Appendix DT/21

TN/20 – Sensitivity Test – Mitigation Modelling May 2020

HighgateTransportation

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TECHNICAL NOTE

PROJECT: Peel Hall, Warrington

REPORT: 1901/TN/20 – Mitigation Modelling Sensitivity Test (Myddleton Lane/Delph Lane Signals and A49/Golborne Road Widening and Ghost Right Turn Lane

DATE: May 2020

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1. This note is provided by Highgate Transportation Ltd to address the request from Highways England's transport consultant ATKINS for a sensitivity test of the impact of the proposed mitigation measures at the Myddleton Lane/Delph Lane junction to the north east of the development site i.e. the installation of signal control at the priority junction, using the area-wide SATURN modelling (WMMTM16) to compare to the original Do Something model run outputs.

2. Given that the other mitigation measure proposed to the north of the M62 would also impact flows within this area i.e. widening and provision of a ghost right turn lane at the A49/Golborne Road junction, we have included for this within the sensitivity test.

3. The Council were commissioned to instruct their modelling consultants AECOM to run the Peel Hall WMMTM16 model for the 2022 and 2032 AM and PM peak hour Do Something scenarios with full development, in order to provide the following outputs:

    i. Node Delay plots
    ii. Node V over C plots
    iii. Flow difference plots for the previous Do Something and the mitigation Do Something scenarios

4. The Node Delay plots and V over C plots for the modelling within the TA Addendum were provided in Appendix 5 (TN/14 Appendix 2) i.e. the previous Do Something scenarios.

5. The plots are contained in the following appendices to this report:

    Appendix 1 – Node Delay plots 2022 and 2032 AM and PM peak hour Do Something scenarios with full development (with mitigation)
    Appendix 2 – Node V over C plots 2022 and 2032 AM and PM peak hour Do Something scenarios with full development (with mitigation)
    Appendix 3 – Node Delay plots 2022 and 2032 AM and PM peak hour Do Something scenarios with full development (previous modelling run)
    Appendix 4 – Node V over C plots 2022 and 2032 AM and PM peak hour Do Something scenarios with full development (previous modelling run)

Appendix 5 – Flow difference plots for the previous Do Something and the mitigation Do Something scenarios

6. It can be confirmed that the key for these plots are as follows:

    - Node delay plots for AM/PM 2022 and 2032
        - Up to 60s delay – yellow
        - 60-120s delay – pink
        - 120-180s delay – orange
        - 180-240s delay – red
        - +240s delay – grey
    - Node V over C plots for AM/PM 2022 and 2032
        - 75% - yellow
        - 85% - pink
        - 95% - orange
        - 100% - red
    - Flow difference plots for AM/PM 2022 and 2032
        - Green = increase in flow
        - Blue = decrease in flow

7. These outputs have been analysed and a summary is provided below.

2022 Node Summary

8. 2022 AM Node Delay – no difference apparent between the previous model run and the mitigation run.

9. 2022 PM Node Delay:

    i. Previous model run showed delay (Up to 60s) at the A49/Golborne Road junction (gone in the mitigation model)
    ii. Mitigation model run shows slight delay (Up to 60s) at the Myddleton Lane/Delph Lane junction (not there in the original model)

10. 2022 AM Node V over C – no major difference apparent between the previous model run and the mitigation run.

11. 2022 PM Node V over C – no major difference apparent between the previous model run and the mitigation run.

12. From a review of this dataset, it can be seen that there is no discernible impact on the M62 J9 or the surrounding network as a result of the proposed mitigation measures – just slight changes at the two junctions tested for proposed mitigation.

2032 Node Summary

13. 2032 AM Node Delay – two differences are noticeable between the previous model run and the mitigation run:

    i. Myddleton Lane/Delph Lane junction – improvement in delay with mitigation model run (from 60-120s delay down to Up to 60s)
    ii. Hallfields Road/A50 signal junction – increased delay with mitigation model run (from Up to 60s to 60-120s)

14. 2032 PM Node Delay – three differences are noticeable between the previous model run and the mitigation run:

    i. No discernible delay at the Myddleton Lane/Delph Lane junction in the previous model run, but shown as a slight delay (Up to 60s) in the mitigation model run
    ii. Improvement in delay (60-120s) at the Myddleton Lane/Waterworks Lane junction in the mitigation model run from a larger delay (120-180s) in the original model run
    iii. Improvement in delay at the A49/Golborne Road junction from (Up to 60s) in the previous model run to no apparent delay in the mitigation model run

15. 2032 AM Node V over C – three differences are noticeable between the previous model run and the mitigation run:

    i. Myddleton Lane/Delph Lane junction – very slight increase in delay apparent with the mitigation model run than the previous model run (both still 75%)
    ii. A49/Golborne Road junction – improvement in delay with mitigation model run (from 85% down to the 75% bracket)
    iii. A50/Hilden Road/Smith Drive roundabout – increase to delay on the Smith Drive minor entry arm of this roundabout in the mitigation model run (95%) from the level of delay shown in the previous model run (85%)

16. 2022 PM Node V over C – two differences are noticeable between the previous model run and the mitigation run:

    i. Myddleton Lane/Delph Lane junction – slight increase in delay with mitigation model run than the previous model run (both still 75% bracket)
    ii. A49/Golborne Road junction – improvement in delay with mitigation model run (from 85% down to 75% bracket)

17. From a review of this dataset, it can be seen that there is no discernible impact on the M62 J9 or the surrounding network as a result of the proposed mitigation measures

Flow Difference Summary

18. The flow differences shown from the WMMTM16 Peel Hall Mitigation modelling run outputs for key links associated with the mitigation and the above summary are provided in **Table 1** below.

Table 1 – Flow Differences

Road	Flow Difference in Mitigation Model Run from Original Model Run			
	2022 Full Development		2032 Full Development	
	AM	PM	AM	PM
Delph Lane N/B	-6	1	41	-9
Delph Lane S/B	2	1	31	3
Myddleton Lane E/B (east)	6	1	28	-7
Myddleton Lane W/B (east)	-5	2	67	7
Myddleton Lane E/B (west)	6	1	28	8
Myddleton Lane W/B (west)	-1	2	64	-1
Golborne Road N/B	6	0	-2	9
Golborne Road S/B	5	1	26	4
A49 North of M62 N/B	3	-1	-10	4
A49 North of M62 S/B	3	-1	-7	-1
A49 South of M62 N/B	1	-1	-31	21
A49 South of M62 S/B	0	-1	-14	-5
Poplars Avenue E/B	-2	1	1	-7
Poplars Avenue W/B	1	0	-11	1
Capesthorne Road E/B	-9	0	12	-13
Capesthorne Road W/B	-3	1	1	-4
Smith Drive N/B	-3	0	4	-1
Smith Drive S/B	-2	1	-1	0

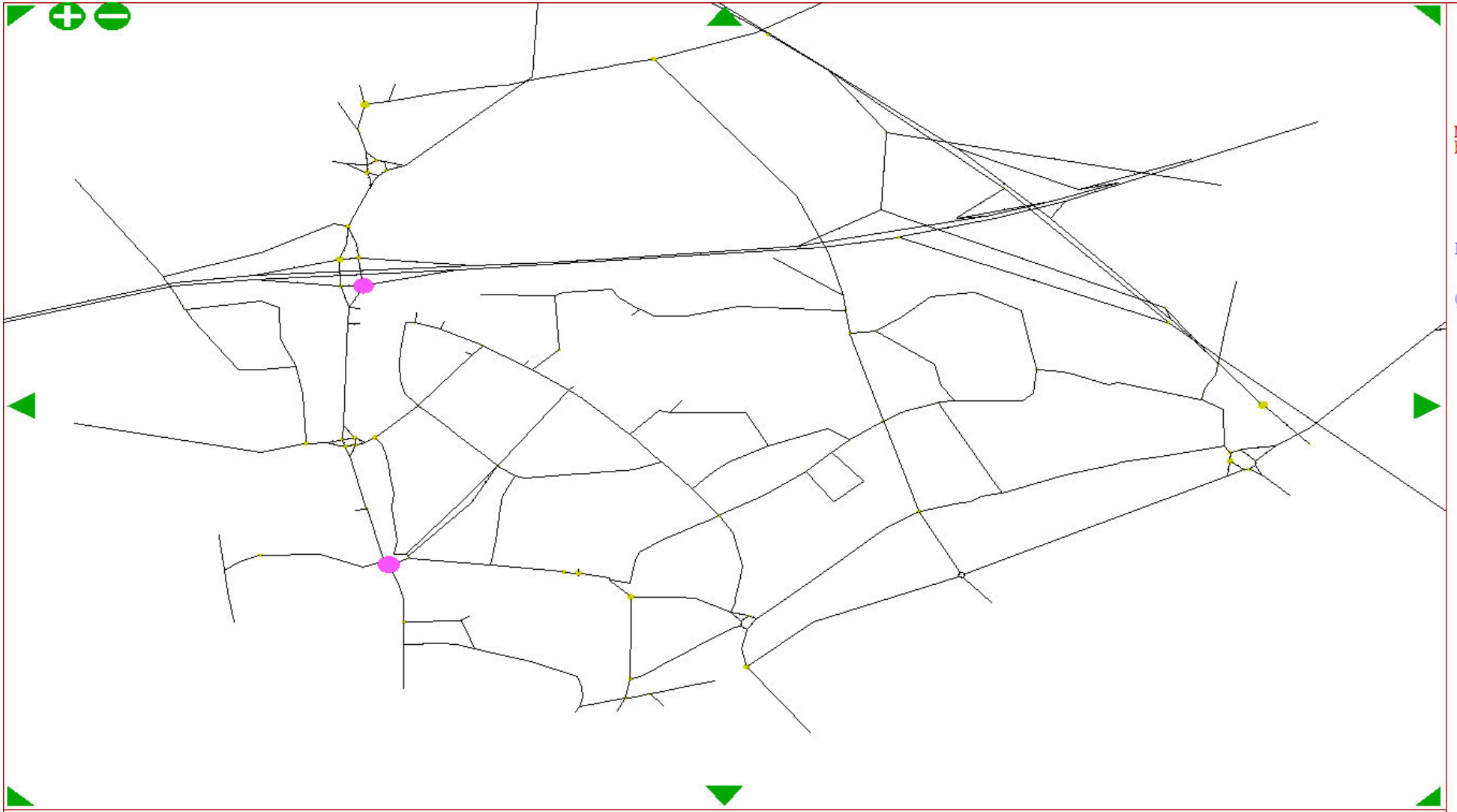
19. In summary, there is no noticeable impact on the M62 J9 in 2022 although there is an increase in flow along this northern route in 2032 AM with the mitigation modelling.

