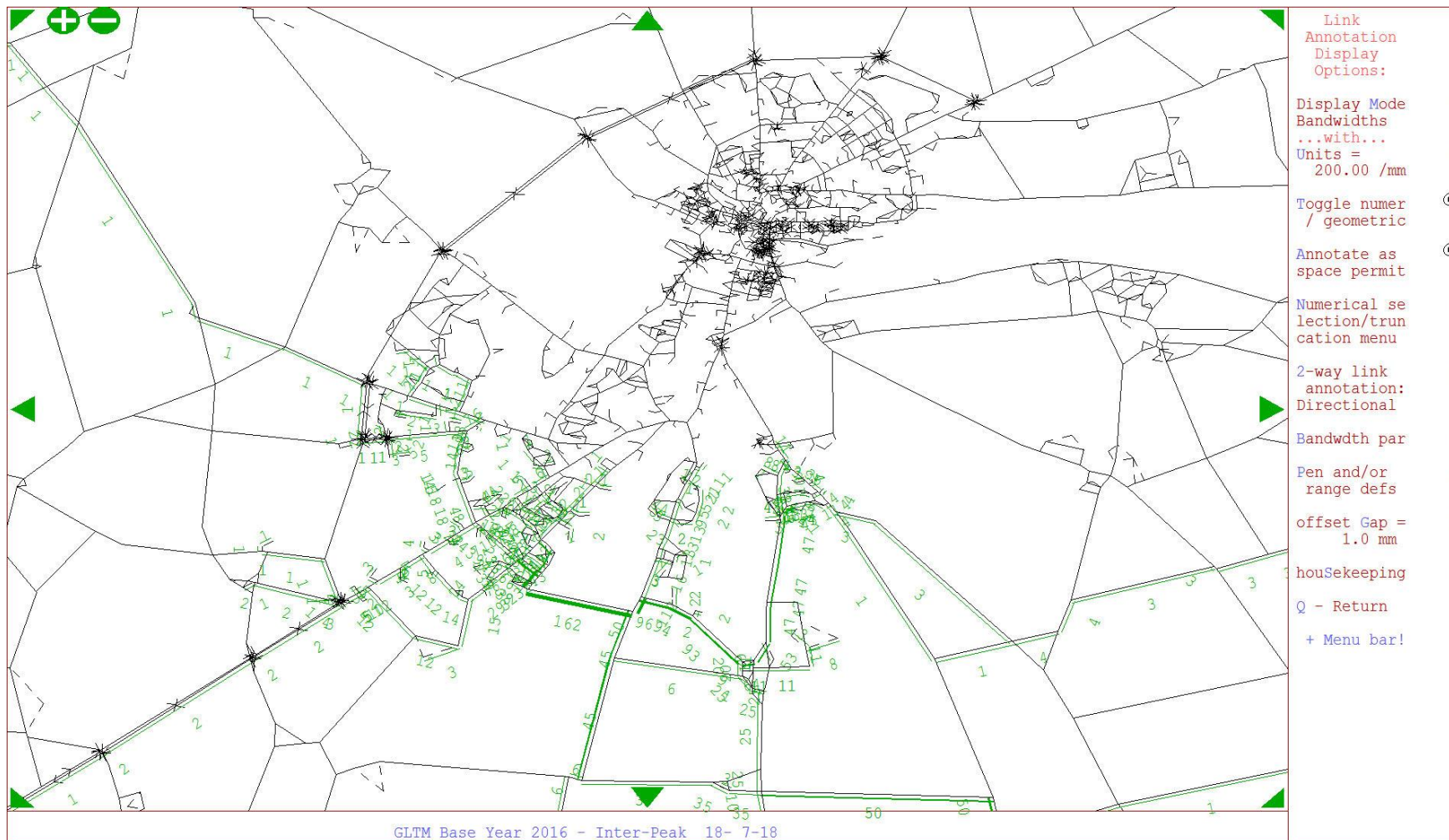


Figure 9 – Meadow Lane Inter-Peak westbound

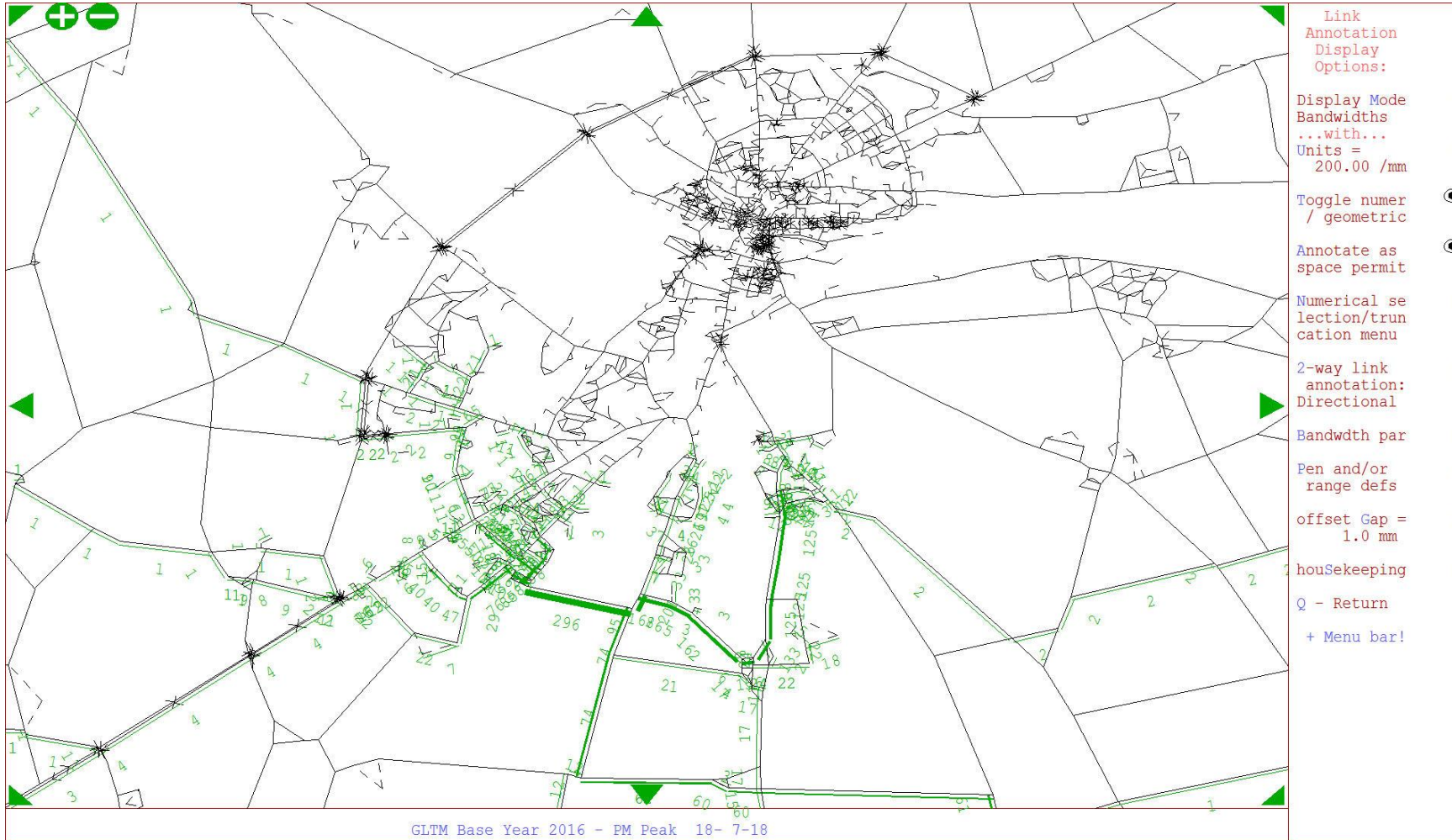


Figure 10 – Meadow Lane PM Peak westbound

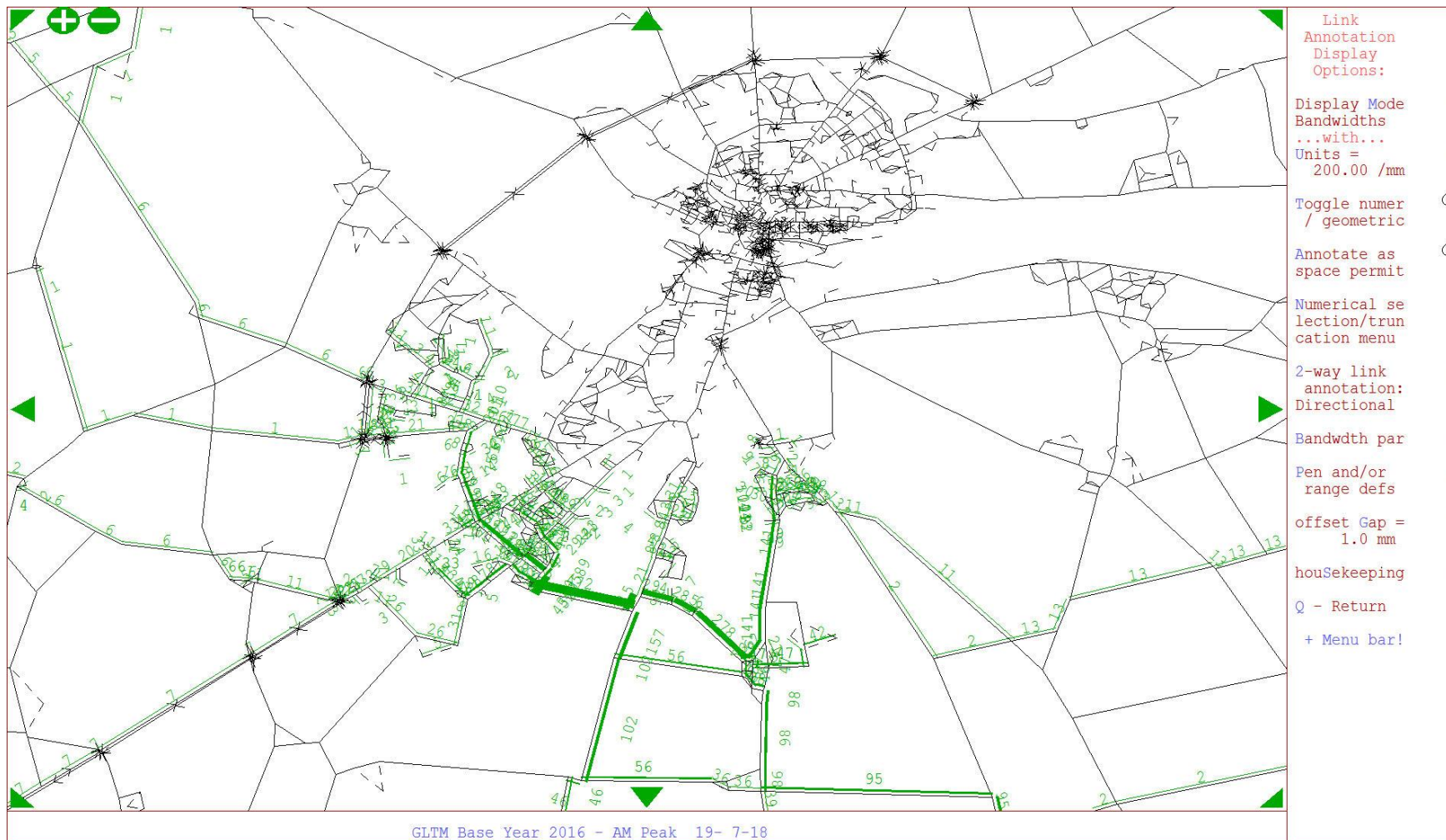


Figure 11 – Meadow Lane AM Peak eastbound

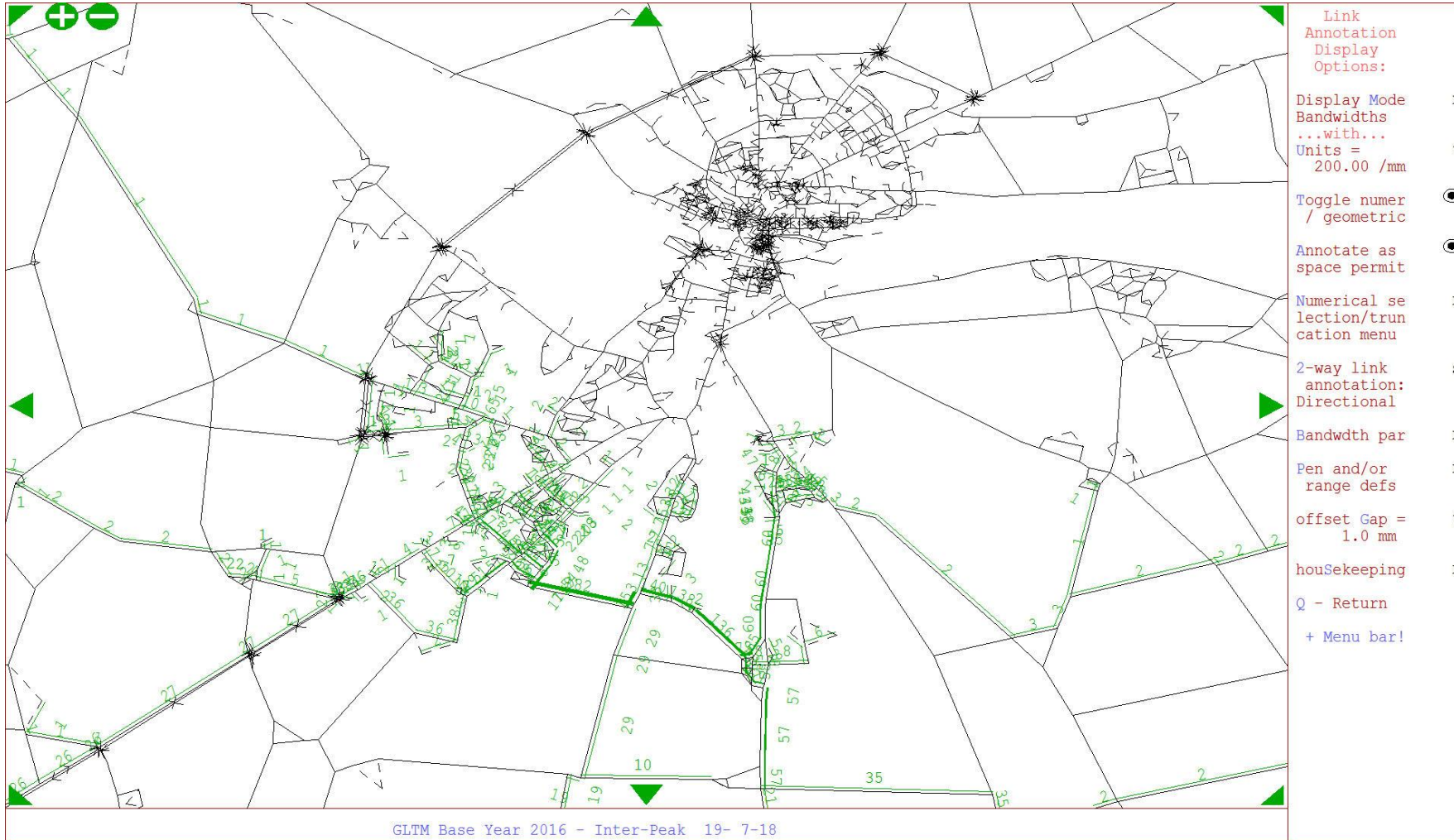


Figure 12 – Meadow Lane Inter-Peak eastbound

