

## **Executive Summary - Transport Analysis**

### **The Low Traffic Neighbourhood Trial (ETRO)**

1. In October 2019, the Executive Member for Transport gave approval, to develop an Experimental Traffic Regulation Order (“ETRO”) to remove through traffic from The Groves using road closures, trialling a Low Traffic Neighbourhood scheme. This approval was subject to further detailed design work and consultation.
2. A detailed design was prepared and residents and businesses in The Groves were sent details of the proposals and invited to an open evening to discuss the proposals in more detail. In response to the open evening and other comments received, the scheme proposals were amended and were then approved at the June 2020 Executive Member for Transport Decision Session for taking forward as an ETRO for a maximum of 18 months.
3. The ETRO (as indicated on the plan in Annex A1) was introduced on 2 September 2020 after advising residents of the revised proposal along with advice on how to make representations during the experimental period. New closure points were installed in five locations: the junction of Lowther Street and Brownlow Street, St John's Crescent, Penley's Grove Street, Neville Terrace, and Earle Street. These closure points prevent vehicles passing through, but are open to pedestrians and cyclists.
4. In addition to the new closure points, the existing closure point at Neville Terrace was removed to allow more direct access to Haxby Road from that side of The Groves, Brownlow Street and March Street became one-way streets, except for cyclists, and Penley's Grove Street became two-way, to allow traffic to exit onto Monkgate from this part of The Groves.
5. A small number of parking spaces were also removed or relocated to make room for turning points at the closures, and the existing resident parking zones were merged to enable residents and their visitors to park more flexibly across the area.
6. Following further feedback and as permitted under the regulations for experimental orders, further adjustments were made to the trial in November 2020. This included relocating the closure point on St. John's Crescent in line with the residents' preference following some localised consultation, relocating the Neville Terrace closure point to help prevent the occasional use of the back lane which is not suitable for use by motor vehicles, removing one parking space on Park Grove near a bend to better enable large vehicles to manoeuvre (this was a

pre-existing issue which could be resolved as part of the experiment), removing a short length of parking on St John Street to ease turning at the Garden Street junction and placing additional signing at the entry points and within the area to give guidance to drivers.

7. Whilst there were a number of other minor changes to traffic signs during the trial, including following the Stage 3 Road Safety Audit report, there were no further changes to the ETRO after 24 November 2020.

### **Trial monitoring and evaluation**

8. Transport consultants WSP were commissioned by City of York Council to assess and report on the impacts of the LTN trial. The consultants' report is provided online as a background document. This work includes the review of quantitative data such as traffic counts undertaken at a number of surrounding junctions before and after the scheme and bus journey time data. This data is available at <https://data.yorkopendata.org/dataset/the-groves-low-traffic-neighbourhood-trial>.
9. Annex B-F includes the feedback received through the various consultations that have taken place over the ETRO period.
10. When reviewing the data and findings from the consultants, it is important to note that the trial took place and the data was collated during the Covid 19 pandemic. The pandemic brought about very rapid and significant fluctuations in travel patterns, which could not have been predicted at the outset of this proposed experiment. Although this report is not able to make accurate predictions for changes due to Covid 19, it is reasonable to assume that traffic levels will generally return to levels similar to those seen before the pandemic for most journey purposes in the long term, although commuting patterns may change, with more employers supporting employees working from home for at least part of their contracted hours.

### **Impact on motorised traffic in The Groves**

11. When comparing traffic counts before the start of the trial with those undertaken approximately a year after the trial was introduced, the following key changes can be identified when considering motorised traffic in The Groves. It is important to note that pre-trial surveys were undertaken in August whilst the most recent surveys were undertaken in September. This means that some of the increase

in traffic flows observed in the data is likely to be linked to the end of the summer holidays and the return to school and work.

**Lowther Street** – as expected, the trial has resulted significant reductions in the number of motorised vehicles using Lowther Street, as shown in Table 1 and Table 2. Counts at the junction with Huntington Road show a reduction from 317 vehicles in the am peak pre-trial to 55 vehicles a year on, and from 417 vehicles in the pm peak to 38 vehicles a year on;

**Penley's Grove Street and Townend Street** - as expected, the trial has resulted significant reductions in the number of motorised vehicles using Penley's Grove Street and Townend Street, as illustrated in Table 3 and Table 4. Counts at the junction with Haxby Road show a reduction from 187 vehicles in the am peak pre-trial to 28 vehicles a year on, and from 235 vehicles in the pm peak to 64 vehicles a year on;

**St John Street and St John's Crescent** – as for the streets considered above, St John Street and St John's Crescent have also benefited from a reduction in motorised vehicles travelling on these two streets, although on a much smaller scale, as shown in *Table 5* and *Table 6*;

**Park Grove** – Park Grove is the only street in The Groves where an increase in motorised traffic has been identified through survey data, following the introduction of the trial, as shown in *Table 7*. The increase in traffic is relatively modest when considering the 12 hour period (from 607 vehicles before the trial to 691 vehicles a year on) and seems to be linked to school hours, with the strongest increases in vehicle numbers noted between 8 and 9am and 3 to 4pm.