20. As such this sensitivity test has shown that there is no substantive impact on the M62 J9 arising from the proposed measures, particularly not in 2022 i.e. year of opening with full development traffic (the HE test).

21. It can be concluded that, in line with the NPPF, the development traffic and mitigation proposed to the north of the M62 will not result in a severe impact on the M62 J9.

Appendix 1

Node Delay plots 2022 and 2032 AM and PM peak hour Do Something scenarios with full development (with mitigation)



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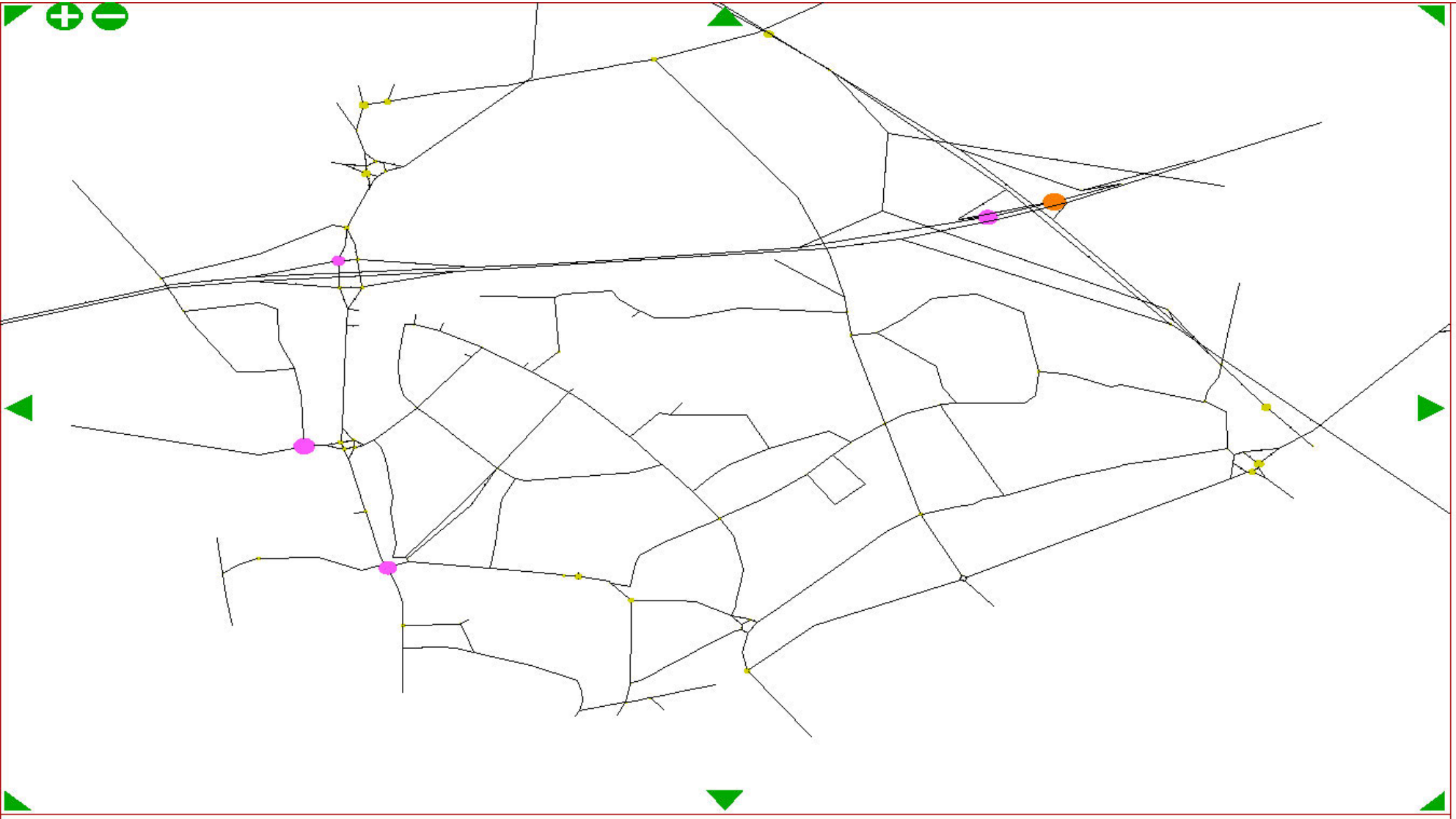

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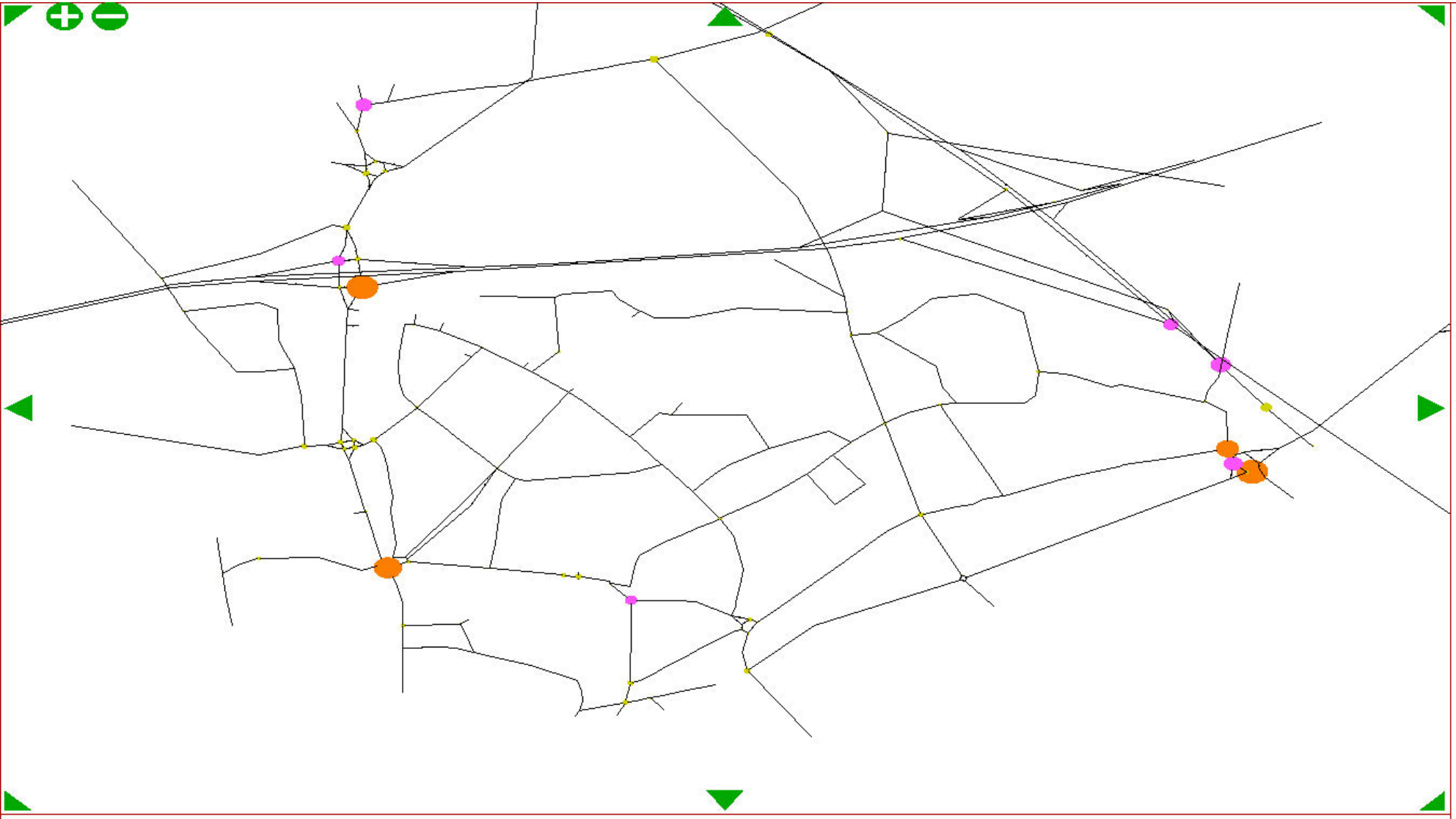