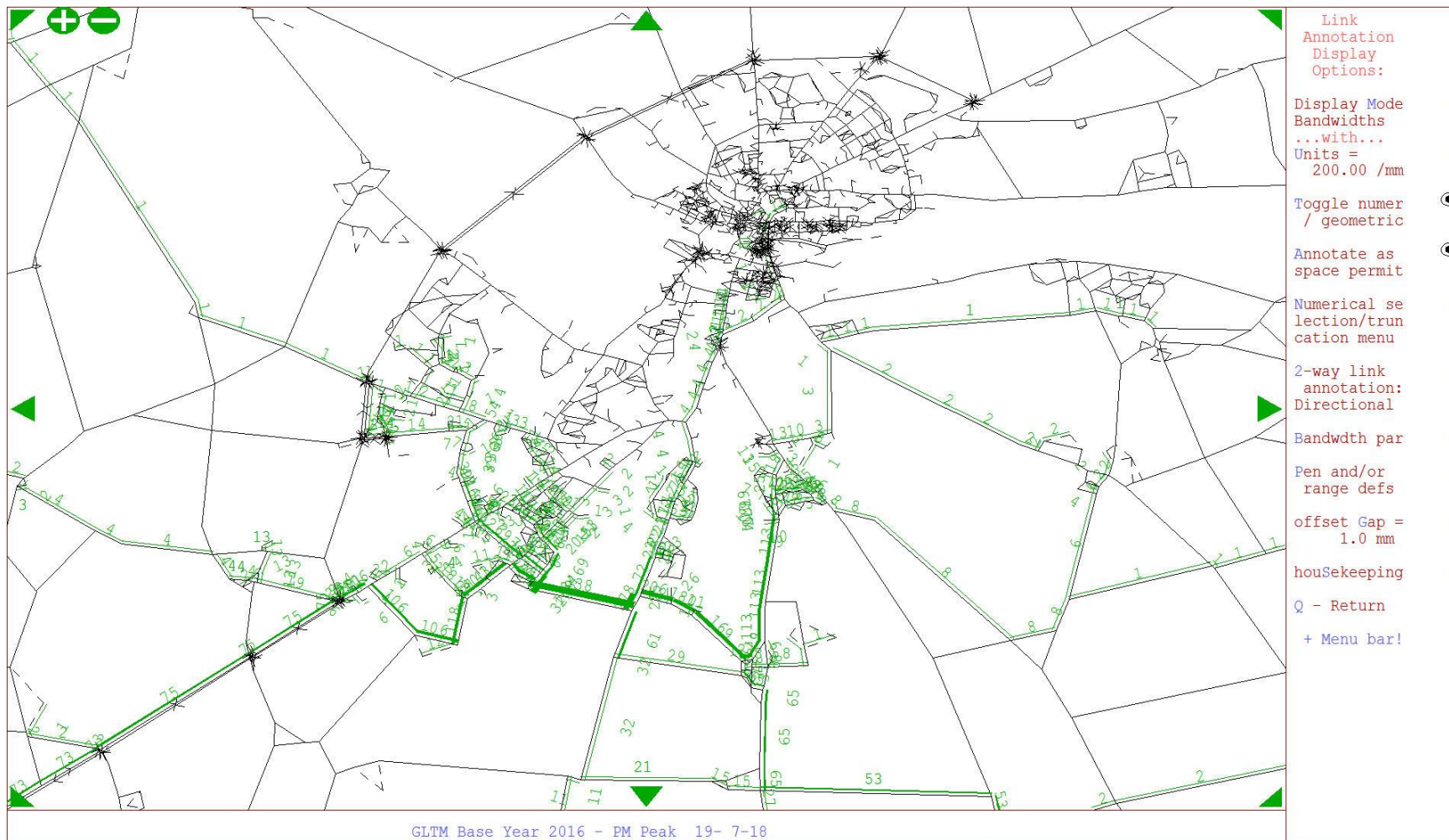


Figure 13 – Meadow Lane PM Peak eastbound

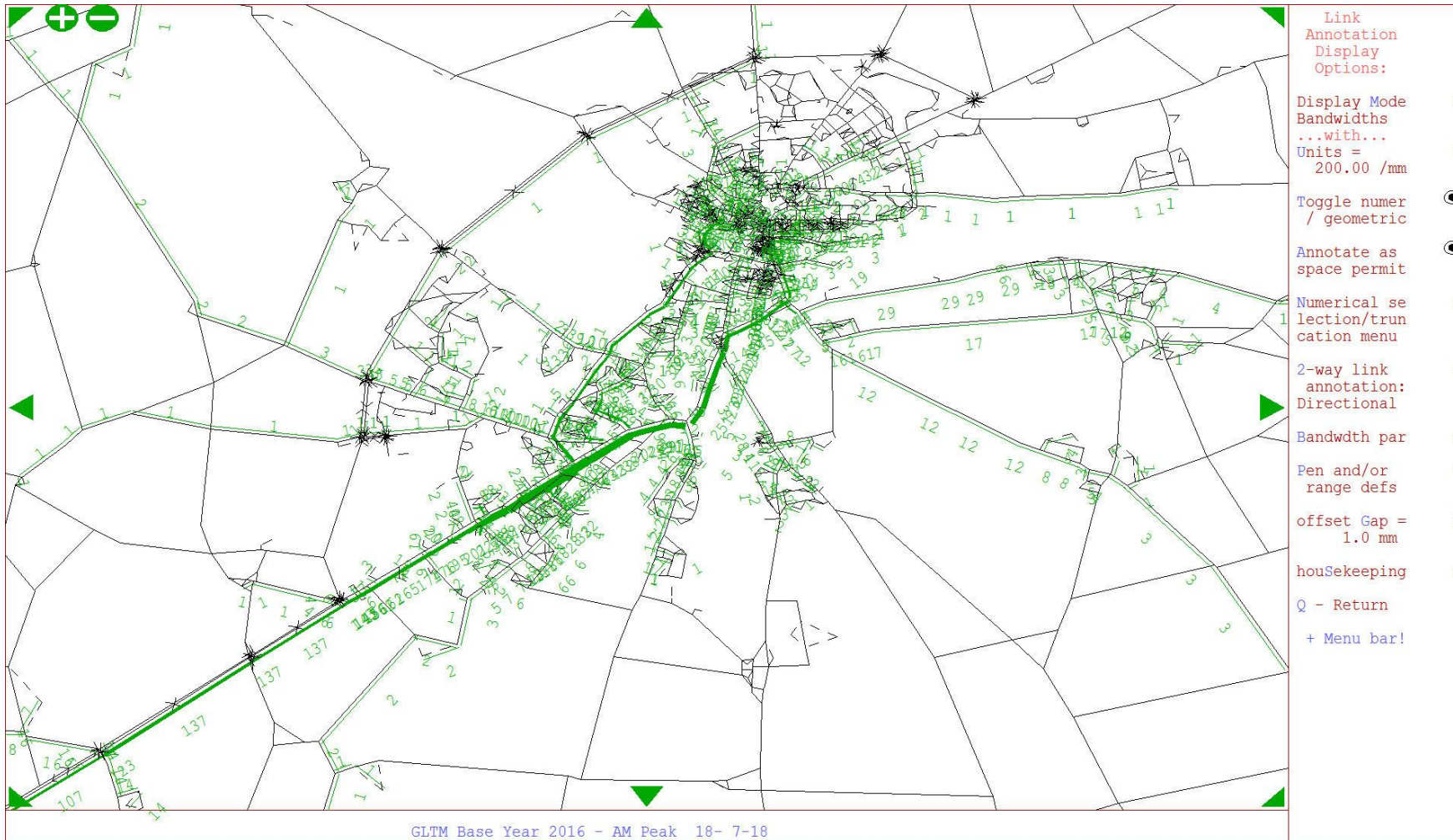


Figure 14 – A1434 Newark Road AM Peak southbound

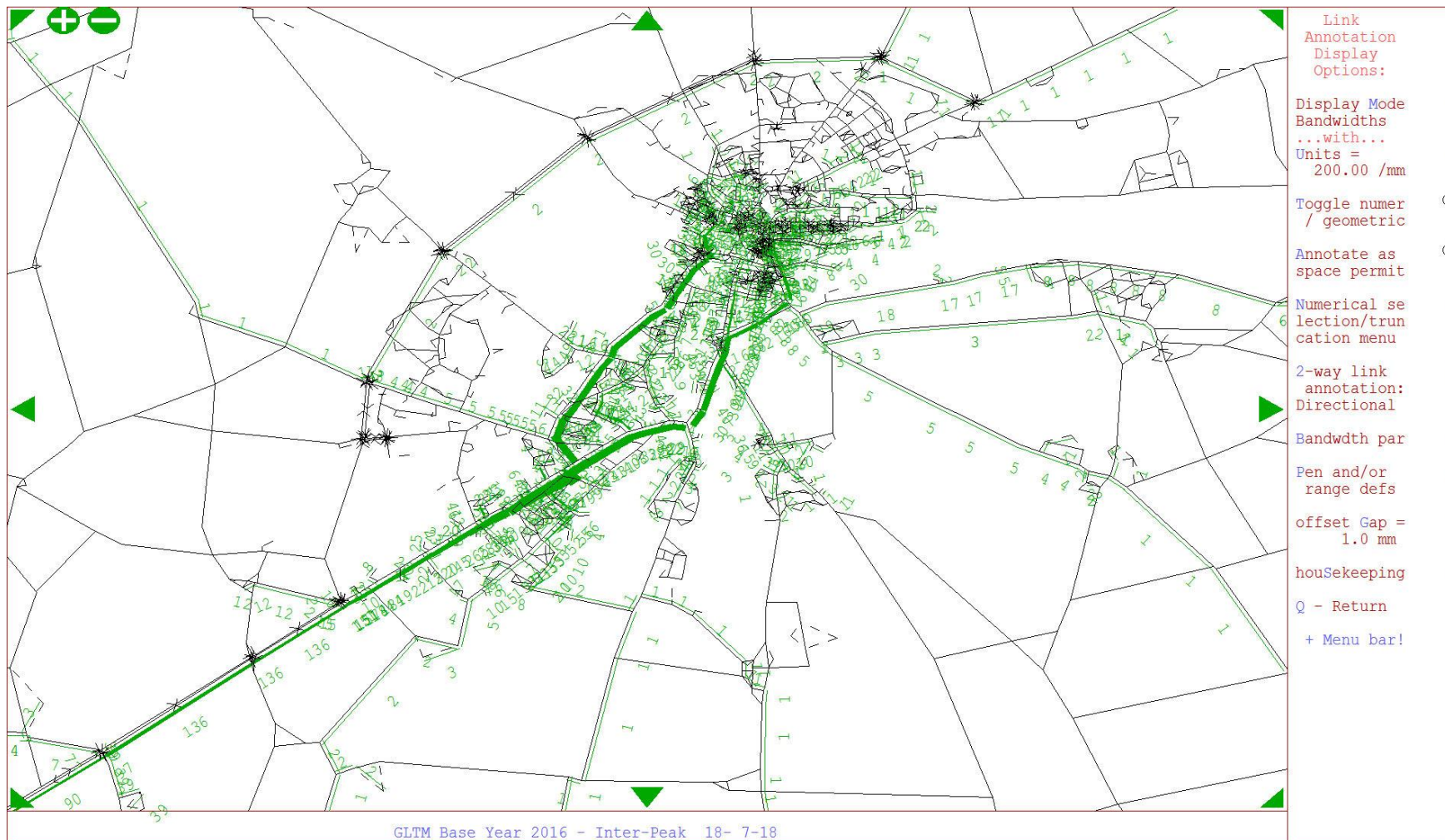


Figure 15 - A1434 Newark Road Inter-Peak southbound

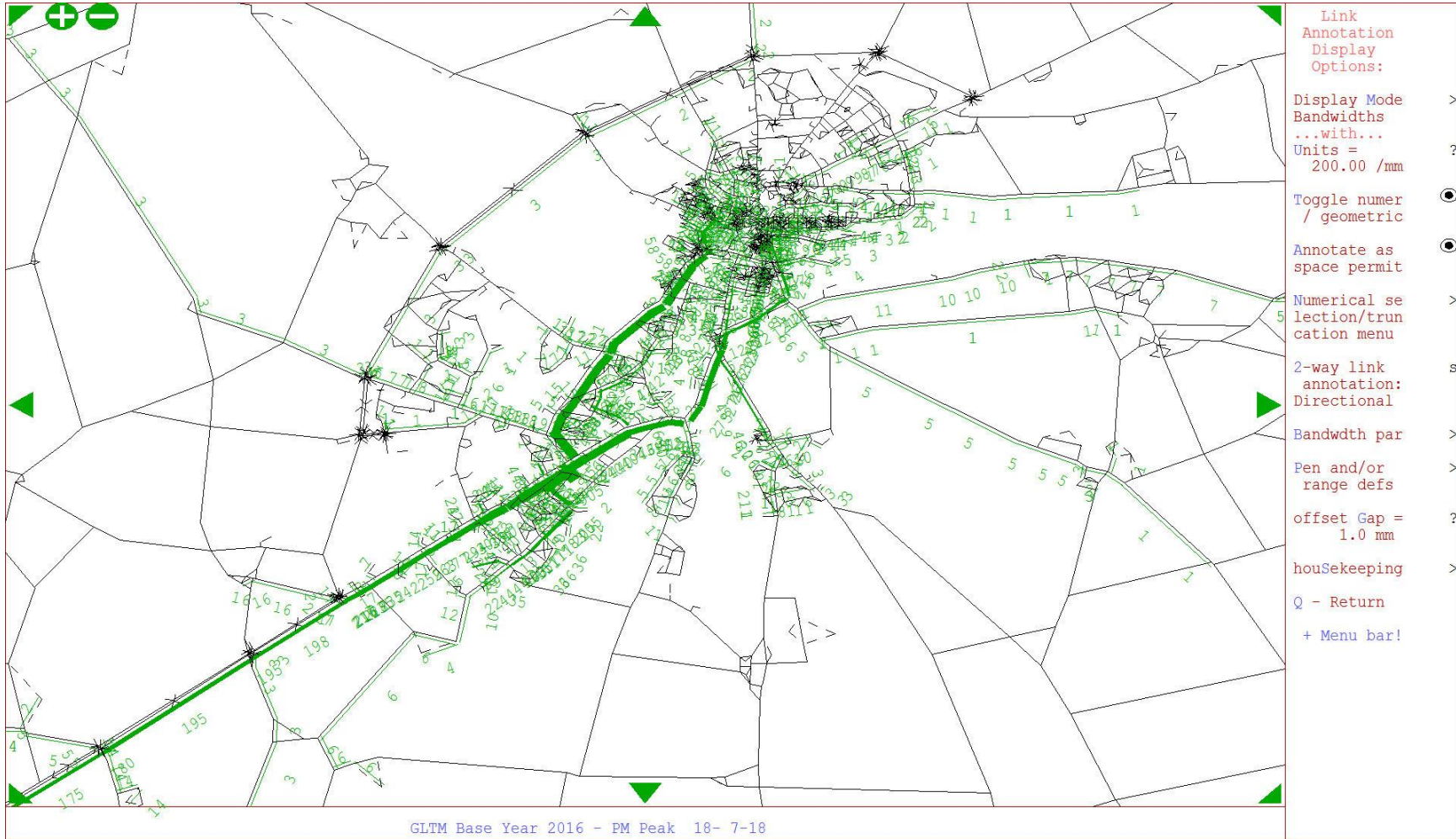


Figure 16 – A1434 Newark Road PM Peak southbound