12. There is no journey time data available for vehicle trips within The Groves but residents travelling by car have benefitted from the significant reduction in vehicle trips within the area during the trial. For drivers within The Groves wanting to reach a destination on the other side of the closures, journey times by car have clearly increased due to the trial. This is also true for drivers who used to cut through The Groves as part of longer journeys through York, as they would experience delays due to the need to use alternative routes such as Lord Mayor's Walk or Haxby Road/ Haley's Terrace/ Huntington Road or Dodsworth Avenue.

13. *Table 1: Lowther Street at the junction with Huntington Road*

<b>Time periods</b>	<b>Number of vehicles before the trial</b>	<b>Number of vehicles one year on</b>	<b>Difference in number of vehicles</b>
Motorised vehicles over a 12 hour period (7am to 7pm, weekdays)	4,594	443	-4,151 (90% reduction)
Motorised vehicles between 8 and 9am (weekdays)	317	55	-262 (83% reduction)
Motorised vehicles between 1 and 2pm (weekdays)	411	26	-385 (94% reduction)
Motorised vehicles between 5 and 6pm (weekdays)	417	38	-379 (91% reduction)
Pedal cycles over a 12 hour period (7am to 7pm, weekdays)	94	133	39 (41% increase)
All vehicles counted on Lowther Street.			

14. *Table 2: Lowther Street at the junction with Haxby Road*

<b>Time periods</b>	<b>Number of vehicles before the trial</b>	<b>Number of vehicles one year on</b>	<b>Difference in number of vehicles</b>
Motorised vehicles over a 12 hour period (7am to 7pm, weekdays)	652	416	-236 (36% reduction)
Motorised vehicles between 8 and 9am (weekdays)	35	35	n/a
Motorised vehicles between 1 and 2pm (weekdays)	60	33	-27 (45% reduction)
Motorised vehicles between 5 and 6pm (weekdays)	68	36	-32 (47% reduction)

<b>Time periods</b>	<b>Number of vehicles before the trial</b>	<b>Number of vehicles one year on</b>	<b>Difference in number of vehicles</b>
Pedal cycles over a 12 hour period (7am to 7pm, weekdays)	39	33	-7 (17% reduction)
All vehicles counted on Lowther Street travelling from Haxby Road. Vehicles from Wigginton Road were not included in the counts.			

15. *Table 3: Penley's Grove Street at the junction with Monkgate*

<b>Time periods</b>	<b>Number of vehicles before the trial</b>	<b>Number of vehicles one year on</b>	<b>Difference in number of vehicles</b>
Motorised vehicles over a 12 hour period (7am to 7pm, weekdays)	2,550	394	-2,157 (85% reduction)
Motorised vehicles between 8 and 9am (weekdays)	187	28	-159 (85% reduction)
Motorised vehicles between 1 and 2pm (weekdays)	231	38	-193 (84% reduction)
Motorised vehicles between 5 and 6pm (weekdays)	233	37	-197 (84% reduction)
Pedal cycles over a 12 hour period (7am to 7pm, weekdays)	97	151	54 (55% increase)
All vehicles counted on Penley's Grove Street.			

16. *Table 4: Townend Street at the junction with Haxby Road*

<b>Time periods</b>	<b>Number of vehicles before the trial</b>	<b>Number of vehicles one year on</b>	<b>Difference in number of vehicles</b>
Motorised vehicles over a 12 hour period (7am to 7pm, weekdays)	2,500	665	-1,835 (73% reduction)

<b>Time periods</b>	<b>Number of vehicles before the trial</b>	<b>Number of vehicles one year on</b>	<b>Difference in number of vehicles</b>
Motorised vehicles between 8 and 9am (weekdays)	181	45	-137 (75% reduction)
Motorised vehicles between 1 and 2pm (weekdays)	231	67	-164 (71% reduction)
Motorised vehicles between 5 and 6pm (weekdays)	235	64	-171 (73% reduction)
Pedal cycles over a 12 hour period (7am to 7pm, weekdays)	100	111	11 (11% increase)
All vehicles counted on Townend Street.			

17. *Table 5: St John Street*

<b>Time periods</b>	<b>Number of vehicles before the trial</b>	<b>Number of vehicles one year on</b>	<b>Difference in number of vehicles</b>
Motorised vehicles over a 12 hour period (7am to 7pm, weekdays)	169	113	-56 (33% reduction)
Motorised vehicles between 8 and 9am (weekdays)	9	10	1
Motorised vehicles between 1 and 2pm (weekdays)	16	11	-5
Motorised vehicles between 5 and 6pm (weekdays)	18	14	-4
Pedal cycles over a 12 hour period (7am to 7pm, weekdays)	88	101	13
All vehicles counted on St John Street.			