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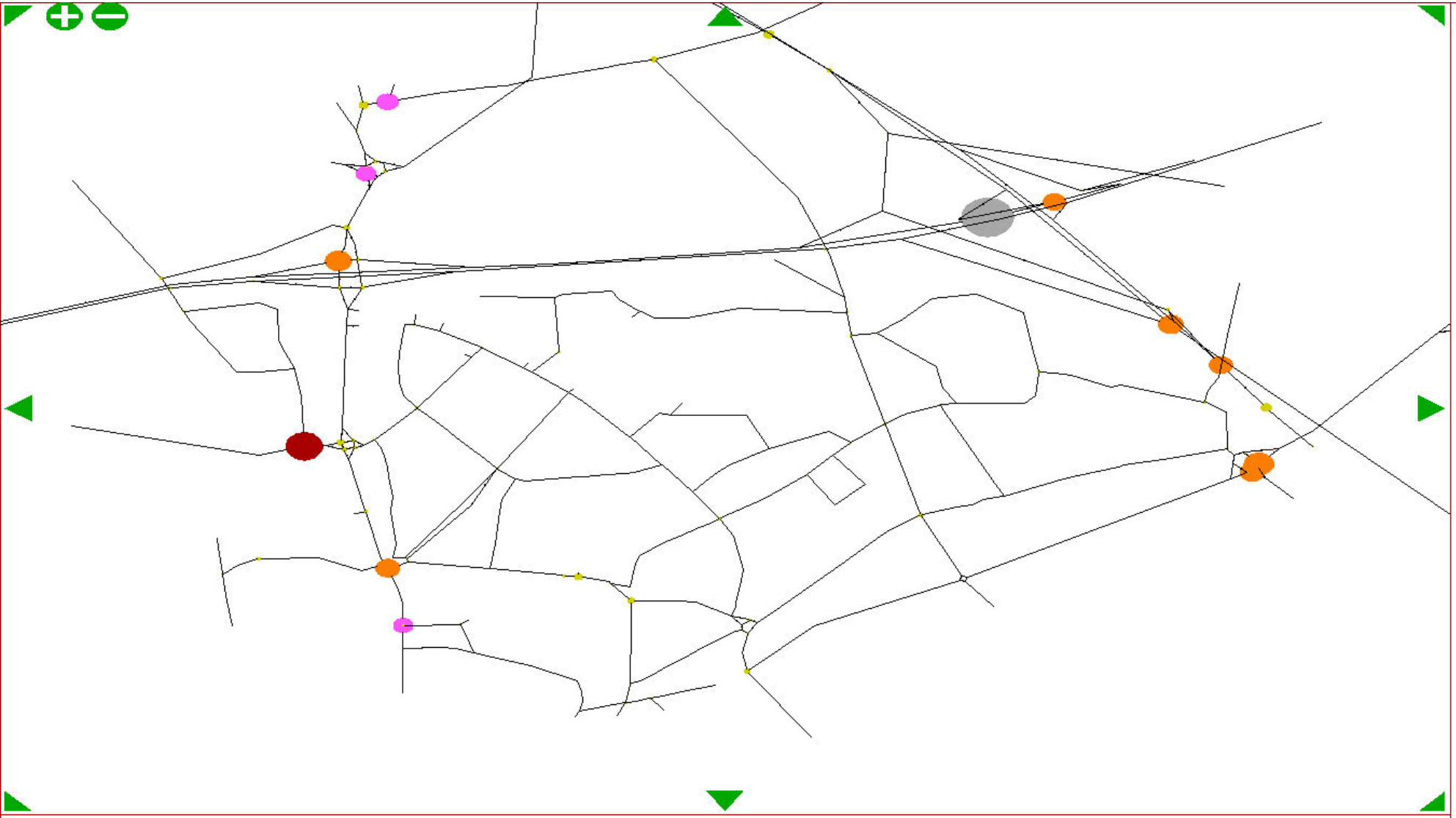

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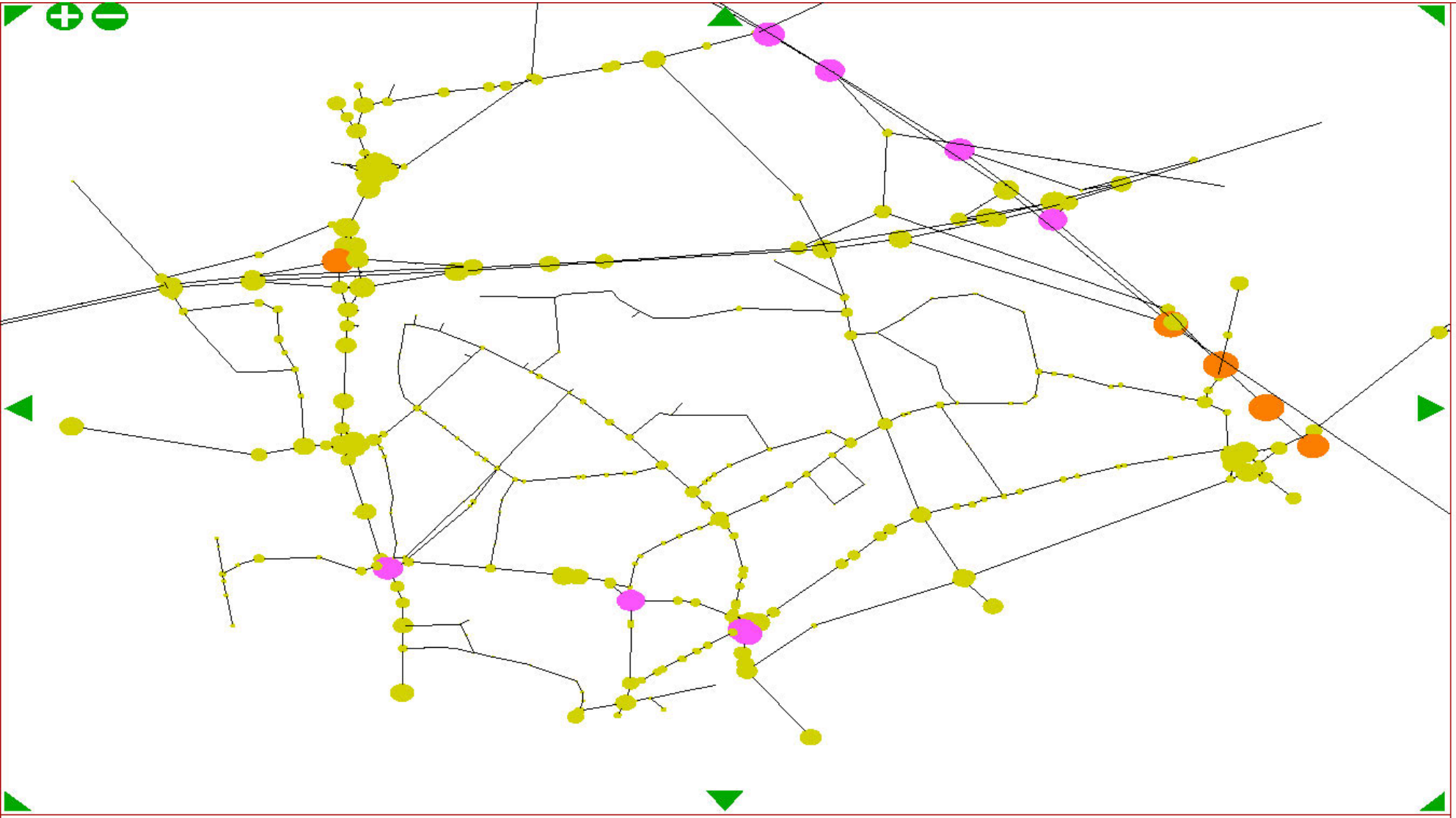
Appendix 2

Node V over C plots 2022 and 2032 AM and PM peak hour Do Something scenarios with full development (with mitigation)



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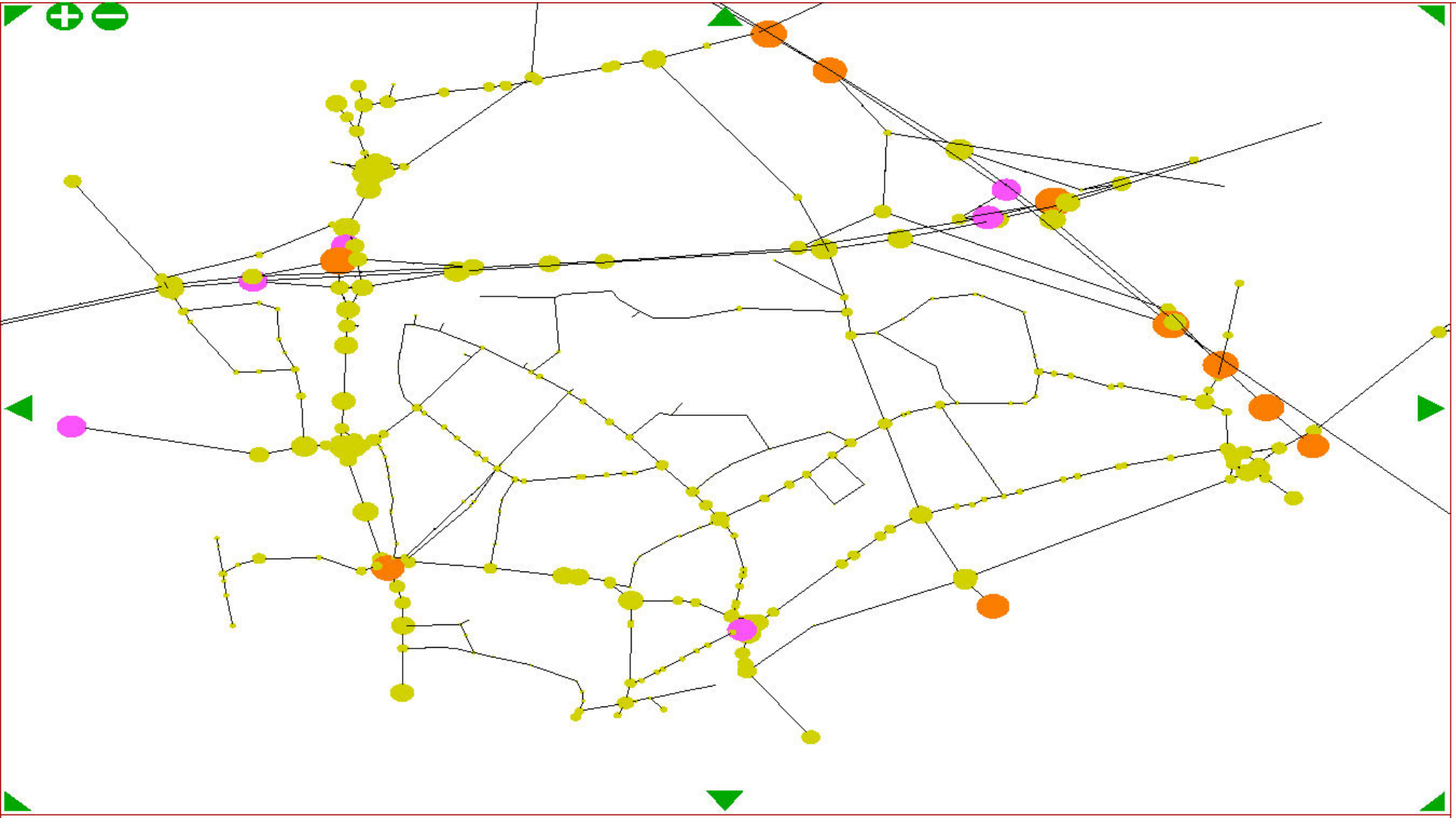