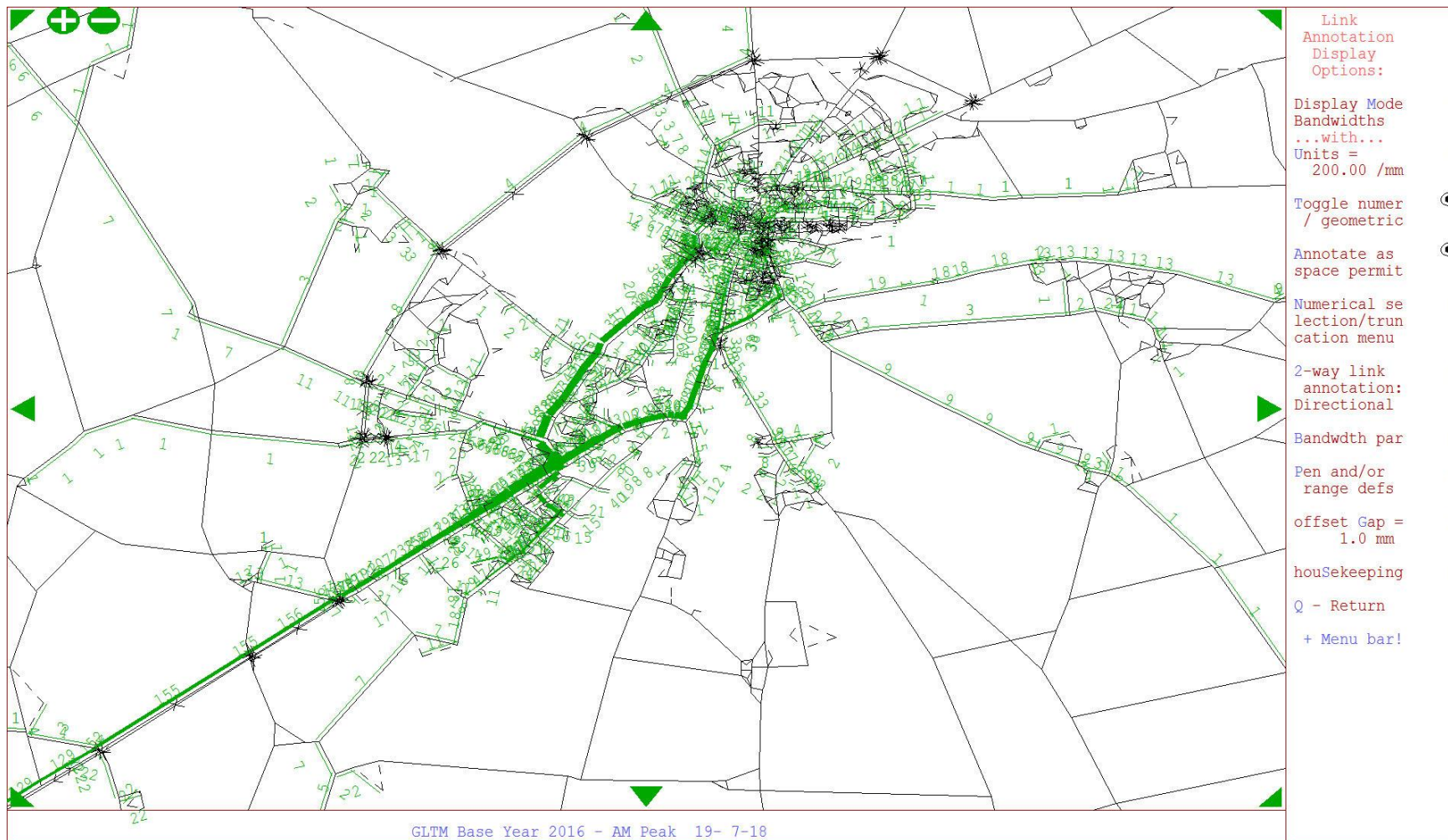


Figure 17 – A1434 Newark Road AM Peak northbound

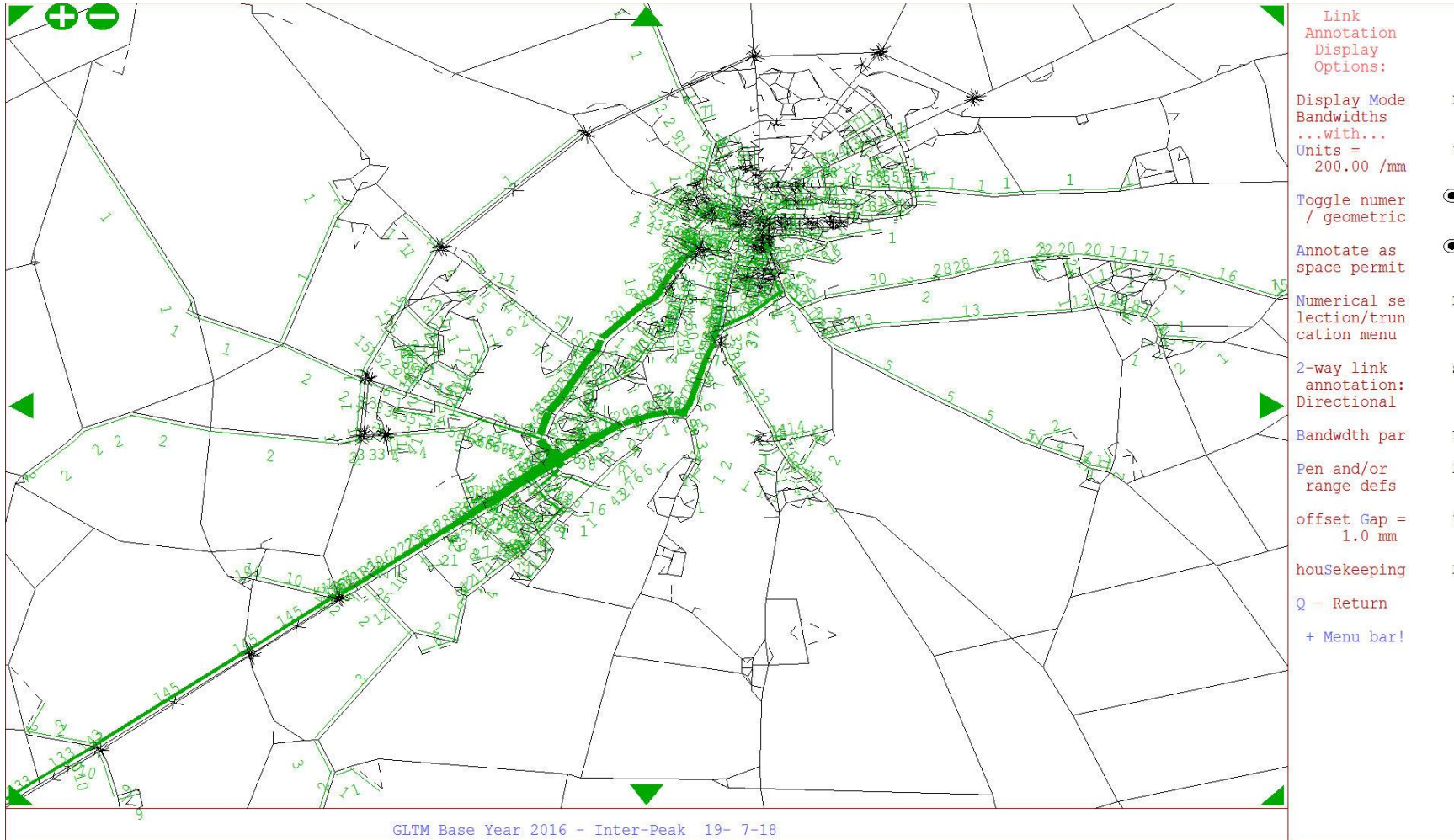


Figure 18 – A1434 Newark Road Inter-Peak northbound

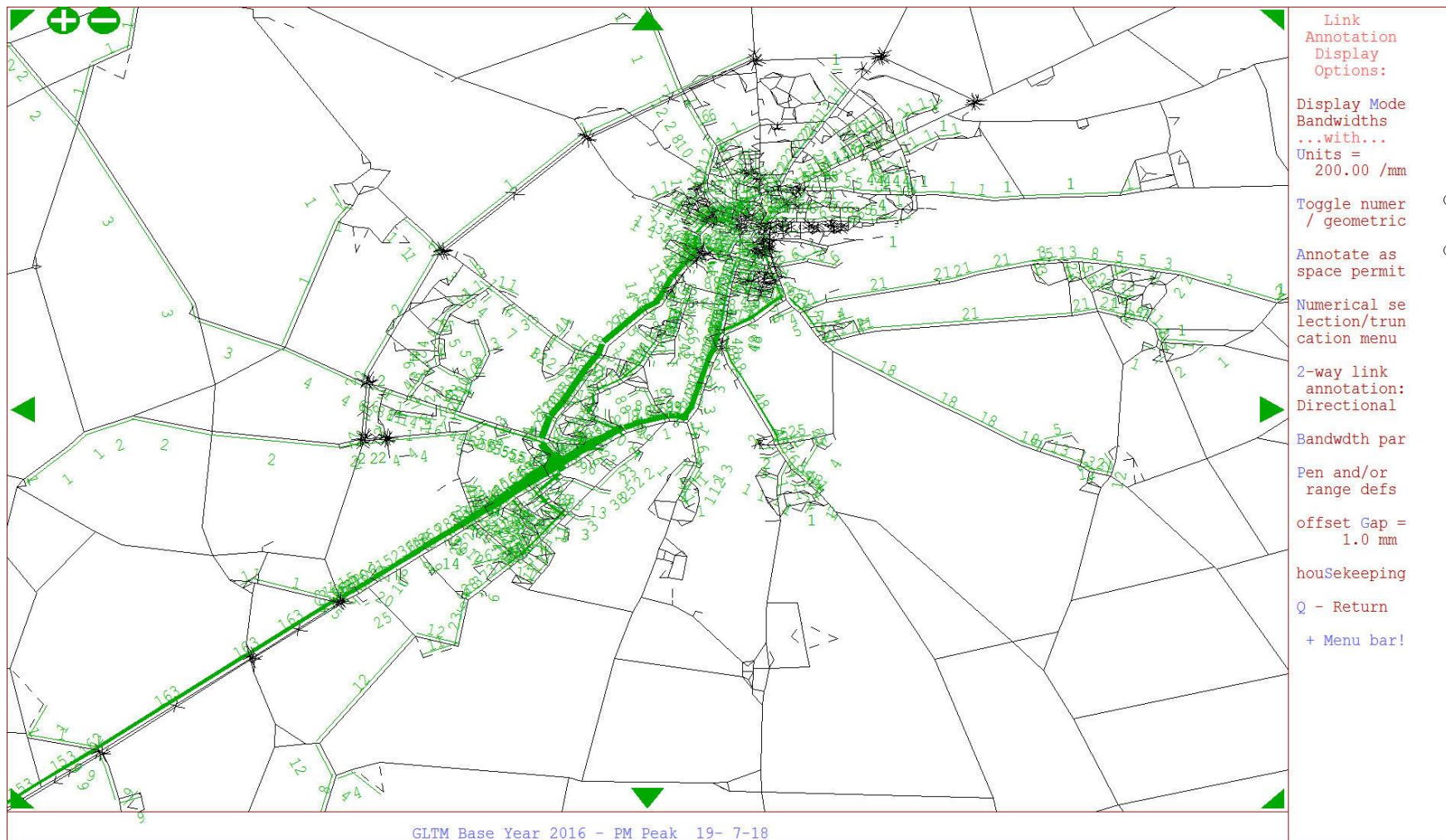


Figure 19 – A1434 Newark Road PM Peak northbound

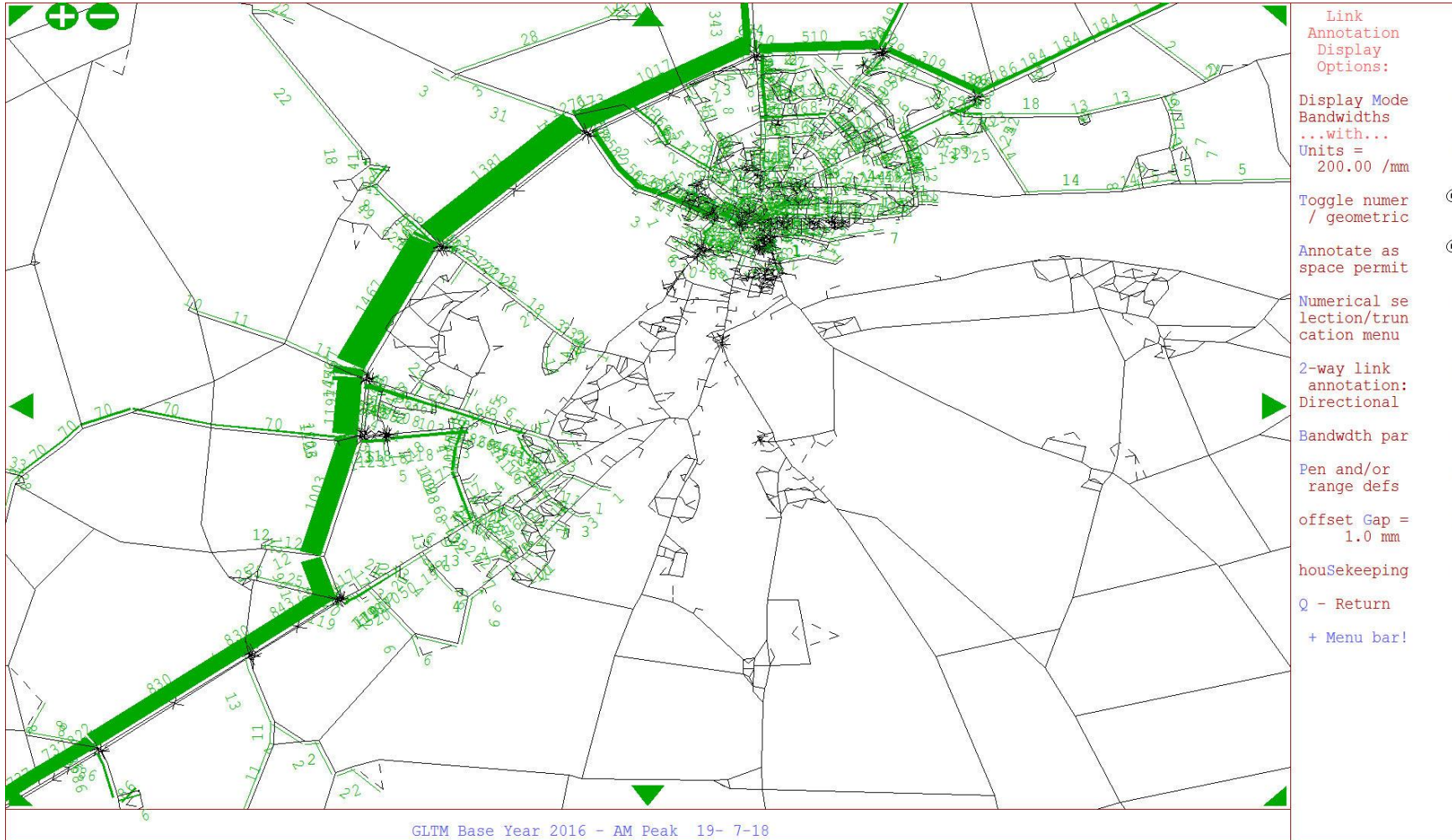


Figure 20 – A46 south of B1378 Skellingthorpe Road AM Peak northbound