18. *Table 6: St John's Crescent*

<b>Time periods</b>	<b>Number of vehicles before the trial</b>	<b>Number of vehicles one year on</b>	<b>Difference in number of vehicles</b>
Motorised vehicles over a 12 hour period (7am to 7pm, weekdays)	208	10	-199 (95% reduction)
Motorised vehicles between 8 and 9am (weekdays)	12	1	-11
Motorised vehicles between 1 and 2pm (weekdays)	16	2	-14
Motorised vehicles between 5 and 6pm (weekdays)	20	1	-19
Pedal cycles over a 12 hour period (7am to 7pm, weekdays)	23	43	25
All vehicles counted on St John's Crescent.			

19. *Table 7: Park Grove at the junction with Huntington Road*

<b>Time periods</b>	<b>Number of vehicles before the trial</b>	<b>Number of vehicles one year on</b>	<b>Difference in number of vehicles</b>
Motorised vehicles over a 12 hour period (7am to 7pm, weekdays)	607	691	85 (14% increase)
Motorised vehicles between 8 and 9am (weekdays)	29	87	58 (200% increase)
Motorised vehicles between 1 and 2pm (weekdays)	53	42	-11 (20% decrease)
Motorised vehicles between 3 and 4pm (weekdays)	54	87	33 (61% increase)

Time periods	Number of vehicles before the trial	Number of vehicles one year on	Difference in number of vehicles
Motorised vehicles between 5 and 6pm (weekdays)	81	83	2 (2% increase)
Pedal cycles over a 12 hour period (7am to 7pm, weekdays)	56	98	42 (75% increase)
All vehicles counted on Park Grove.			

### ***Impact on motorised traffic around The Groves***

20. When comparing traffic counts before the start of the trial with those undertaken approximately a year after the trial was introduced, the following key changes can be identified when considering motorised traffic around The Groves. It is important to note that this data compares traffic flows at the end of August 2020 during summer holidays with flows in mid-September 2021 after the summer holidays. This means that some increases in flows are likely to be linked to the end of the summer holidays rather than the trial in The Groves.

21. **Huntington Road** – The data for the junction between Huntington Road and Lowther Street (Table 8) indicates a reduction in the number of vehicles at this location following the introduction of the trial, from 789 to 727 vehicles in the am peak and from 1,086 to 771 vehicles in the pm peak. This is due to the removal of most traffic from Lowther Street. Table 9 however shows that the number of motorised vehicles travelling on Huntington Road has increased as a result of the trial, with some drivers redirected on Huntington Road. This is shown to result in an increase from 491 to 753 vehicles in the am peak and from 689 to 806 vehicles in the pm peak.

22. **Clarence Street, Haxby Road and Wigginton Road** – Table 12 shows a significant increase in vehicles using Clarence Street at its junction with Townend Street a year on from the introduction of the trial. The number of motorised vehicles is shown to have increased especially in the am peak, with 762 vehicles using Clarence Street (all movements) in this location before the trial and 1,056 a year on. Additional traffic is also shown to travel on Haxby Road (at the junction



with Lowther Street). As illustrated in Table 10, this is more pronounced in the am peak, with a small reduction in traffic noted in the pm peak in this location.

23. The traffic surveys undertaken just before the start of the trial did not include the Wigginton Road arm of the junction. It was therefore necessary to use older data (October 2019, pre-Covid) to enable a comparison of traffic flows to and from Wigginton Road at the junction with Haxby Road, Lowther Street and Clarence Street. This analysis shows that traffic previously using Lowther Street (reduced by 168 motorised vehicles in the am peak, 250 vehicles in the pm peak and 3,057 over 12 hours on a weekday) tends to redirect south onto Clarence Street from Haxby Road and Wigginton Road or north onto Haxby Road from Clarence Street and Wigginton Road. Traffic previously using Townend Street (reduced by 181 motorised vehicles in the am peak, 235 vehicles in the pm peak and 2,500 over 12 hours on a weekday), tends to redirect south onto Monkgate, Lord Mayor's Walk and Gillygate/Clarence Street or north through Dodsworth Avenue/Huntington Road, Haley's Terrace and Haxby Road.
24. **Monkgate** – As shown in Table 13, the traffic data for Monkgate (at the junction with Penley's Grove Street) shows mixed results, with a small overall reduction in traffic (over the 12 hour period) one year on from the start of the trial, but an increase in motorised vehicles using the street at this location in the am peak (from 802 to 948 motorised vehicles).
25. **Haley's Terrace and Dodsworth Avenue** – There are no traffic counts available for Haley's Terrace and Dodsworth Avenue. It is however clear, based on the modelling previously undertaken to support the 2019 report, the traffic data showing vehicles redirecting onto Haxby Road, and comments and objections received during the trial, that some drivers have been using these streets to circumvent the trial area. Journey time data does not however show an increase in journey times on Haley's Terrace.
26. **Lord Mayor's Walk** - There are no traffic counts available for Lord Mayor's Walk. It is however clear from the traffic data for Clarence Street and Monkgate, that some drivers have been using this route to circumvent the trial area.