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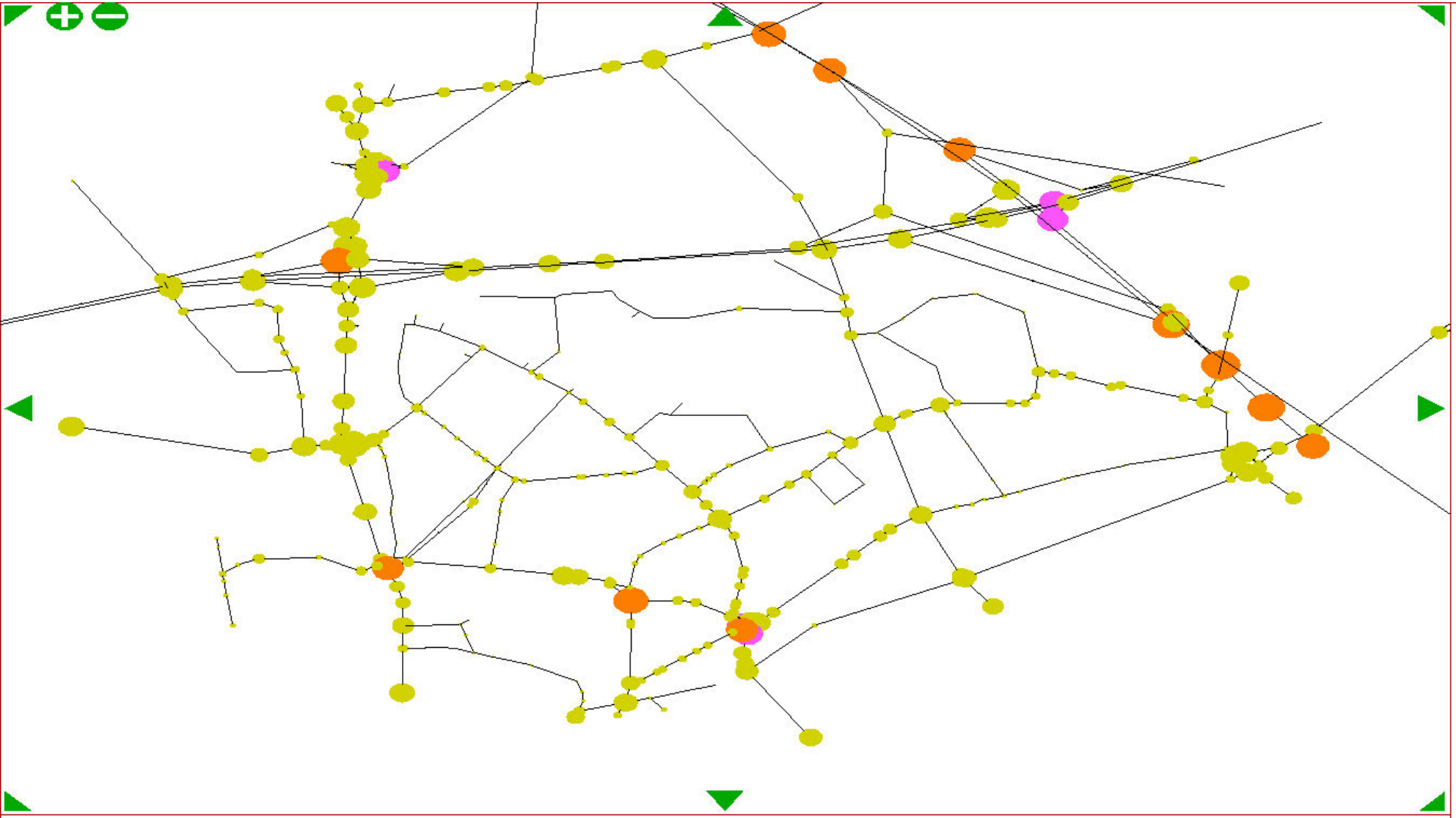

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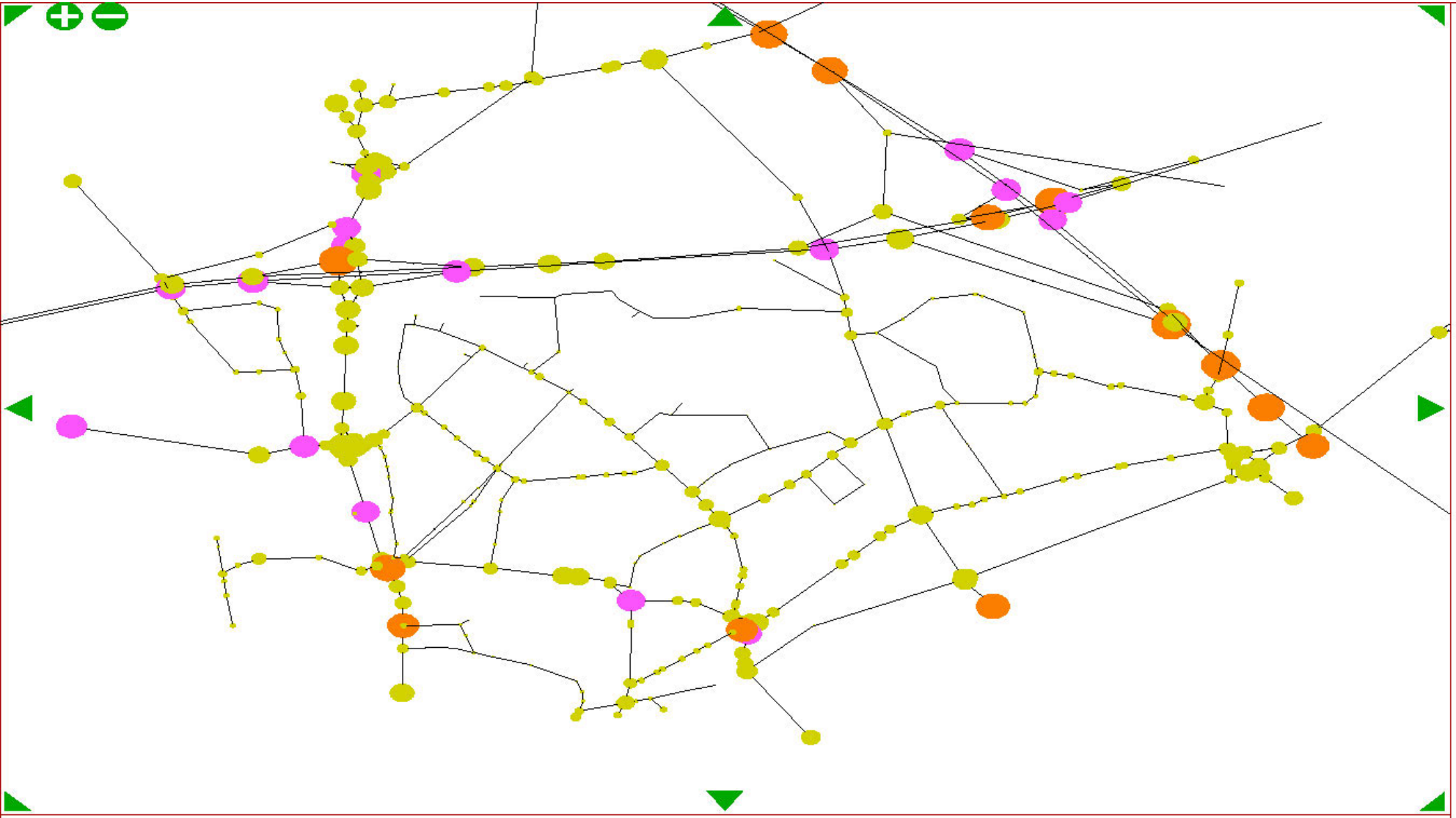

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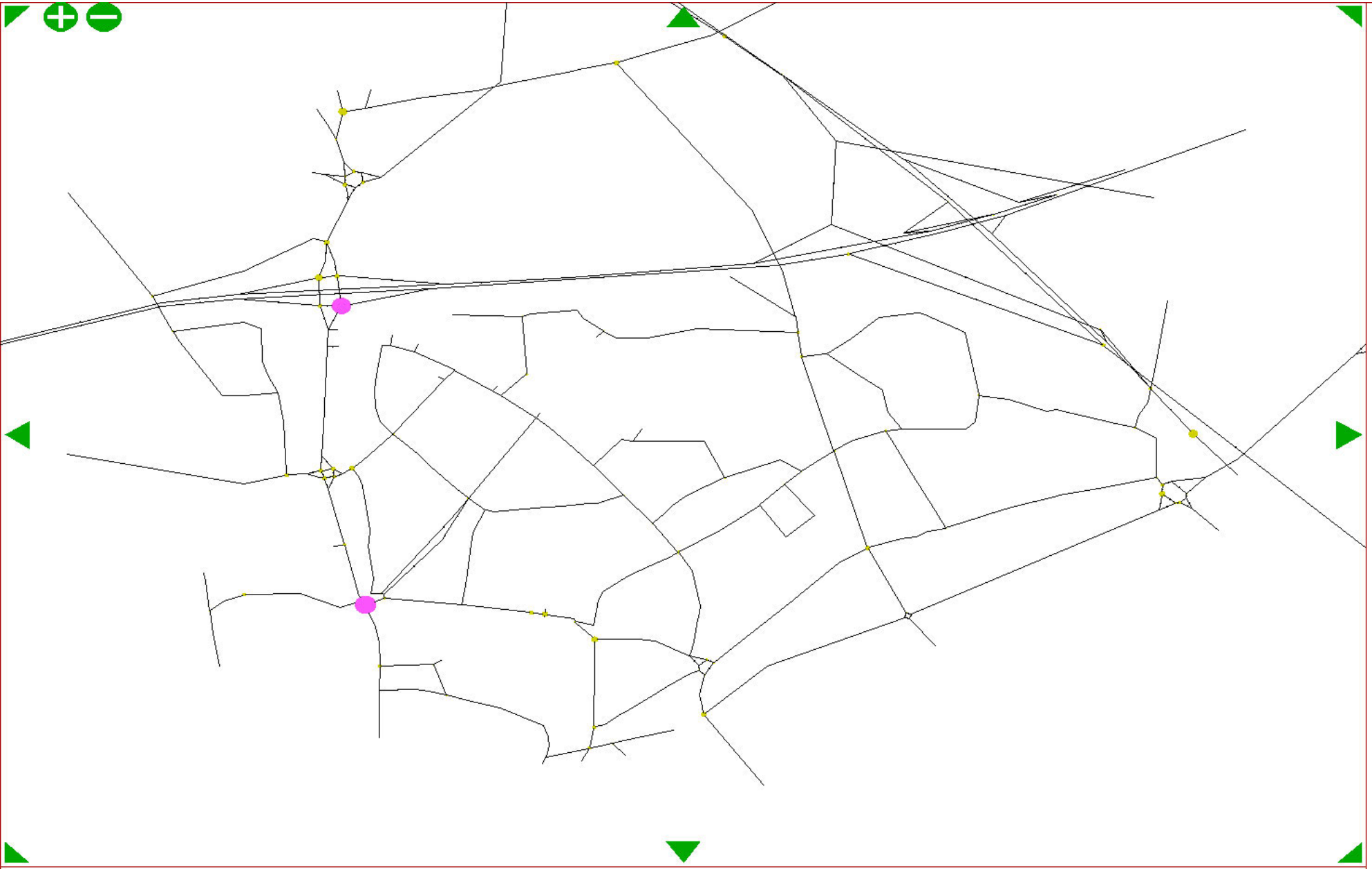
Appendix 3