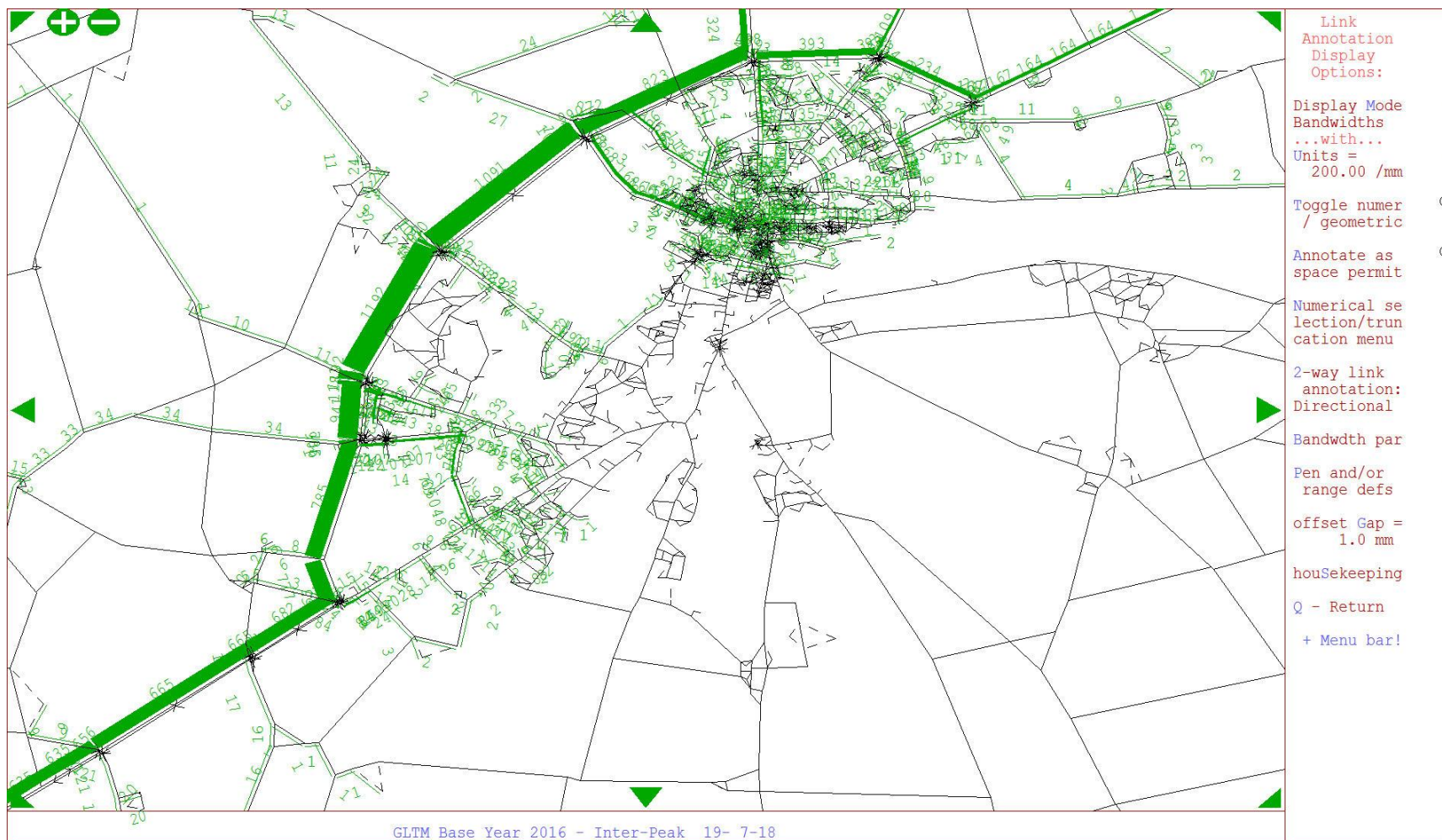


Figure 21 – A46 south of B1378 Skellingthorpe Road Inter-Peak northbound

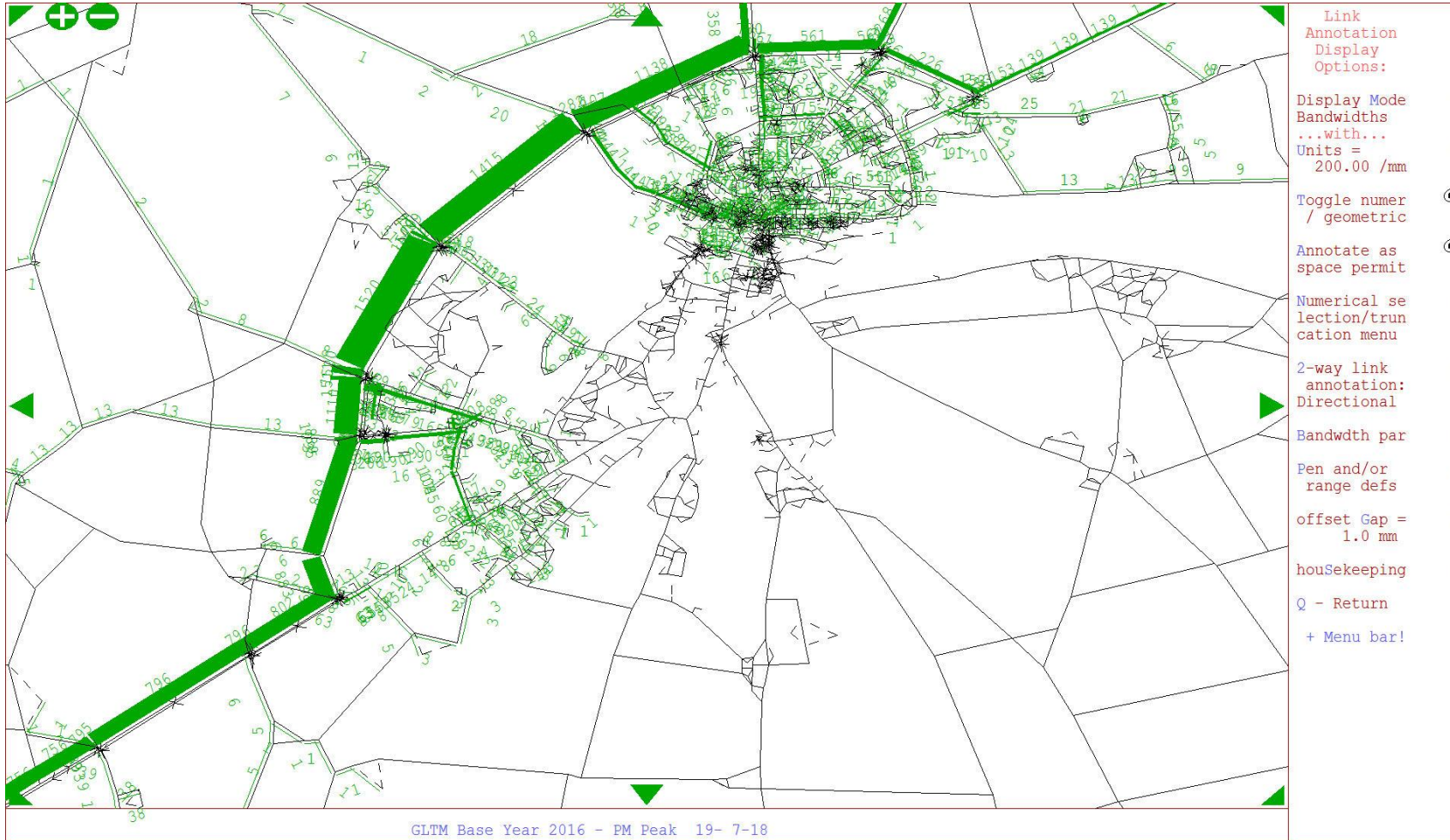


Figure 22 – A46 south of B1378 Skellingthorpe Road PM Peak northbound

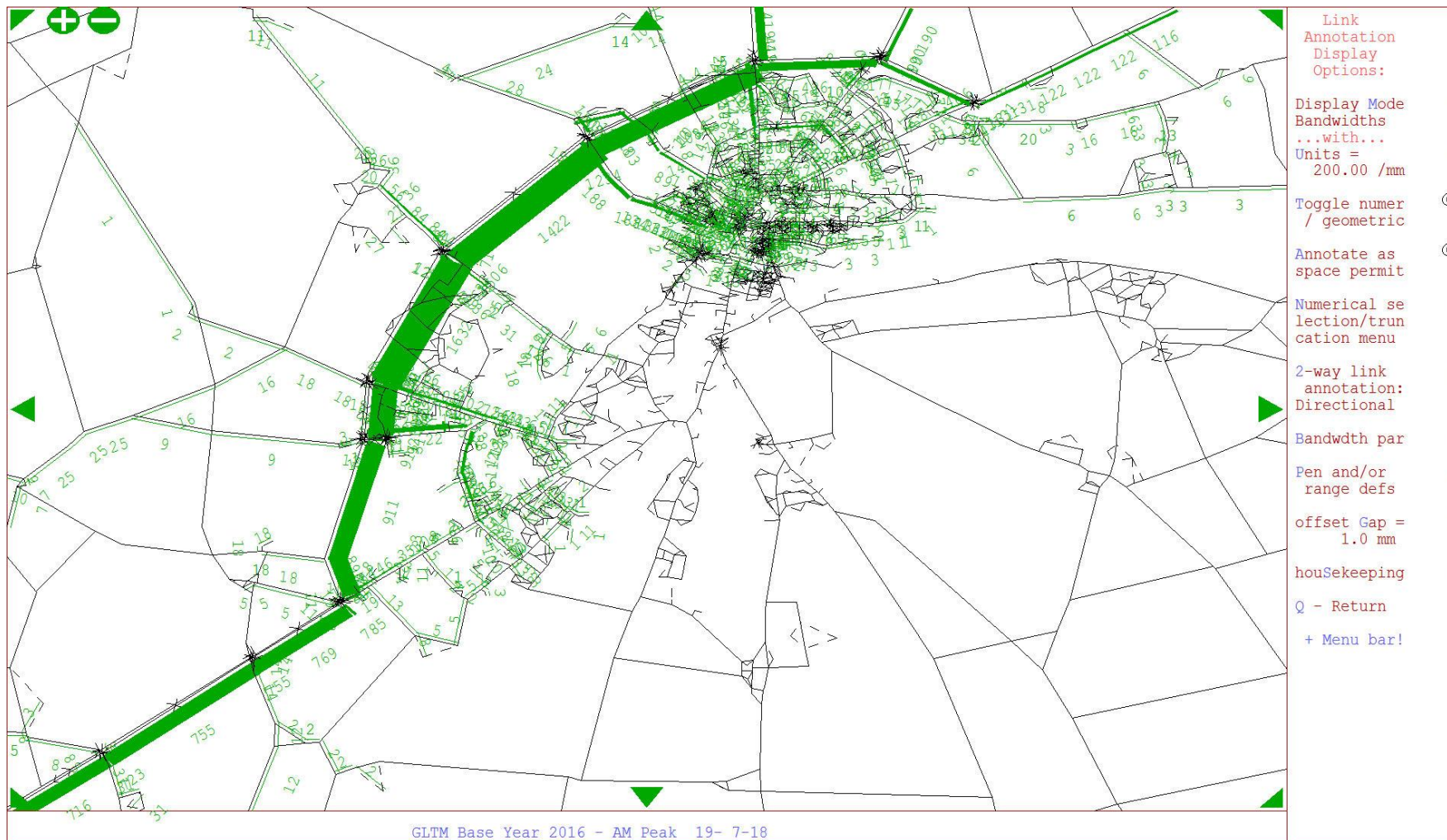


Figure 23 – A46 south of B1378 Skellingthorpe Road AM Peak southbound