*Table 8: Huntington Road at the junction with Lowther Street*

<b>Time periods</b>	<b>Number of vehicles before the trial</b>	<b>Number of vehicles one year on</b>	<b>Difference in number of vehicles</b>
Motorised vehicles over a 12 hour period (7am to 7pm, weekdays)	10,663	7,346	-3,317 (31% reduction)
Motorised vehicles between 8 and 9am (weekdays)	789	727	-62 (8% reduction)
Motorised vehicles between 1 and 2pm (weekdays)	951	542	-410 (43% reduction)
Motorised vehicles between 5 and 6pm (weekdays)	1,086	771	-297 (28% reduction)
Pedal cycles over a 12 hour period (7am to 7pm, weekdays)	456	633	178 (39% increase)
All vehicles counted at the junction including turning movements.			

*Table 9: Huntington Road at the junction with Park Grove*

<b>Time periods</b>	<b>Number of vehicles before the trial</b>	<b>Number of vehicles one year on</b>	<b>Difference in number of vehicles</b>
Motorised vehicles over a 12 hour period (7am to 7pm, weekdays)	6,642	7,352	910 (14% increase)
Motorised vehicles between 8 and 9am (weekdays)	491	753	262 (53% increase)
Motorised vehicles between 1 and 2pm (weekdays)	569	549	-20 (3% reduction)
Motorised vehicles between 5 and 6pm (weekdays)	689	806	117 (17% increase)
Pedal cycles over a 12 hour period (7am to 7pm, weekdays)	364	442	78 (21% increase)

<b>Time periods</b>	<b>Number of vehicles before the trial</b>	<b>Number of vehicles one year on</b>	<b>Difference in number of vehicles</b>
All vehicles counted the junction including turning movements.			

*Table 10: Haxby Road at the junction with Lowther Street*

<b>Time periods</b>	<b>Number of vehicles before the trial</b>	<b>Number of vehicles one year on</b>	<b>Difference in number of vehicles</b>
Motorised vehicles over a 12 hour period (7am to 7pm, weekdays)	3,784	3,926	142 (4% increase)
Motorised vehicles between 8 and 9am (weekdays)	281	353	73 (26% increase)
Motorised vehicles between 1 and 2pm (weekdays)	321	319	-3 (1% reduction)
Motorised vehicles between 5 and 6pm (weekdays)	388	362	-27 (7% reduction)
Pedal cycles over a 12 hour period (7am to 7pm, weekdays)	314	396	82 (26% increase)
All vehicles counted at the junction including turning movements. Wigginton Road was not included in the August 2020 counts so not shown here.			

*Table 11: Traffic to and from Wigginton Road at the junction with Haxby Road, Lowther Street and Clarence Street*

<b>Time periods</b>	<b>Number of vehicles before the trial*</b>	<b>Number of vehicles one year on</b>	<b>Difference in number of vehicles</b>
Motorised vehicles over a 12 hour period (7am to 7pm, weekdays)	13,573	14,445	872 (6% increase)
Motorised vehicles between 8 and 9am (weekdays)	856	1,347	491 (57% increase)

<b>Time periods</b>	<b>Number of vehicles before the trial*</b>	<b>Number of vehicles one year on</b>	<b>Difference in number of vehicles</b>
Motorised vehicles between 5 and 6pm (weekdays)	1,433	1,374	-59 (4% reduction)
Pedal cycles over a 12 hour period (7am to 7pm, weekdays)	270	379	109 (40% increase)
*October 2019 counts for the junction (all arms) have been used to estimate likely traffic flows in August 2020 for Wigginton Road (pro rata to account for changes in traffic flows due to Covid)			

*Table 12: Clarence Street at the junction with Townend Street*

Time periods	Number of vehicles before the trial	Number of vehicles one year on	Difference in number of vehicles
Motorised vehicles over a 12 hour period (7am to 7pm, weekdays)	10,244	11,359	1,115 (11% increase)
Motorised vehicles between 8 and 9am (weekdays)	762	1,056	295 (39% increase)
Motorised vehicles between 1 and 2pm (weekdays)	901	929	28 (3% increase)
Motorised vehicles between 5 and 6pm (weekdays)	995	1,013	18 (2% increase)
Pedal cycles over a 12 hour period (7am to 7pm, weekdays)	584	742	158 (27% increase)
All vehicles counted at the junction including turning movements.			

Table 13: Monkgate at the junction with Penley's Grove Street

Time periods	Number of vehicles before the trial	Number of vehicles one year on	Difference in number of vehicles
Motorised vehicles over a 12 hour period (7am to 7pm, weekdays)	11,774	11,530	-244 (2% reduction)
Motorised vehicles between 8 and 9am (weekdays)	802	948	147 (18% increase)
Motorised vehicles between 1 and 2pm (weekdays)	1,034	940	-94 (9% reduction)
Motorised vehicles between 5 and 6pm (weekdays)	1,190	1,064	-126 (11% reduction)
Pedal cycles over a 12 hour period (7am to 7pm, weekdays)	826	1,099	273 (33% increase)
All vehicles counted at the junction including turning movements.			