Node Delay plots 2022 and 2032 AM and PM peak hour Do Something scenarios with full development (previous modelling run)



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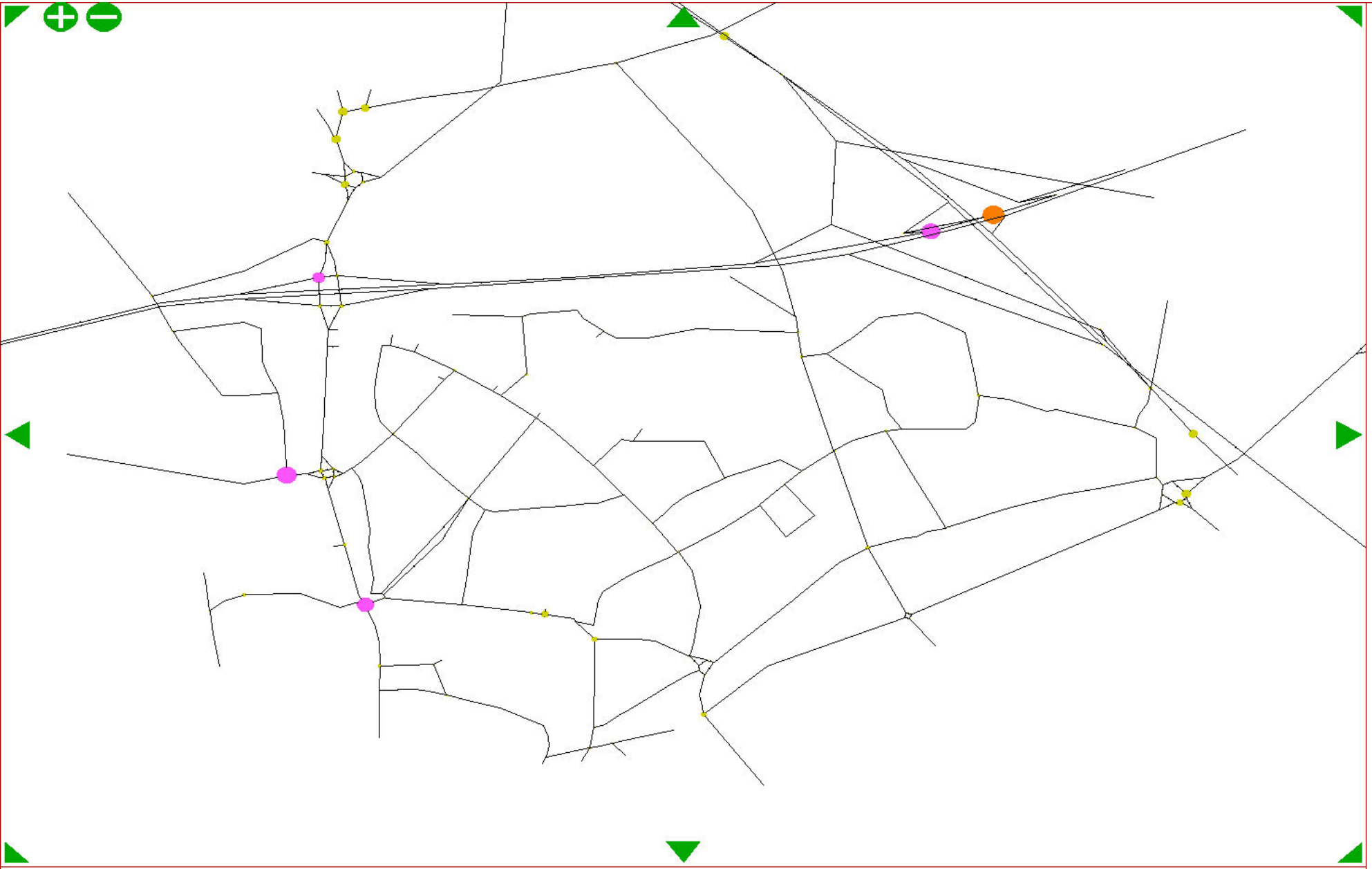

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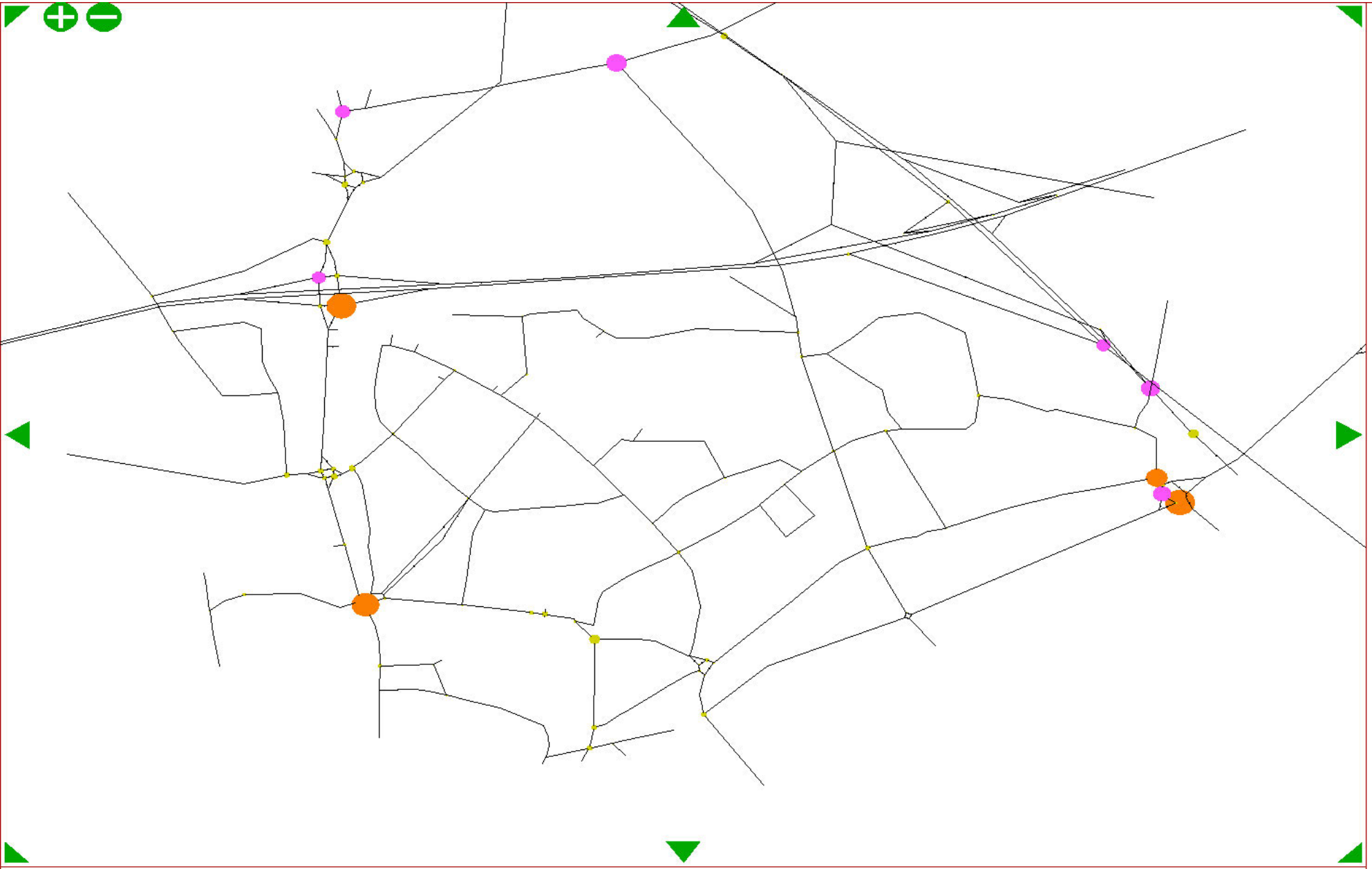