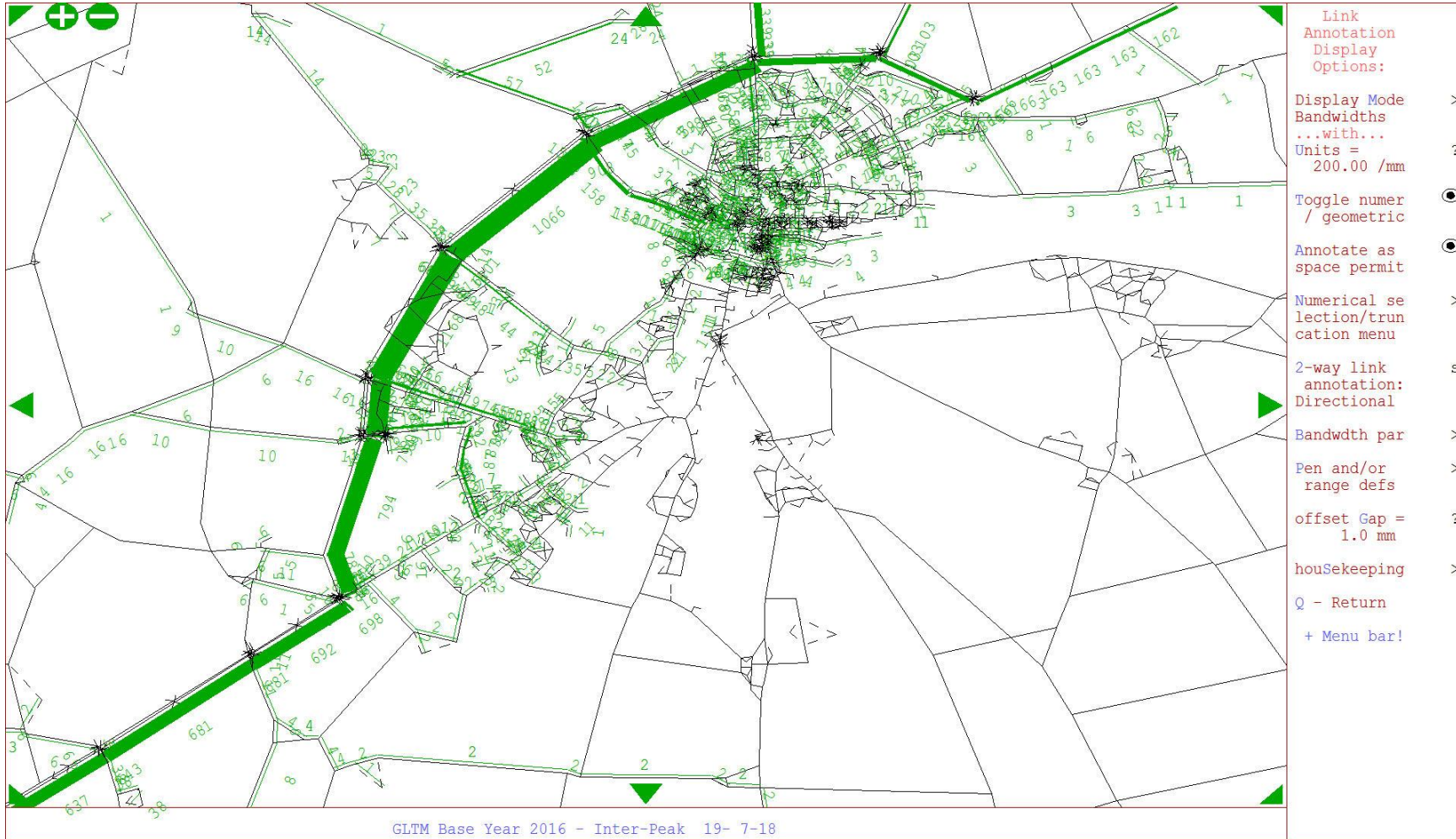


Figure 24 – A46 south of B1378 Skellingthorpe Road Inter-Peak southbound

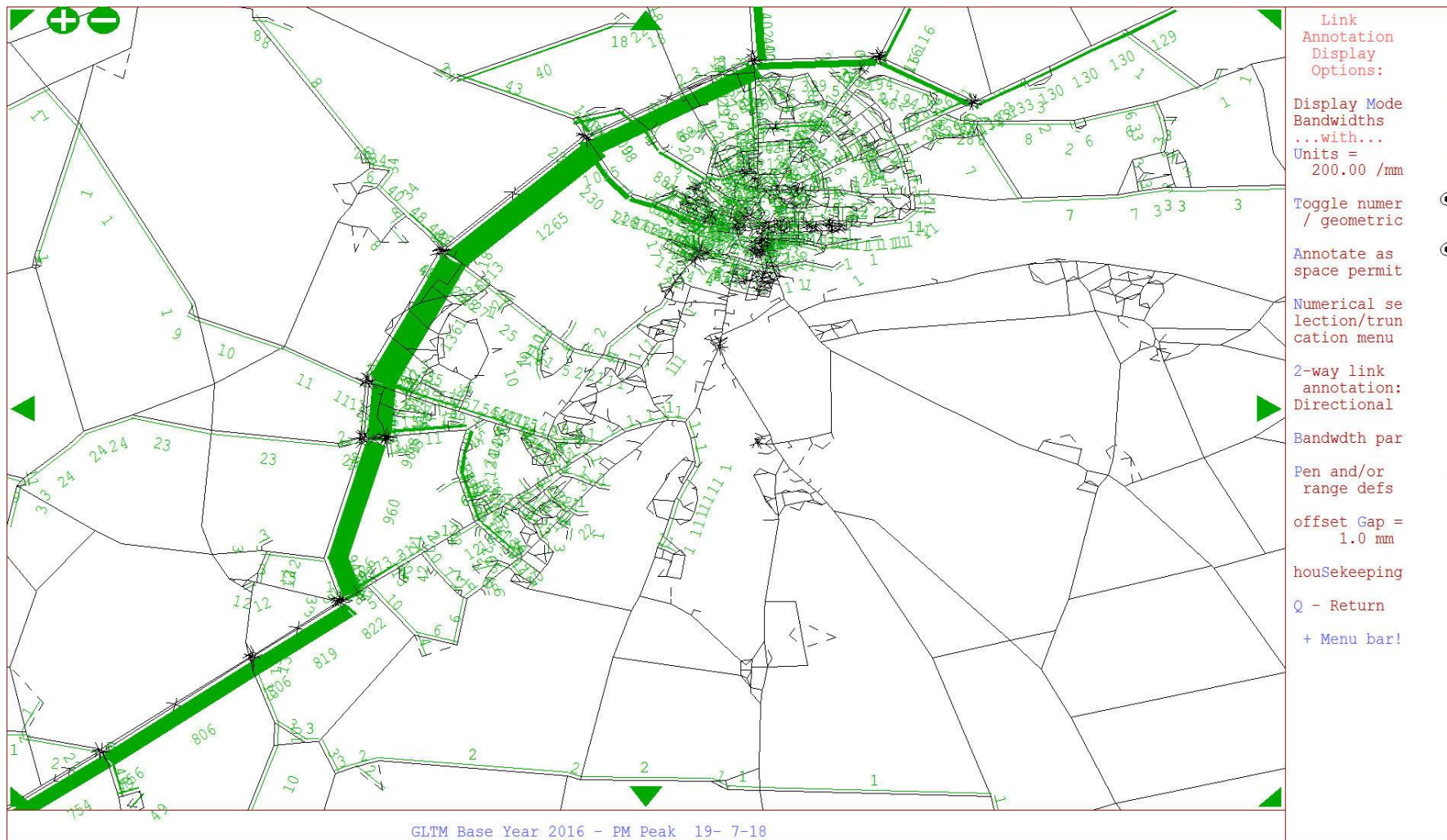


Figure 25 – A46 south of B1378 Skellingthorpe Road PM Peak southbound

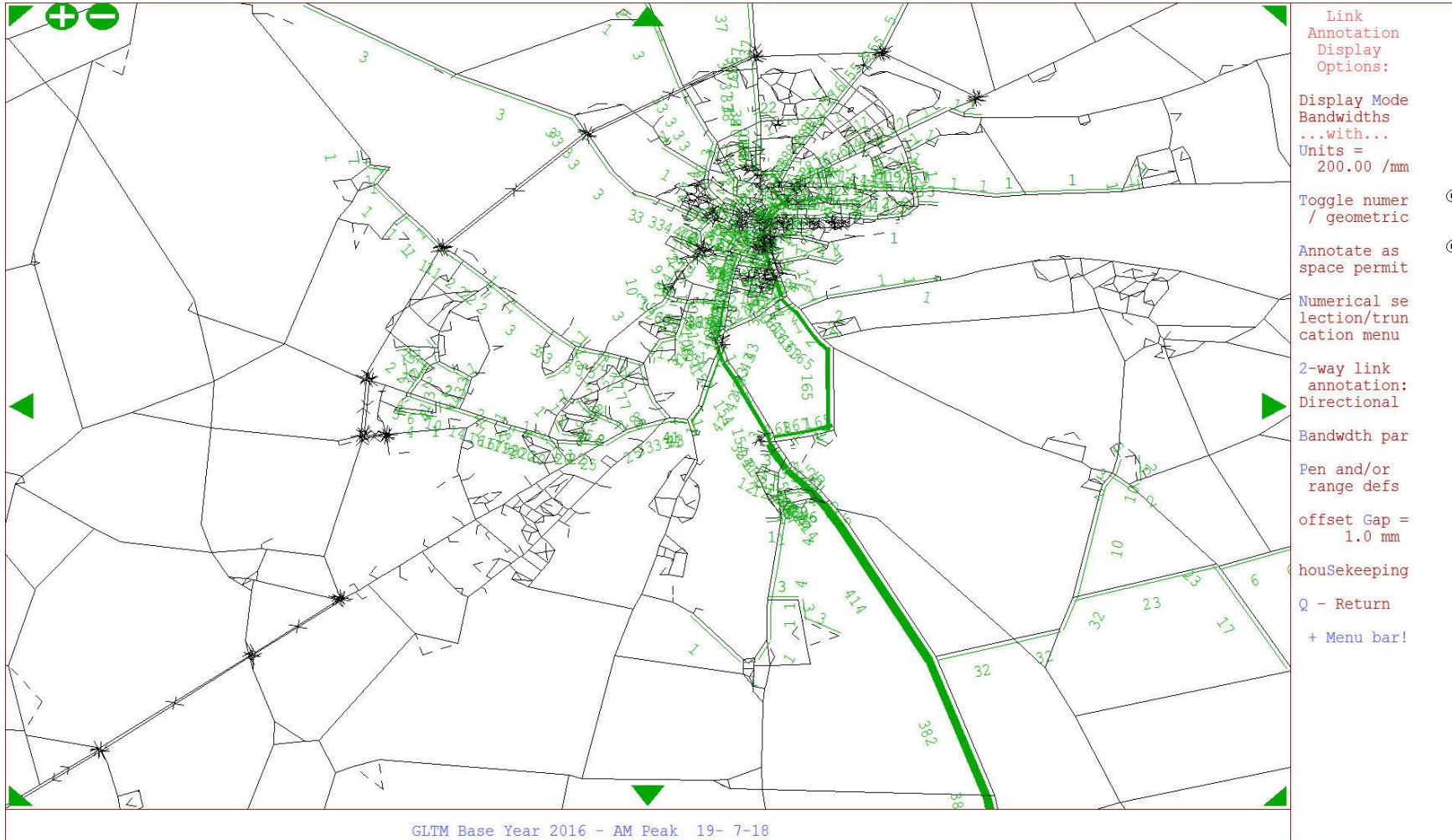


Figure 26 – A15 Sleaford Road AM Peak northbound

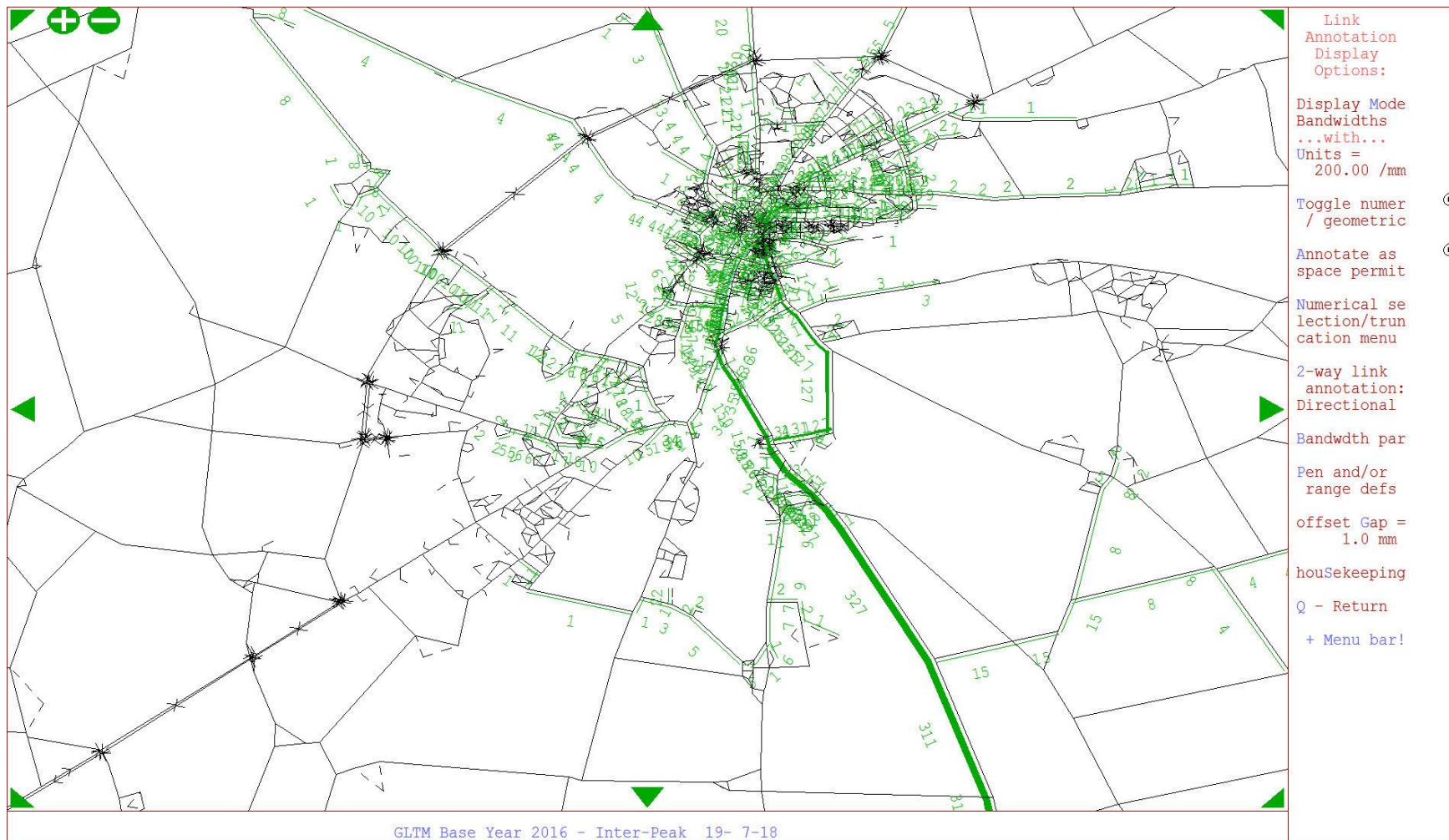