27. Additional data analysis was undertaken using journey time data available for streets around The Groves to better understand the impact of traffic redirecting on journey times. This analysis is presented in *Figure 1* to *Figure 3*, comparing journey times for routes around The Groves before the trial started in August 2020 with journey times in August 2021. *Figure 4* shows journey time data for Lawrence Street and Walmgate/Fishergate, which were selected as control areas to understand wider trends in journey times in the city over the same period.

28. *Figure 1* and *Figure 3* identifies that the most significant increases in journey times are located on the Gillygate/Clarence Street corridor and on Lord Mayor's Walk. It is important to note that delays on these corridors may not be due solely to the trial in The Groves and traffic redirecting as, due to air quality issue on Gillygate, there is a gating scheme in place at this junction, controlling traffic entering Gillygate. *Figure 4* also shows that journey times have generally increased over the same period in other parts of the city.

Figure 1: Median journey time comparison – AM peak

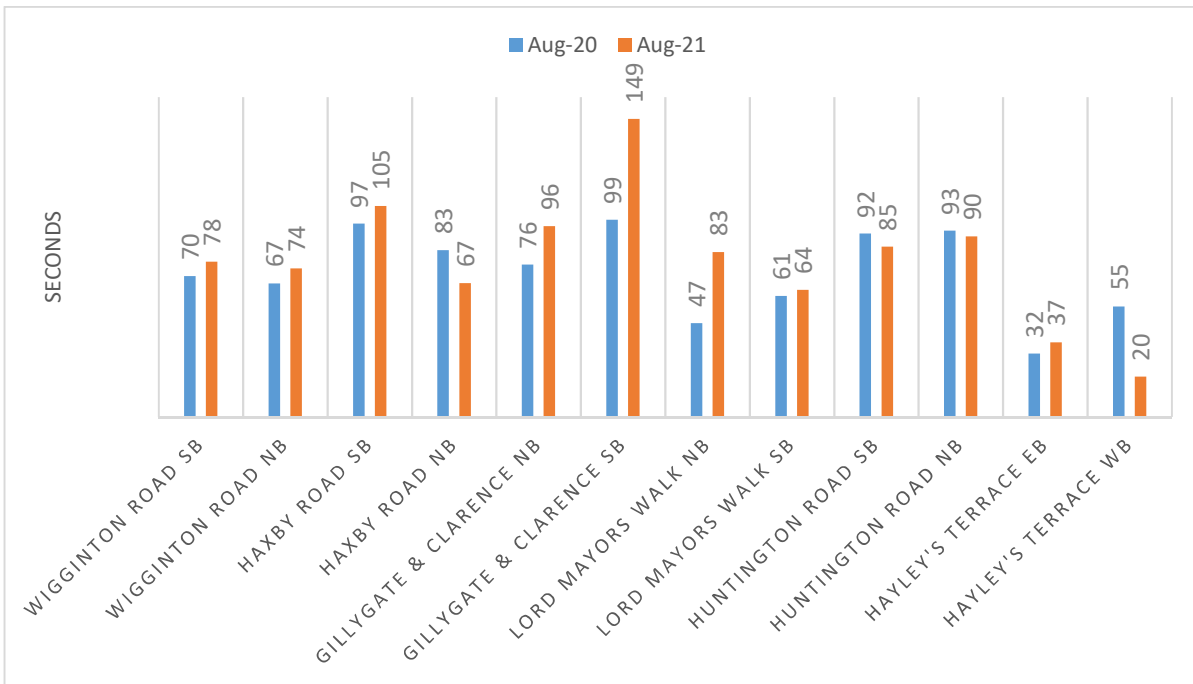


Figure 2: Median journey time comparison – Inter-peak

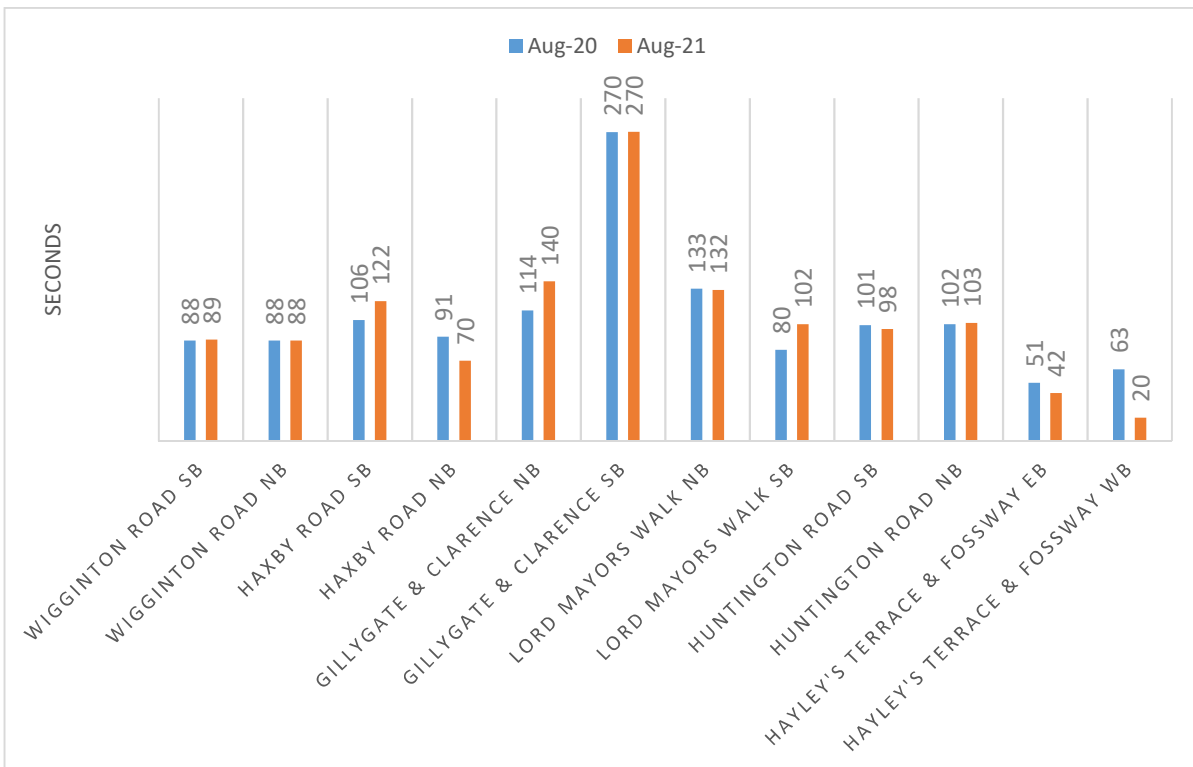


Figure 3: Median journey time comparison – PM peak

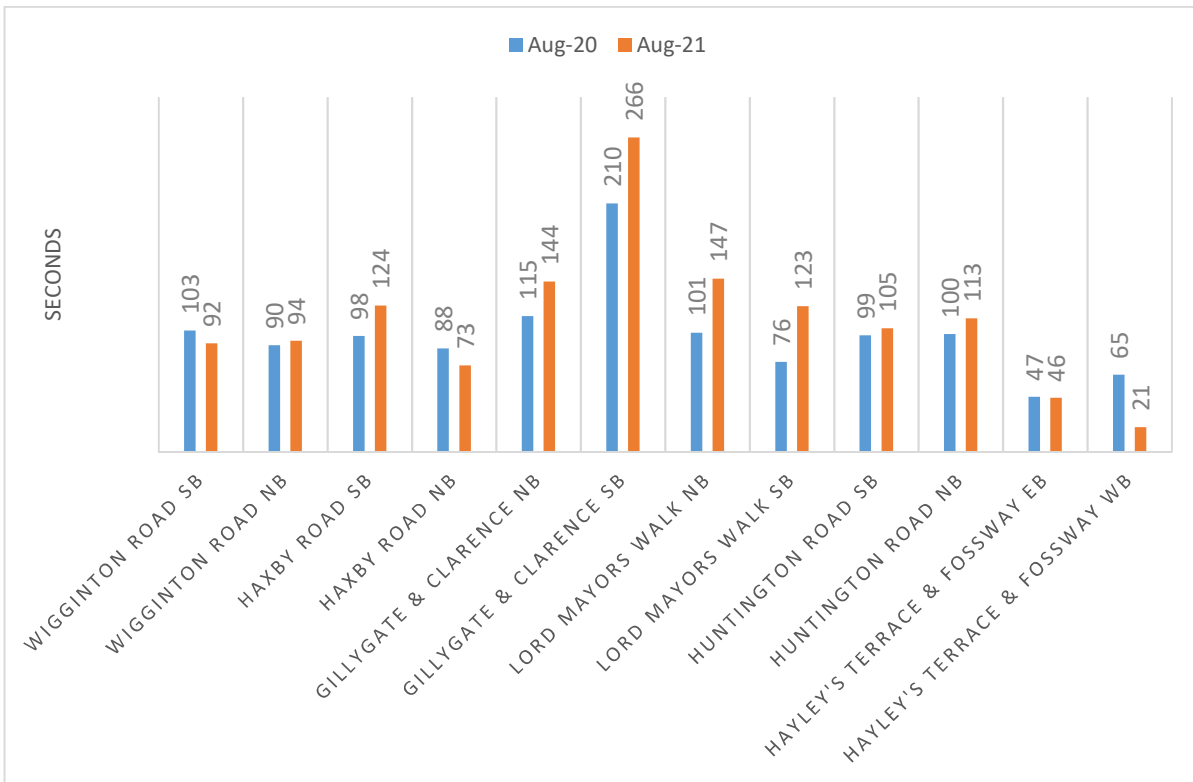
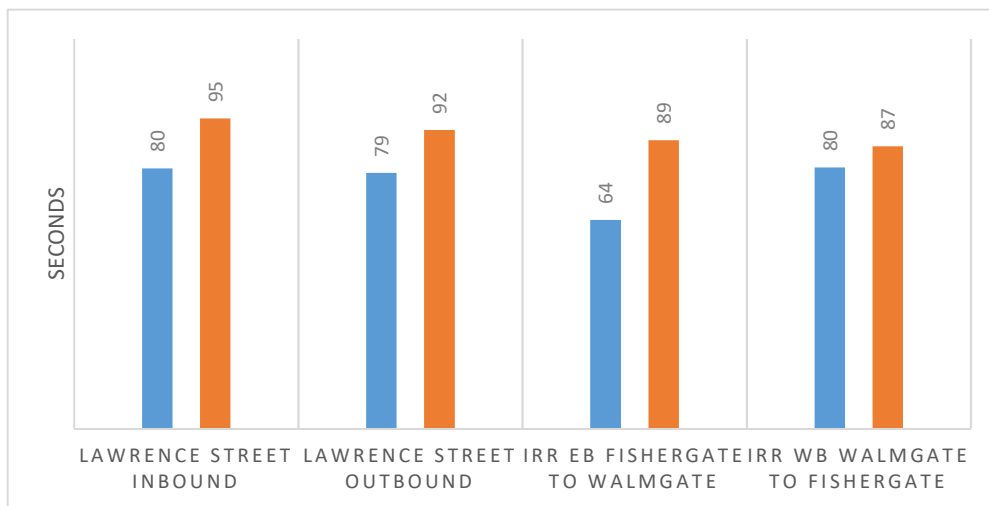