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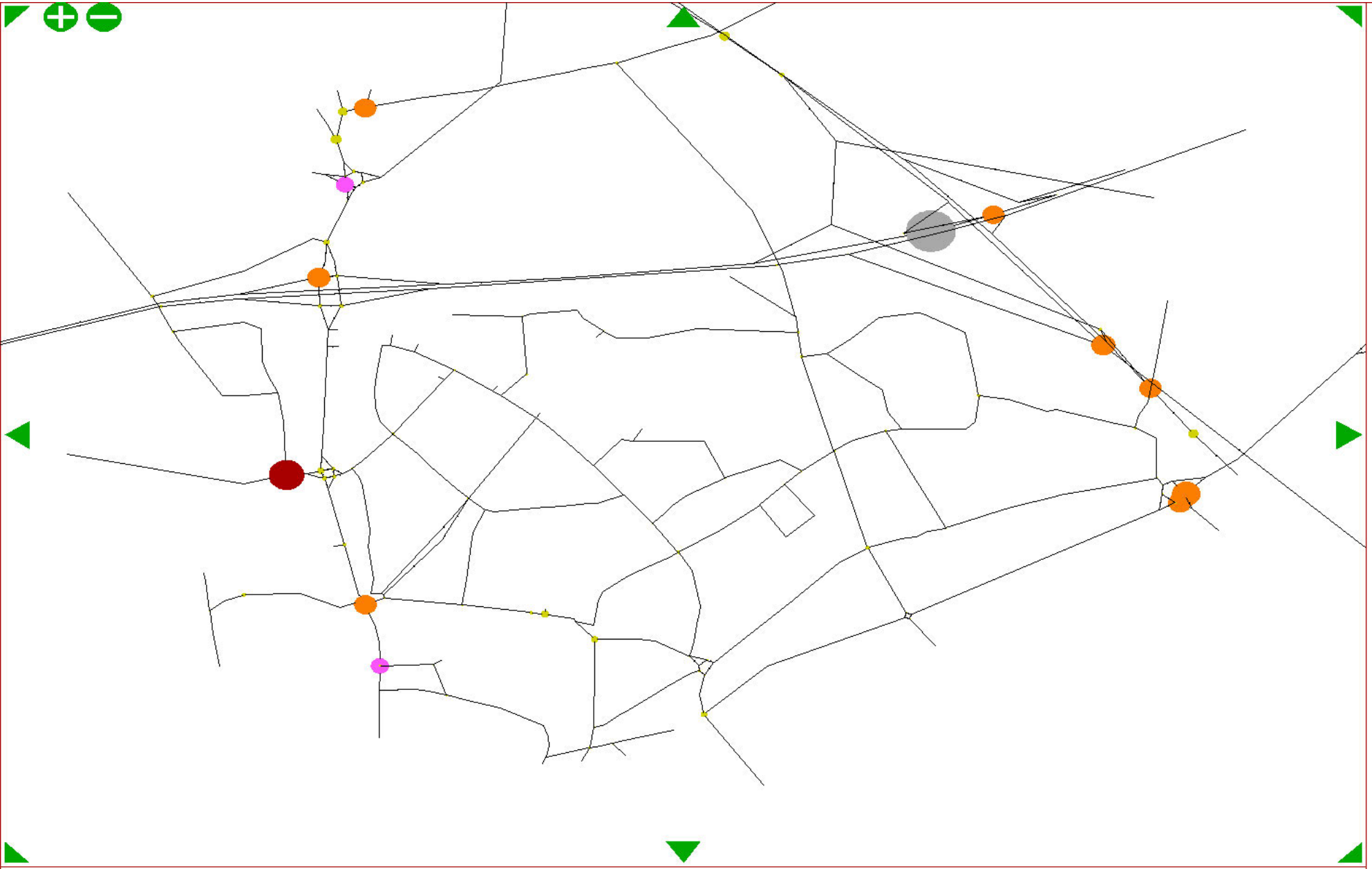

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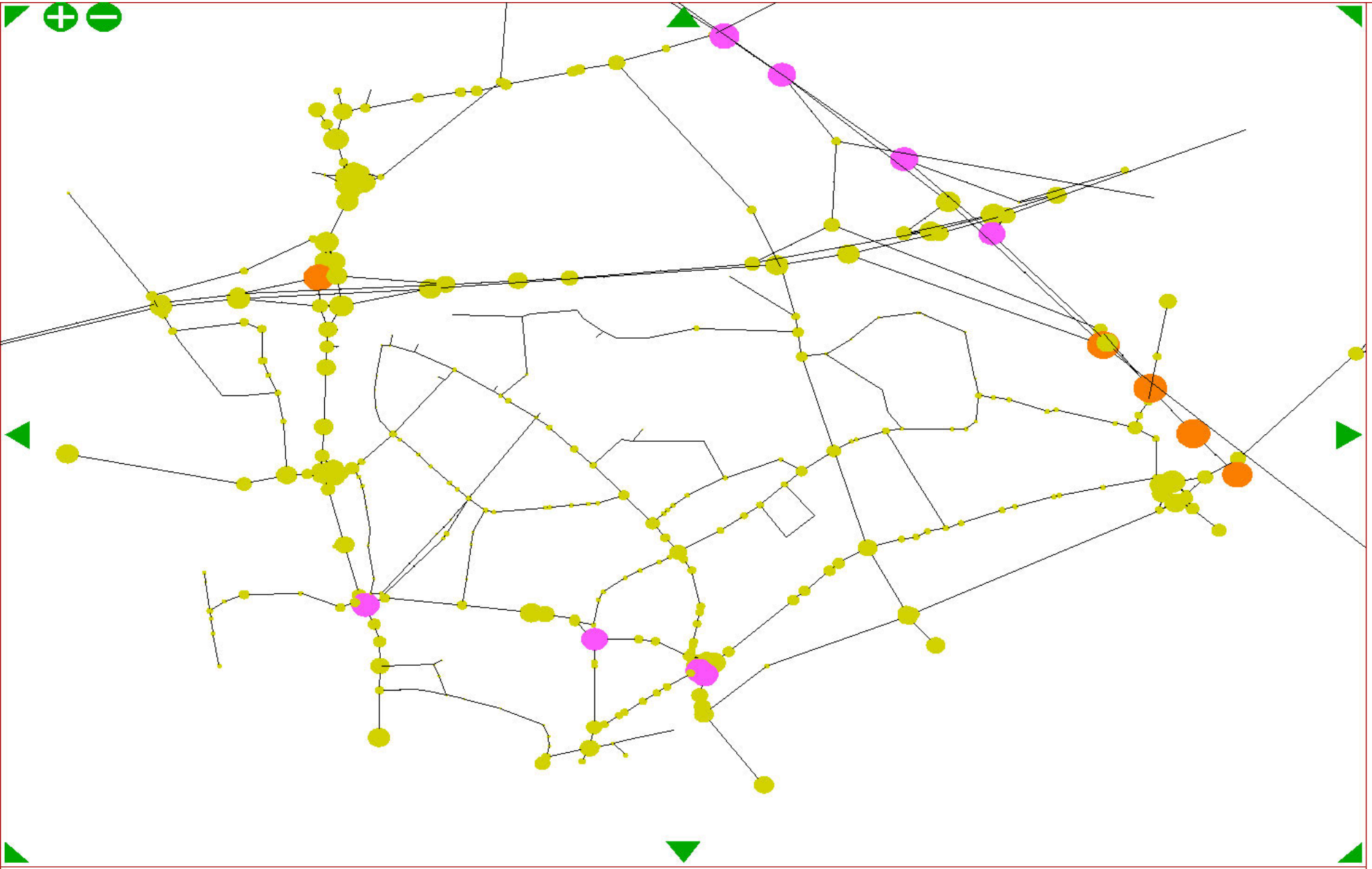
Appendix 4

Node V over C plots 2022 and 2032 AM and PM peak hour Do Something scenarios with full development (previous modelling run)



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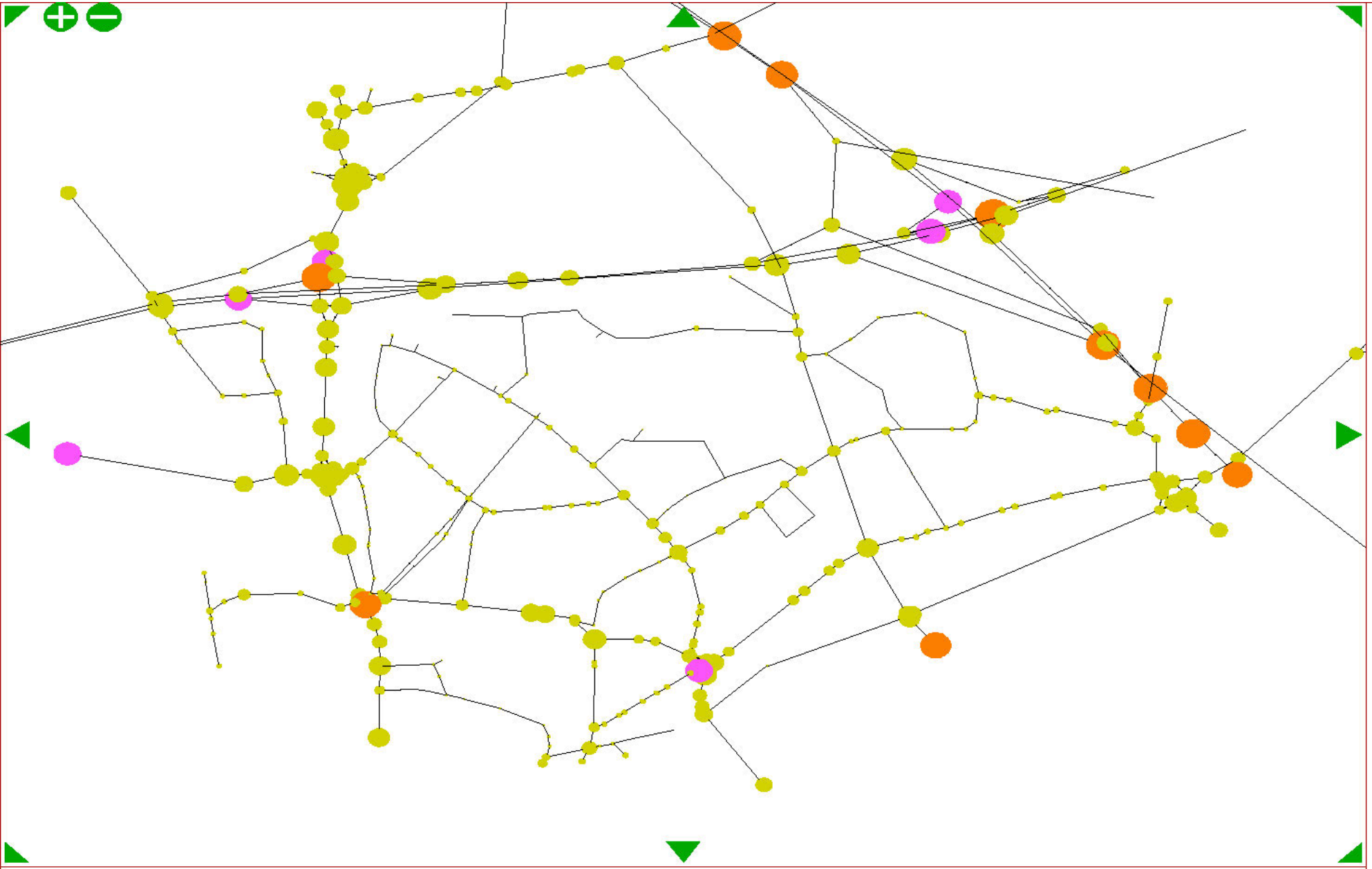