Figure 27 – A15 Sleaford Road Inter-Peak northbound

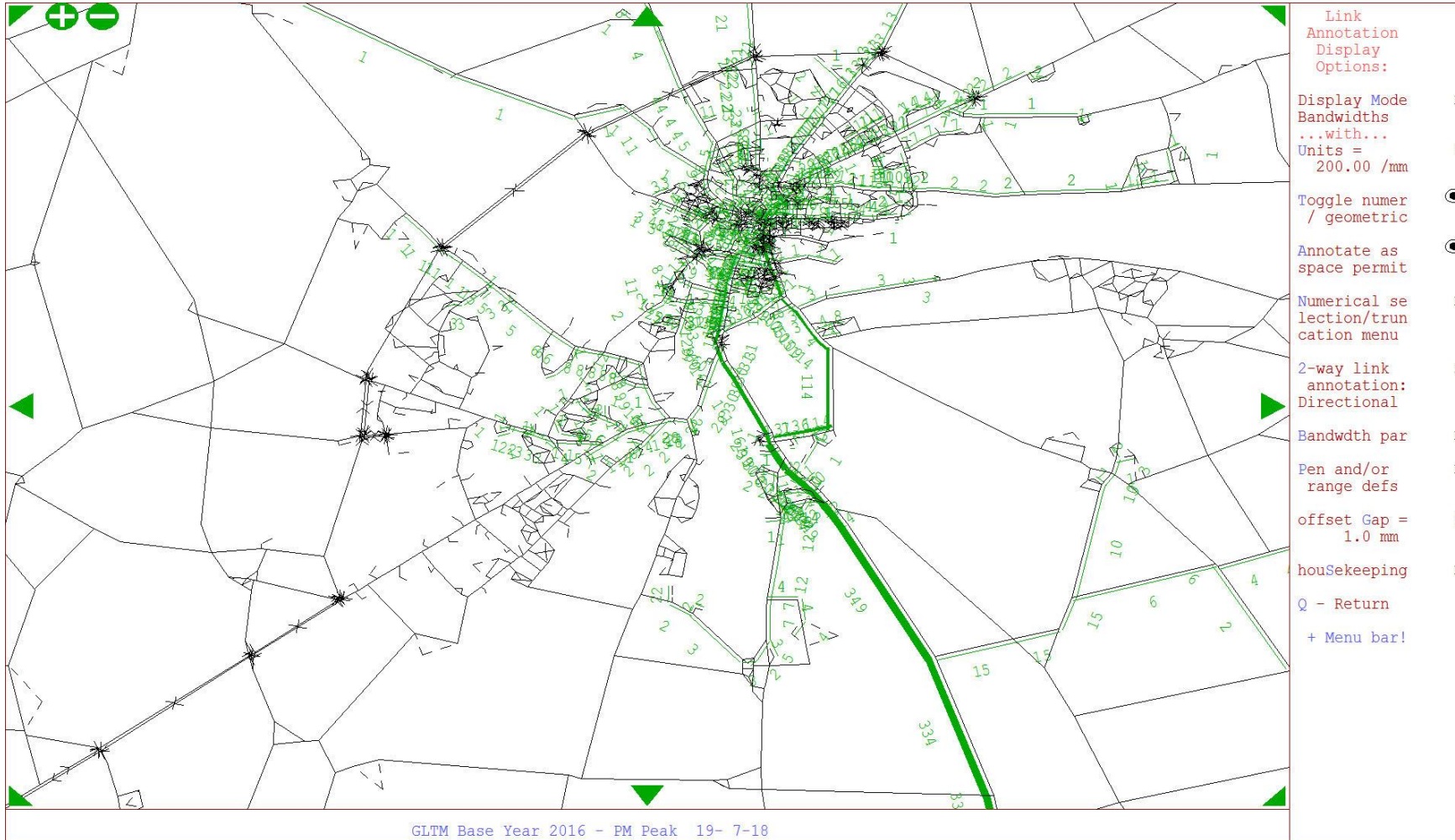


Figure 28 – A15 Sleaford Road PM Peak northbound

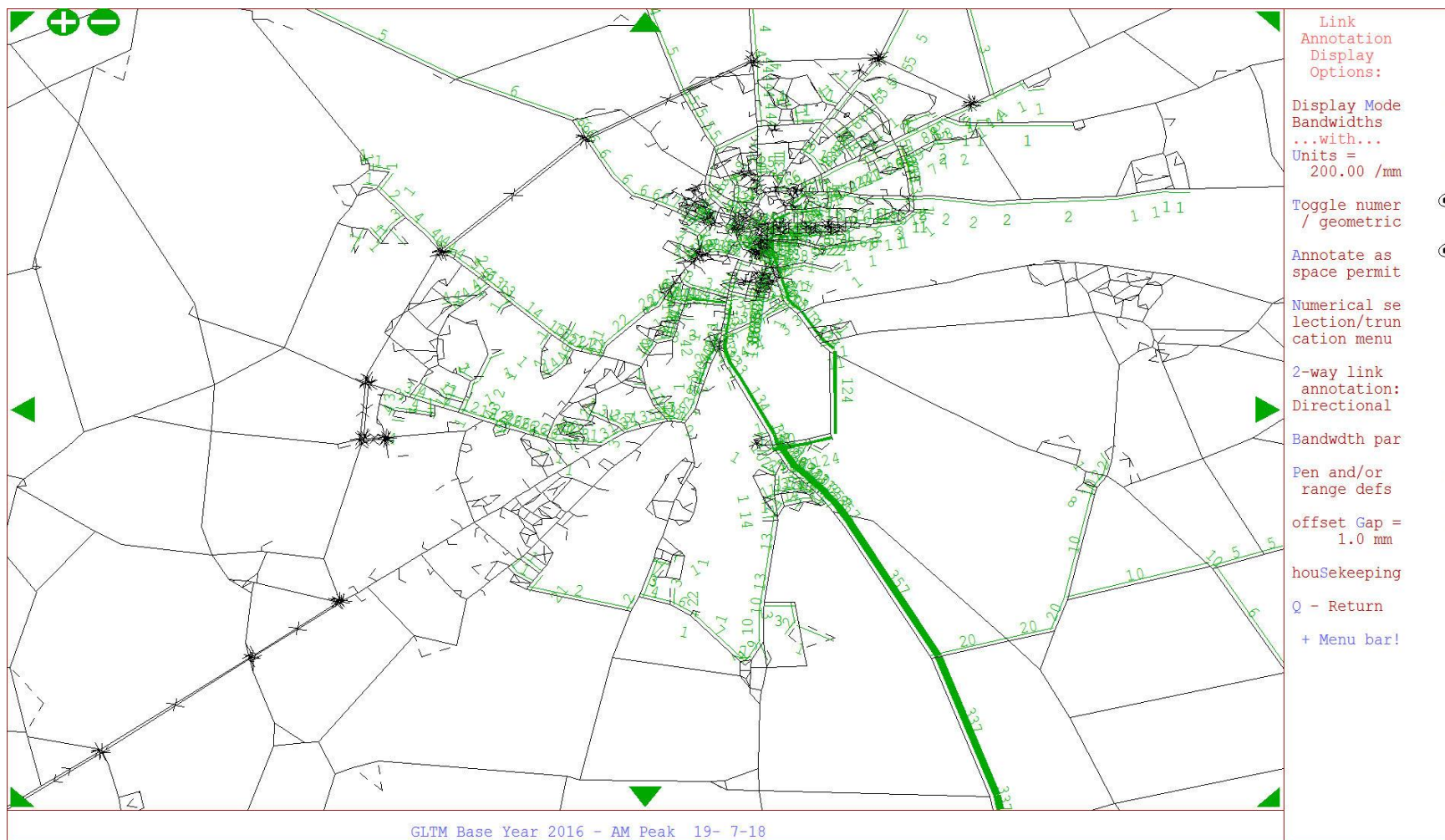


Figure 29 – A15 Sleaford Road AM Peak southbound

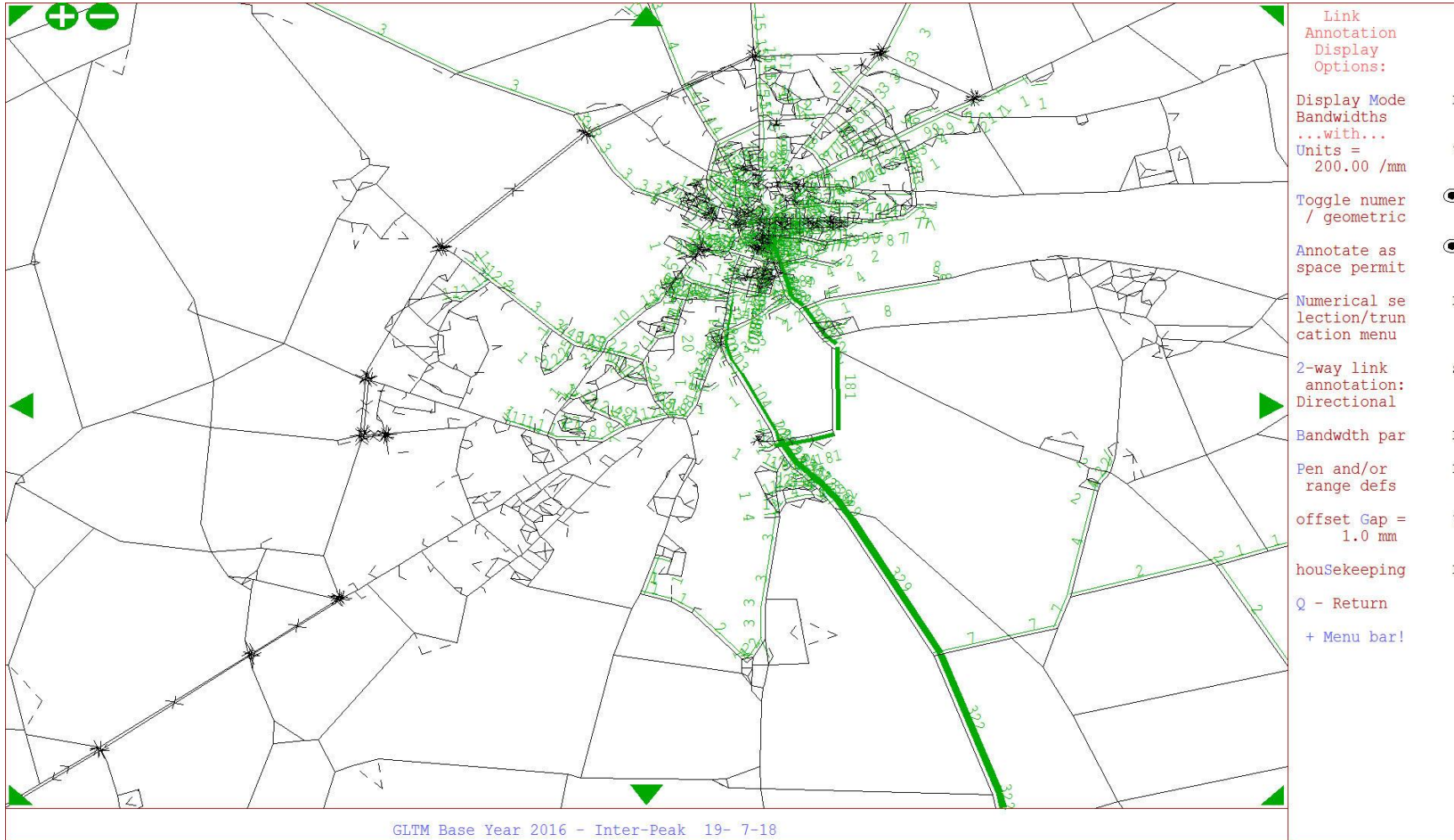


Figure 30 – A15 Sleaford Road Inter-Peak southbound

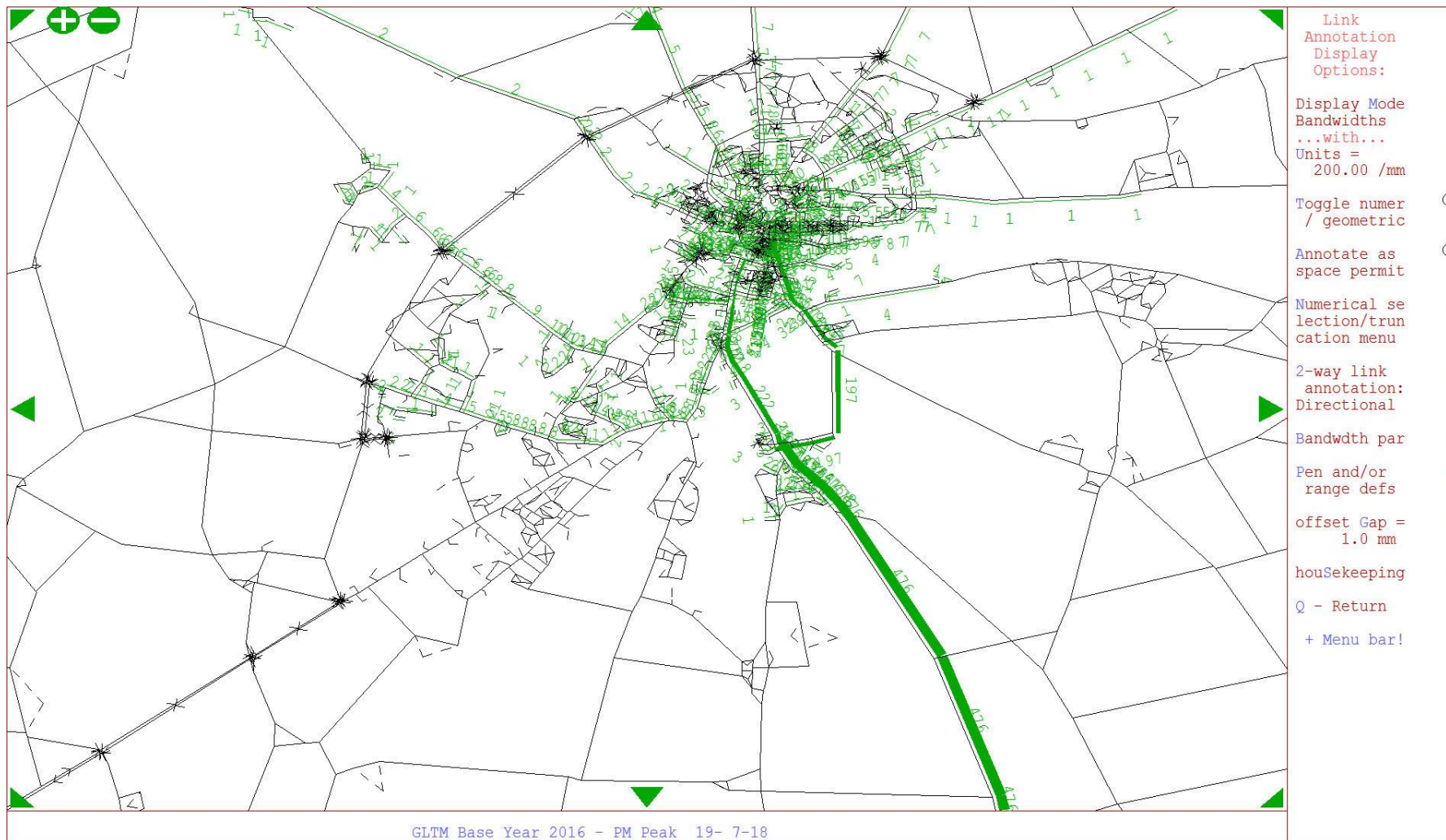