Figure 4: Journey time comparison in control areas

AM peak

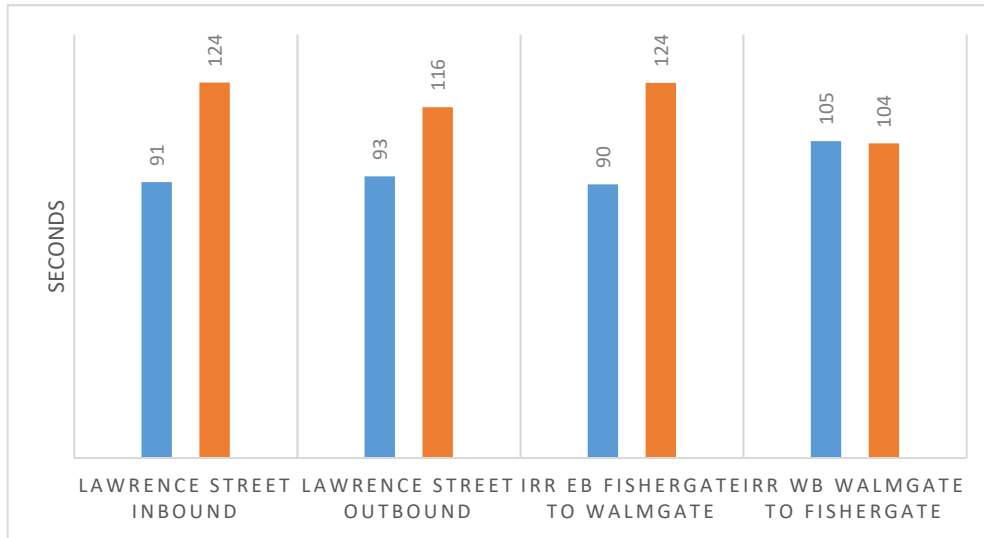


IRR: Inner Ring Road

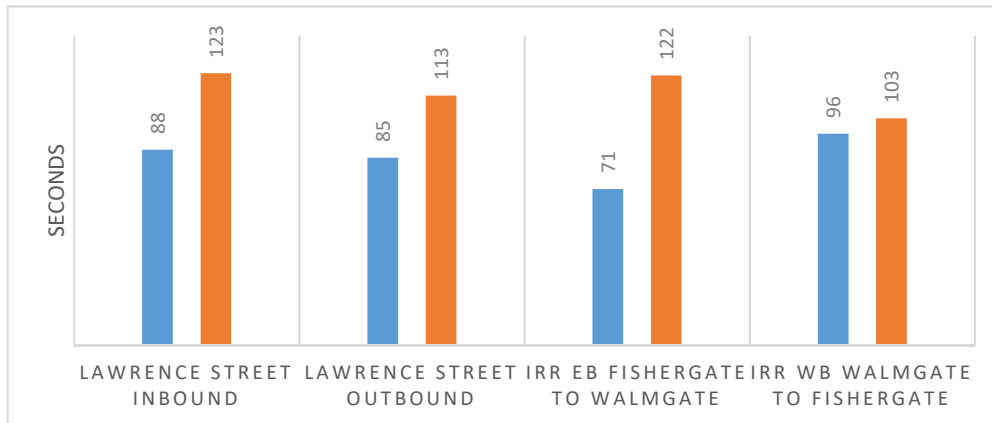
EB: Eastbound

WB: Westbound

Inter peak



PM peak



29. The journey times compared above are for journeys on the same route/street, before and after the introduction of the trial. For drivers who used to travel through The Groves, for example to access York Hospital or other destinations in or near The Groves, increases in journey times are more significant.