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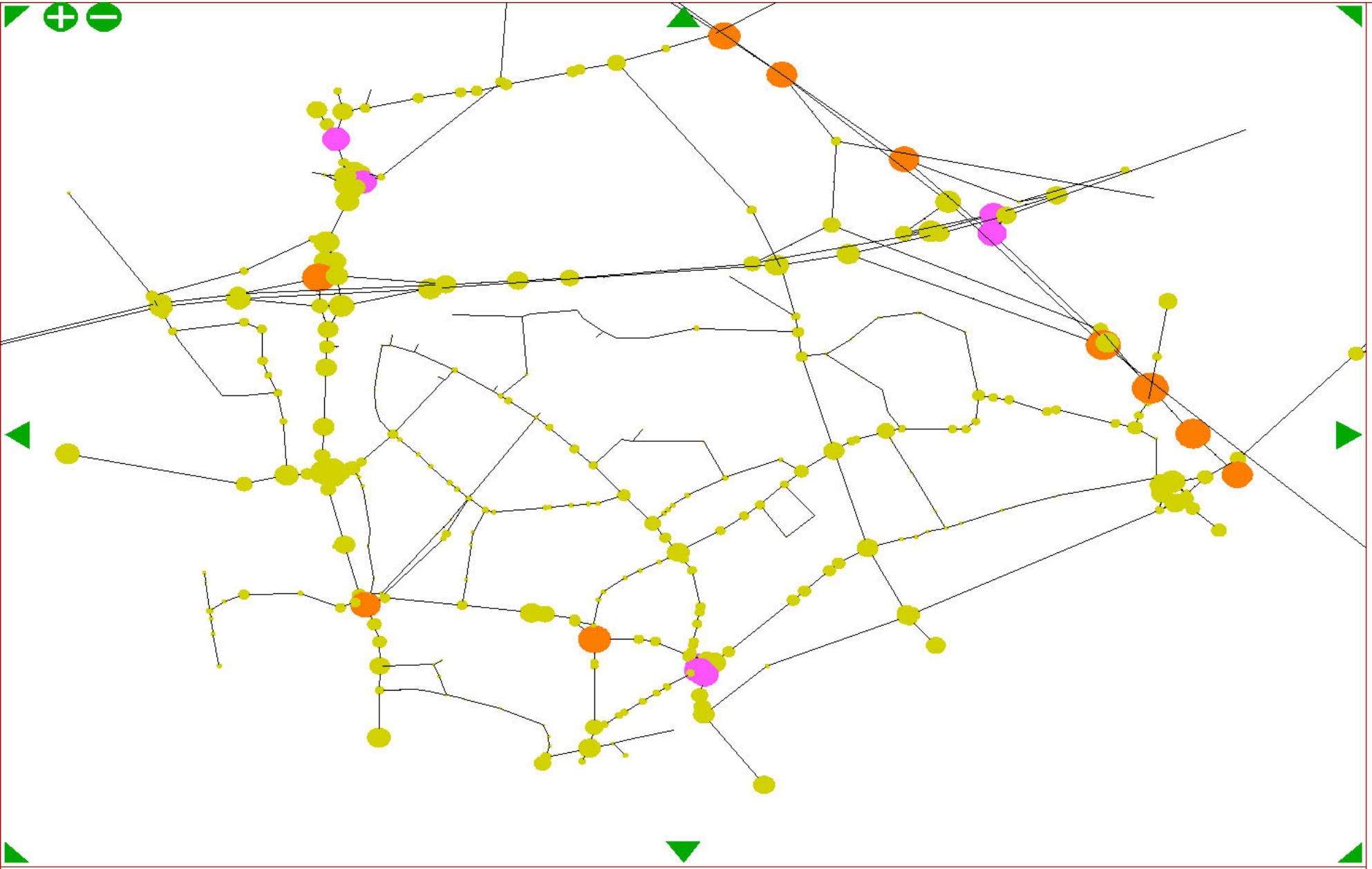

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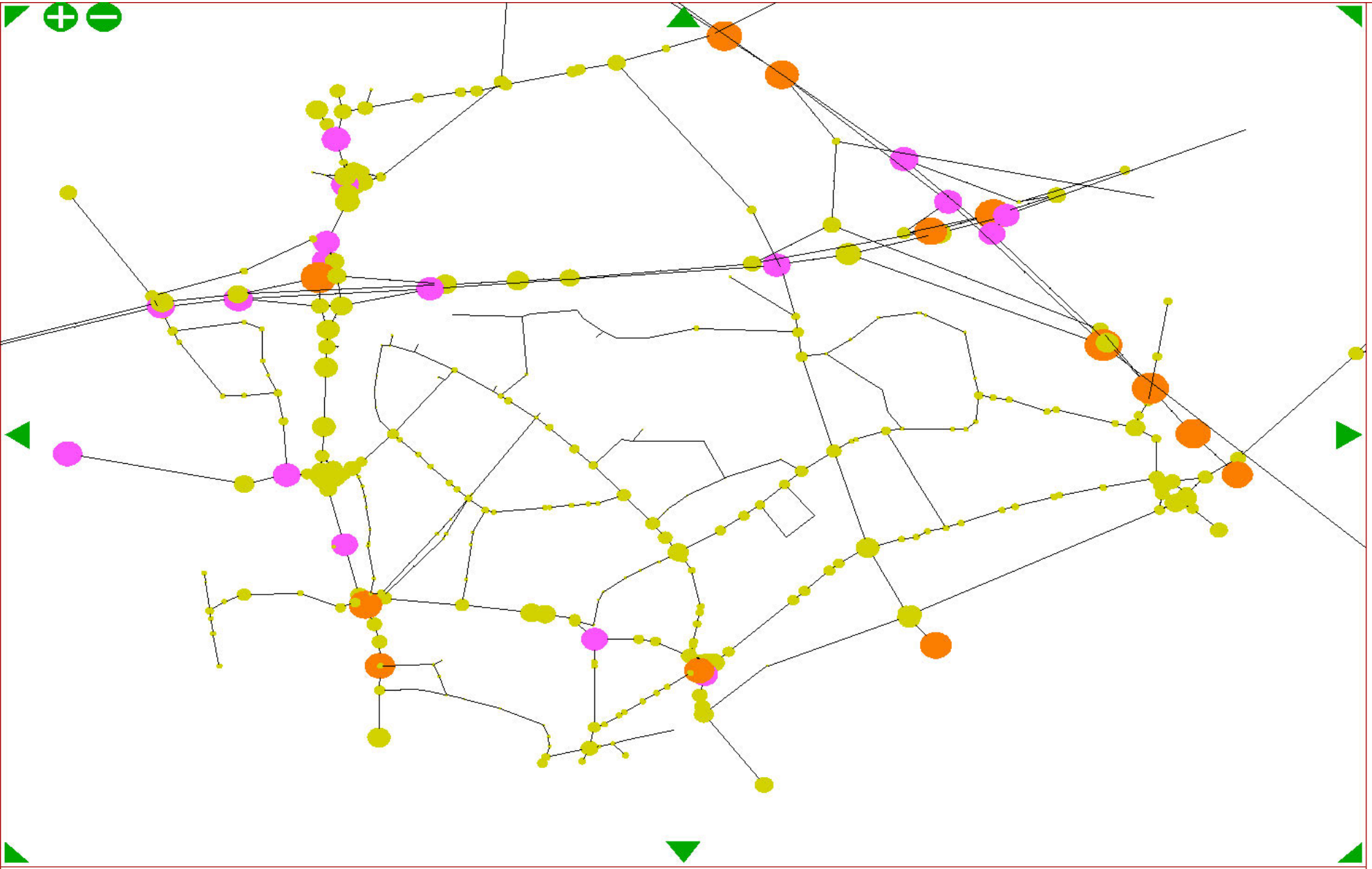

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Appendix 5

Flow difference plots for the previous Do Something
and the mitigation Do Something scenarios