Figure 31 - A15 Sleaford Road PM Peak southbound

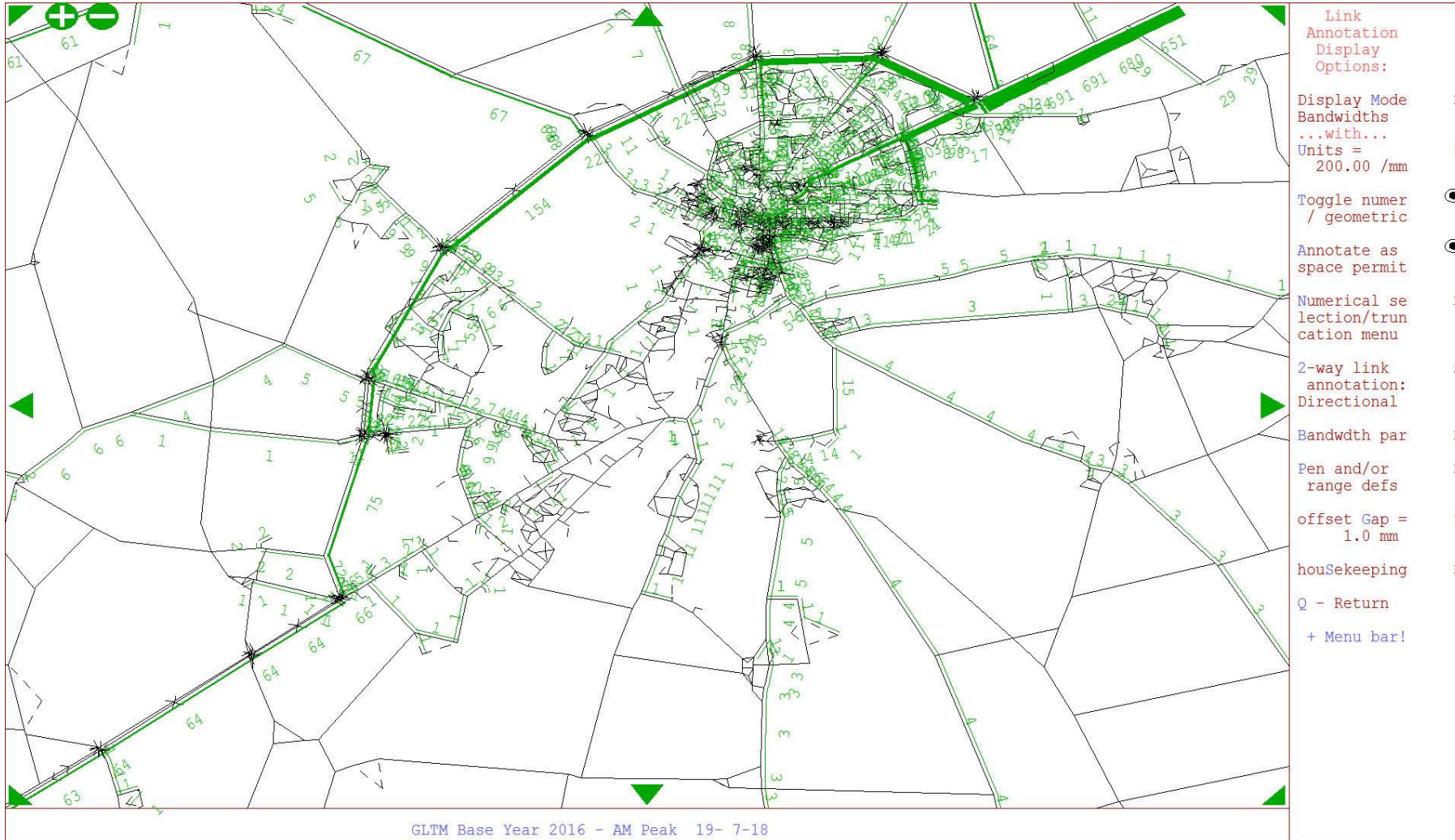


Figure 32 – A158 north of Bunker Hill AM Peak southbound

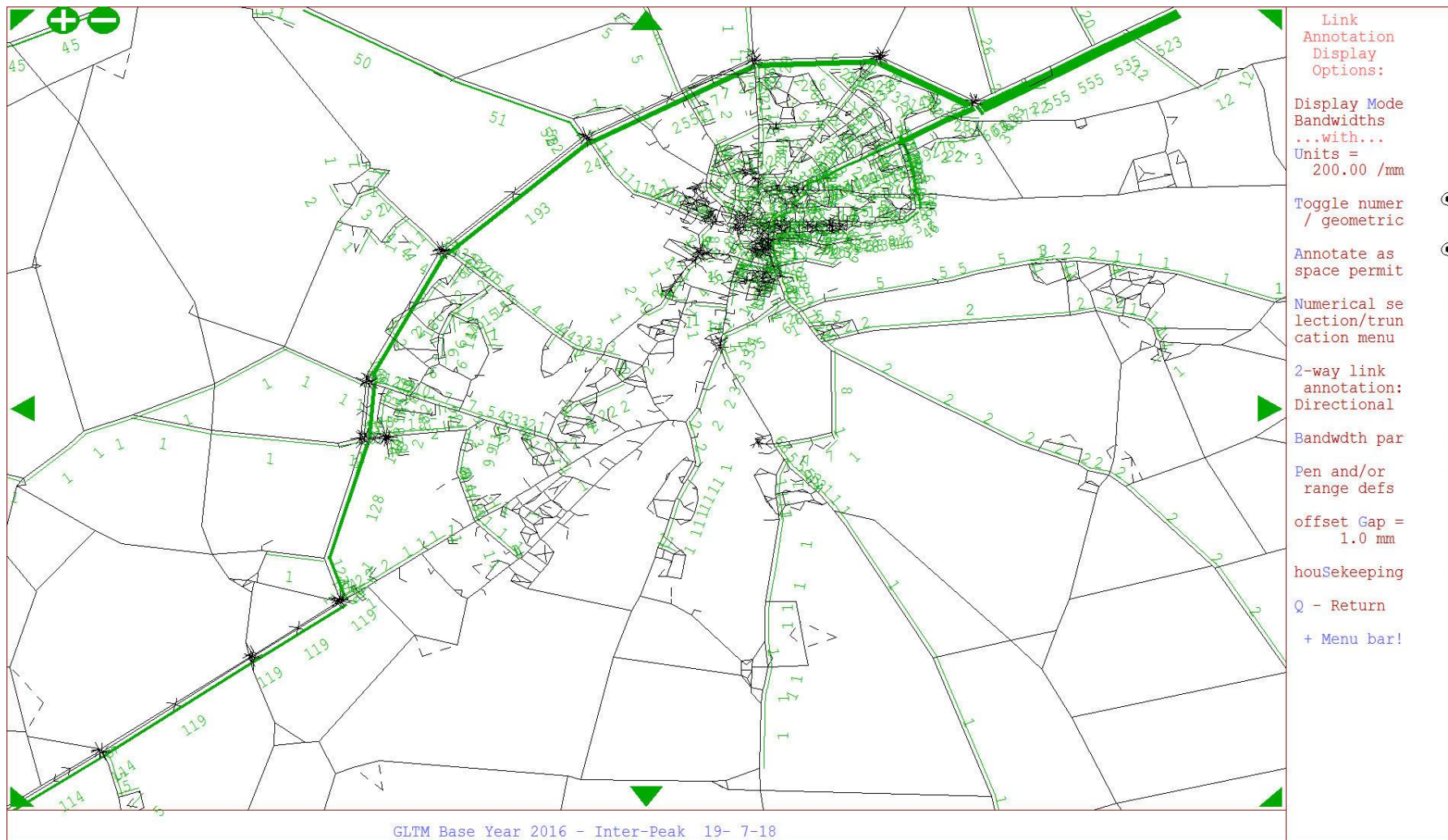


Figure 33 – A158 north of Bunker Hill Inter-Peak southbound

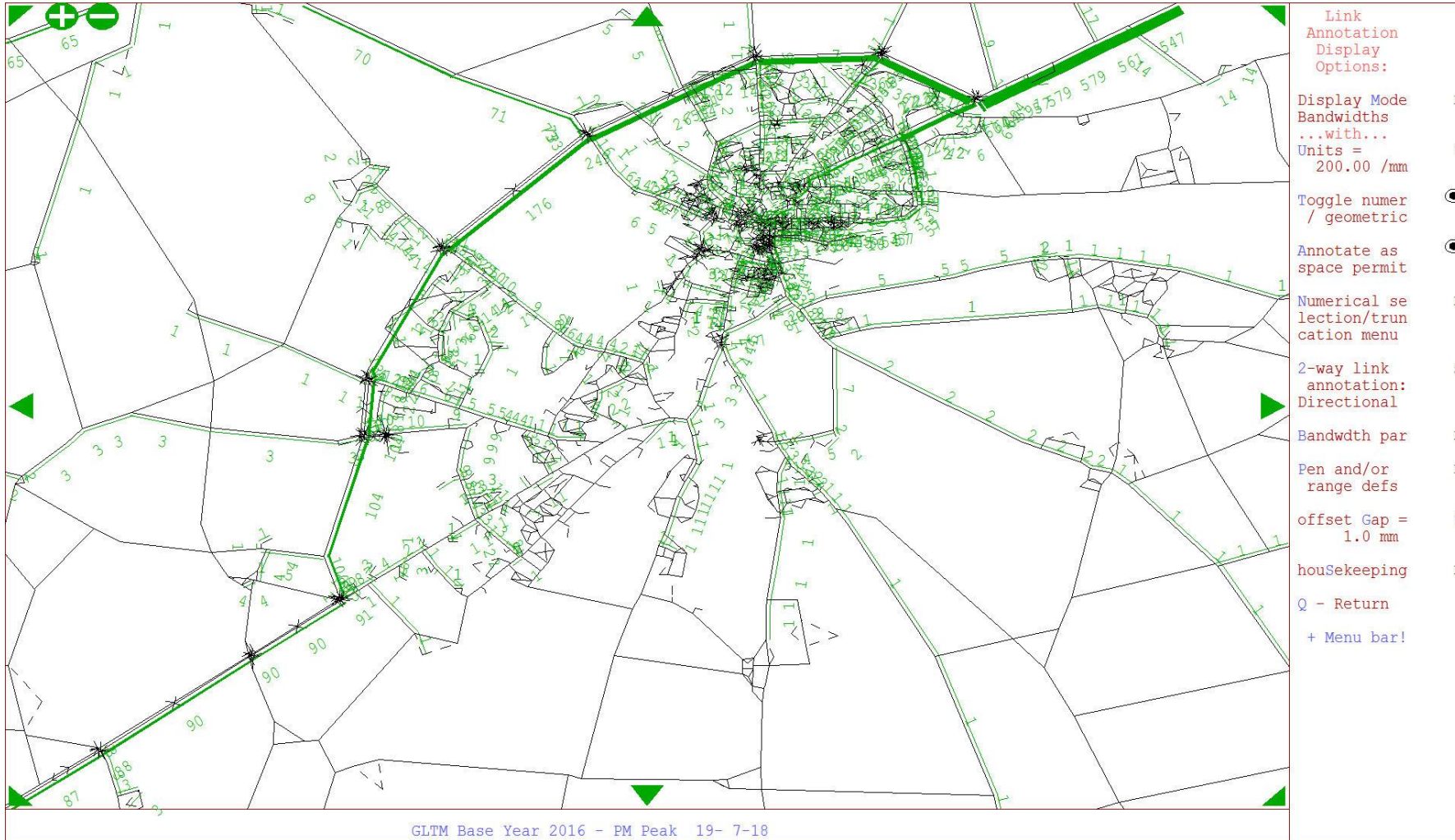


Figure 34 – A158 north of Bunker Hill PM Peak southbound

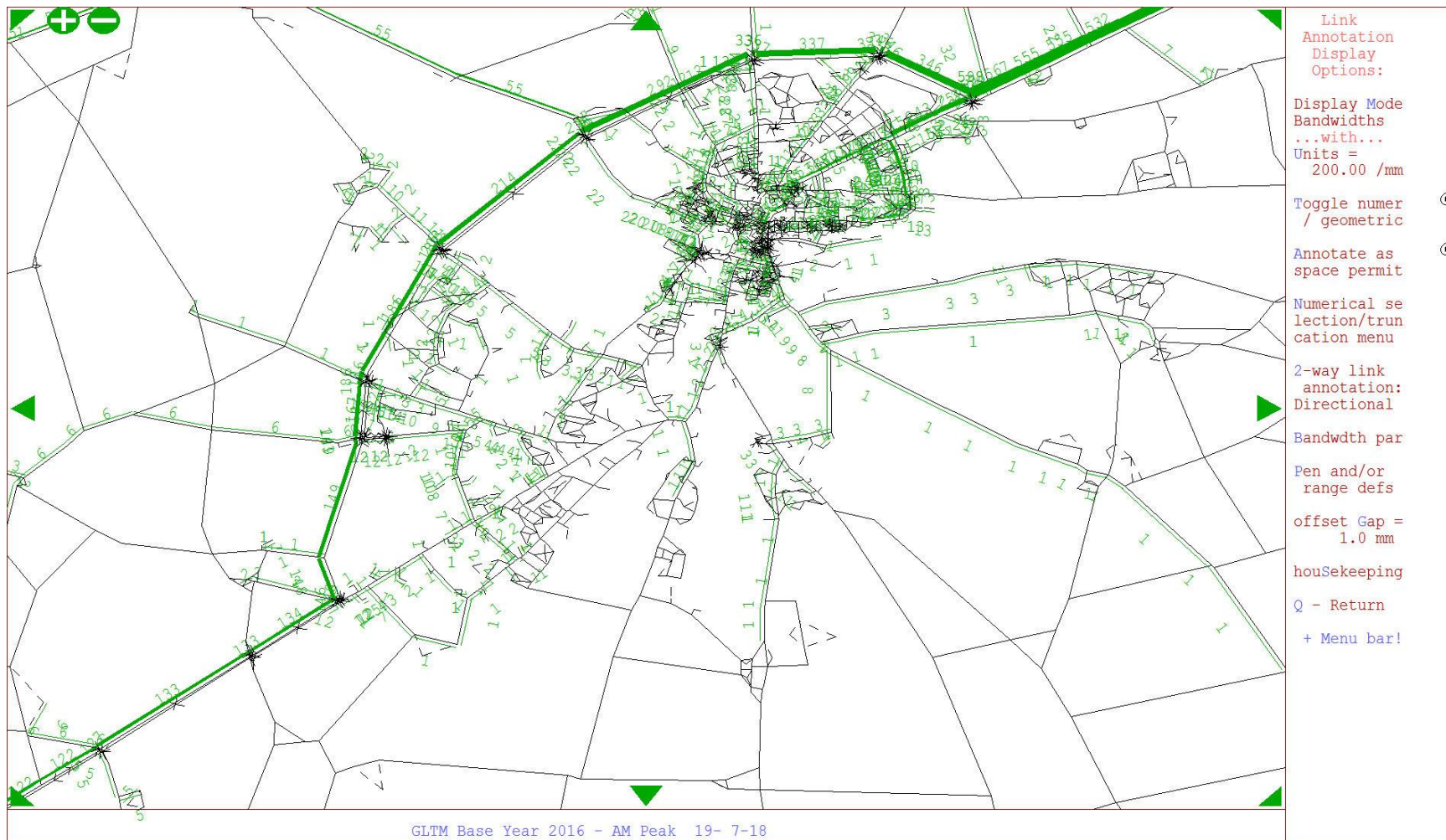


Figure 35 – A158 north of Bunker Hill AM Peak northbound

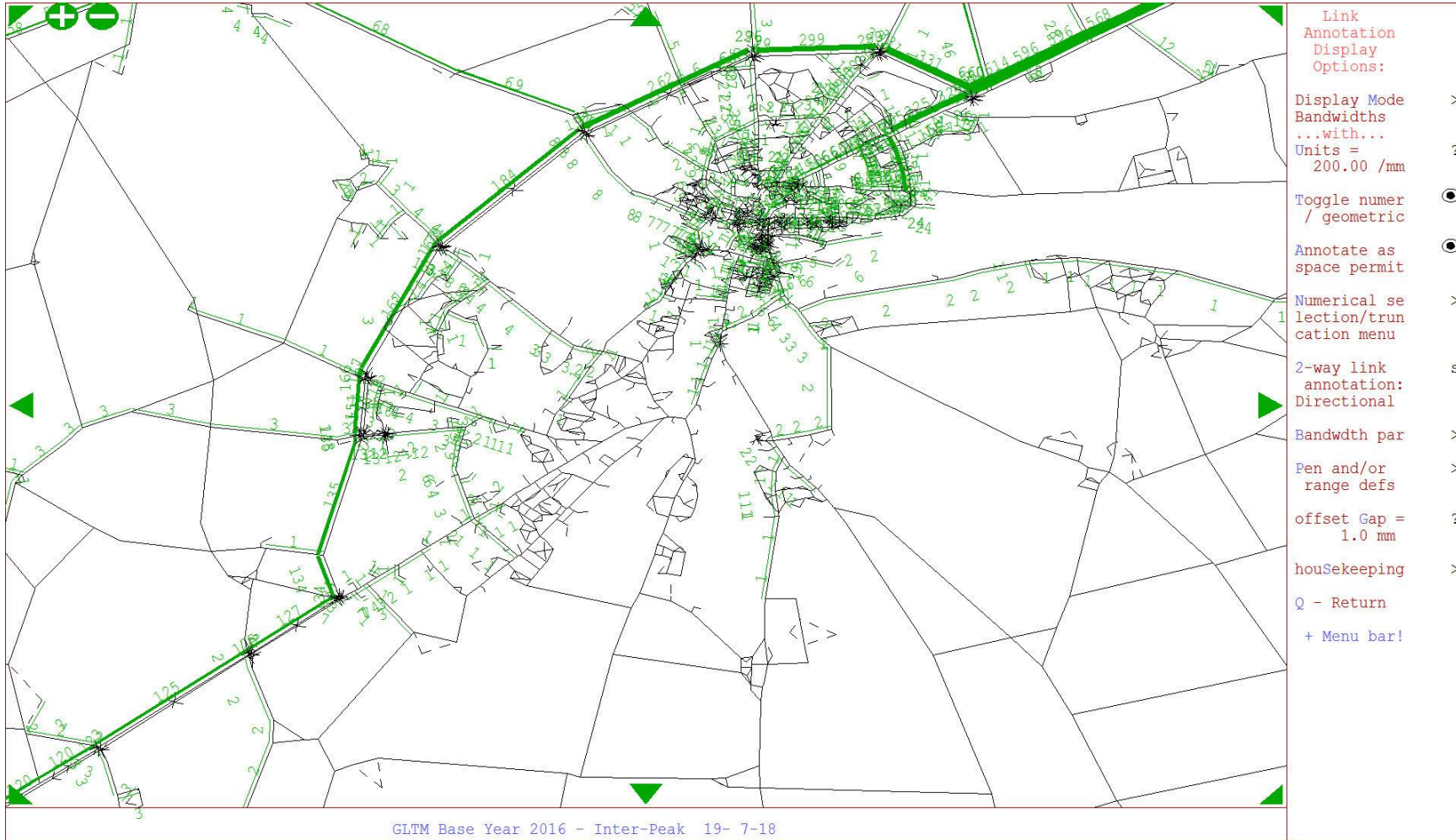


Figure 36 – A158 north of Bunker Hill Inter-Peak northbound

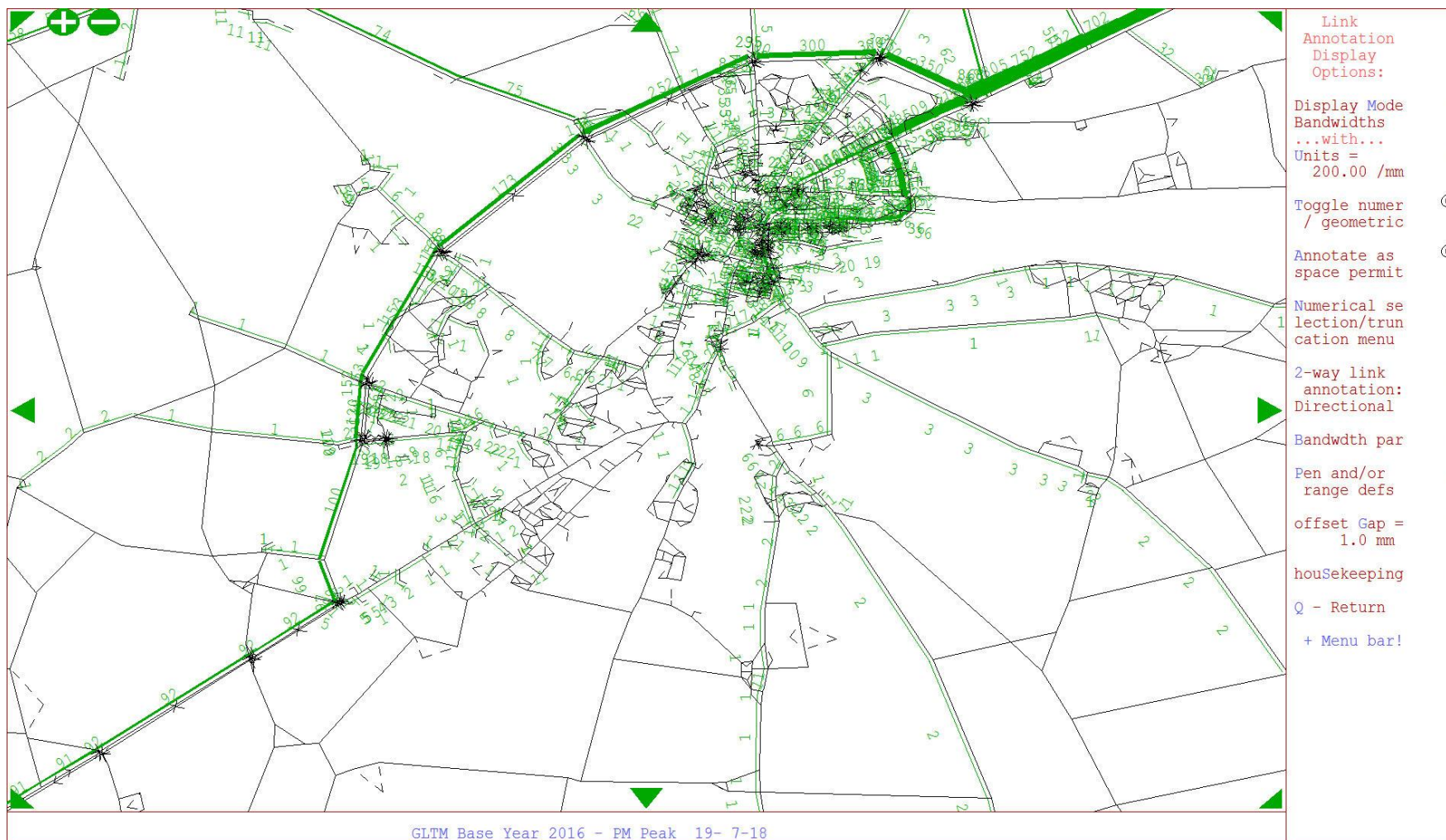


Figure 37 – A158 north of Bunker Hill PM-Peak northbound



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