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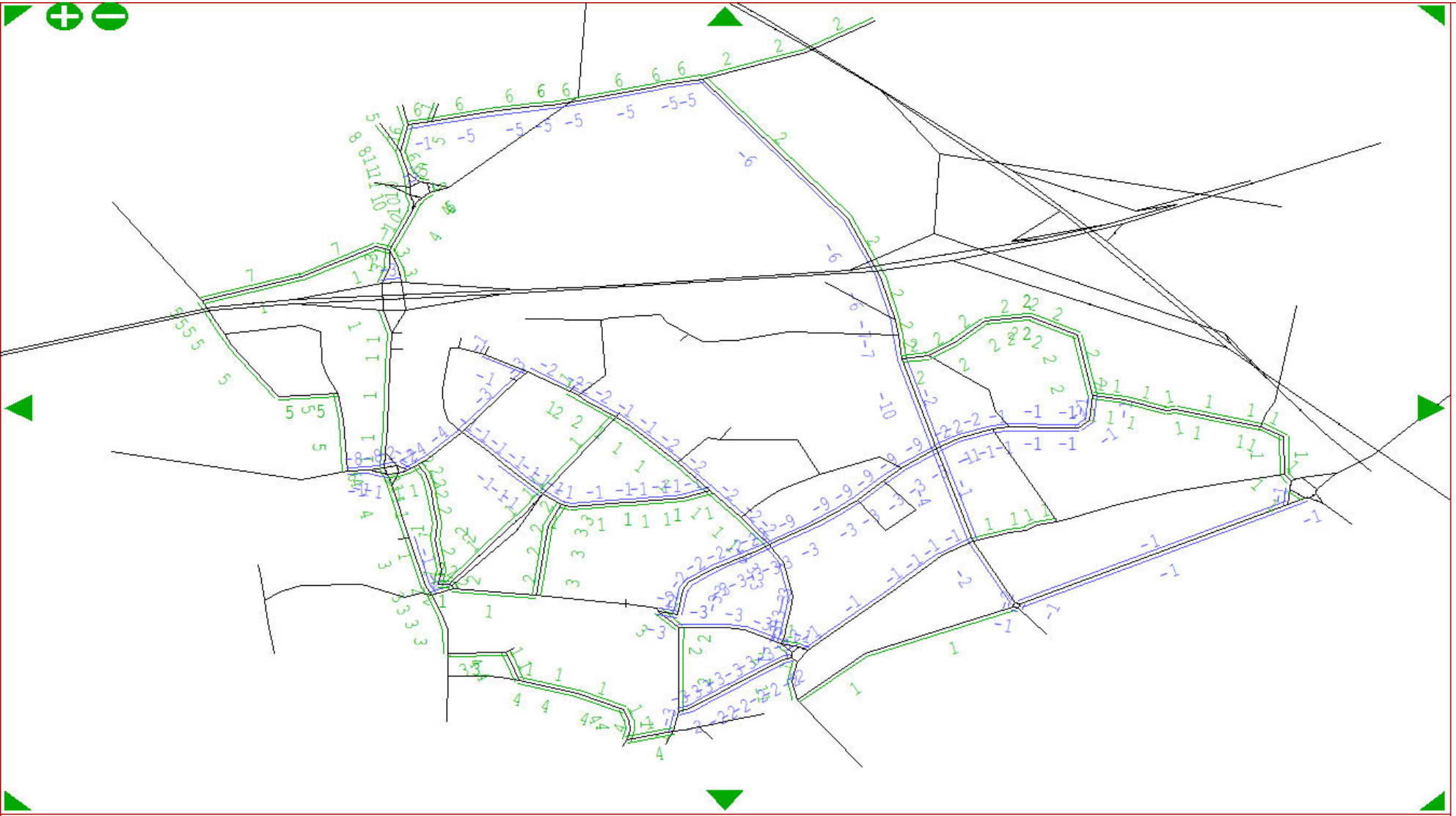

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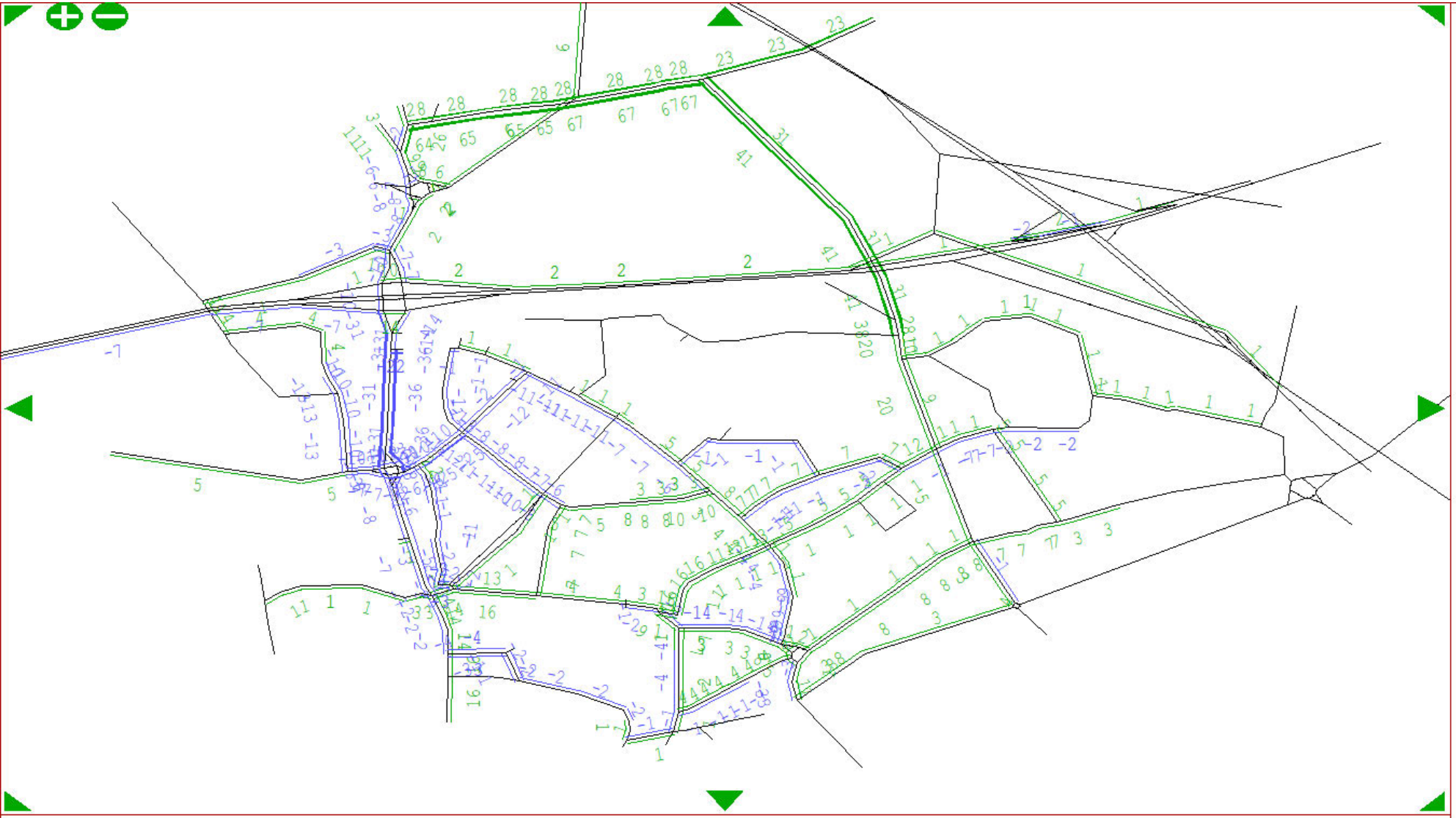

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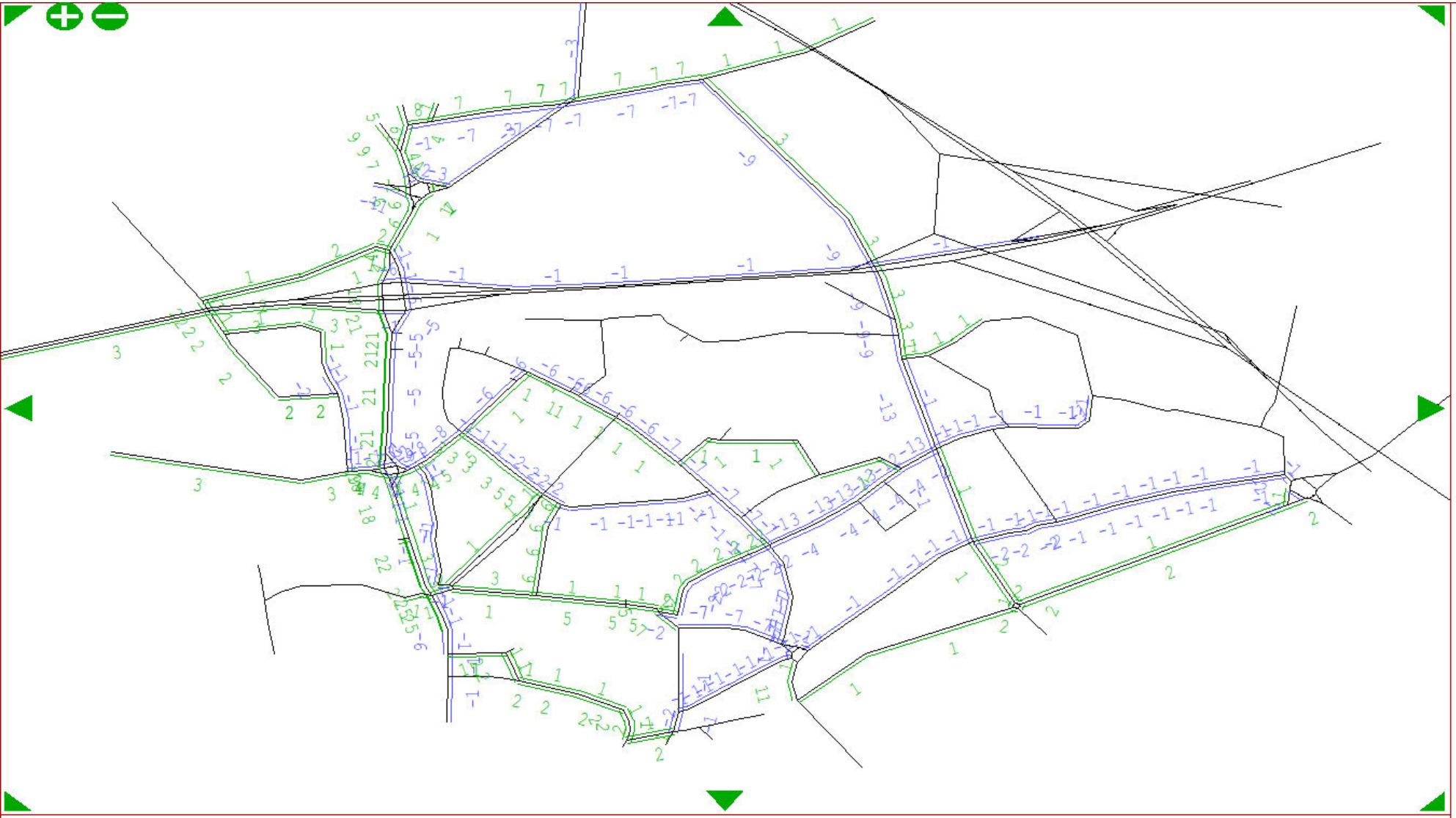

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