30. *Figure 5* illustrates this by comparing journey times (from Google) between an address on East Parade and York Hospital, during the weekday pm peak, before the trial and with the trial in place. This shows an increase in journey time between 1 and 8 minutes with the trial in place as a result of having to use diversion routes.

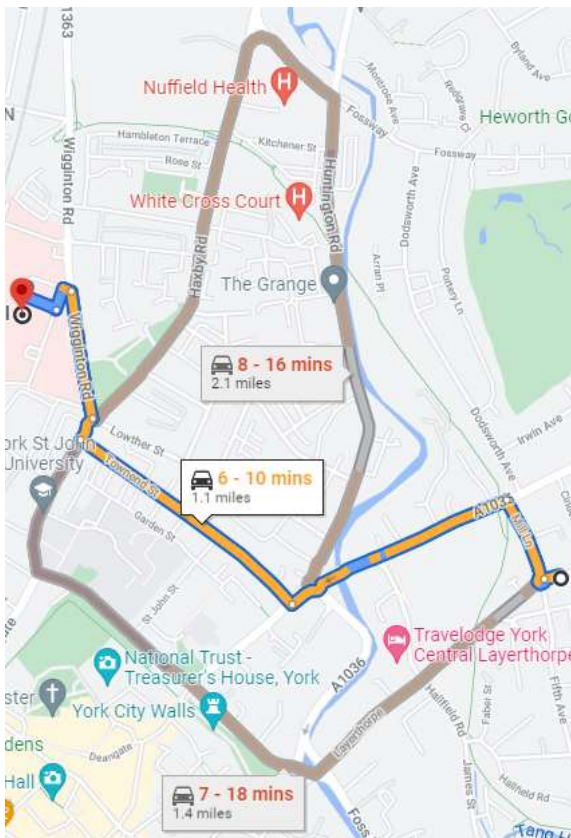
31. Google estimates show that this journey would have taken between 6 and 10 minutes on a weekday in the pm peak when the route through The Groves was available and is now estimated to take



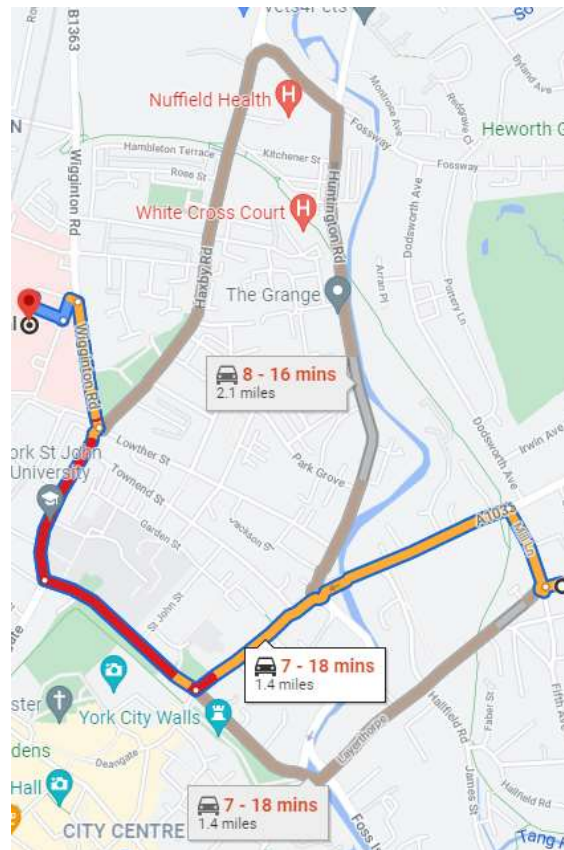
between 7 and 18 minutes, using Lord Mayor’s Walk or Huntington Road and Haley’s Terrace. The weekday pm peak has been selected here as the data shows that this is the worst period in terms of journey time impacts.

Figure 5: Google journey time estimates – East Parade to York Hospital weekday, pm peak

Before the trial (Dec 2019)



With the trial in place (Dec 2021)



### Impact on bus services

32. Journey time data was analysed for the following bus services: 5 Strensall – City – Acomb (using Haxby Road), 6 Clifton Moor – City – University Campus East (using Wigginton Road), and 12 Foxwood-City – Monks Cross (using Monkgate, Heworth Green and Dodsworth Avenue).
33. Between August 2020 and September 2021, the data analysed seems to indicate that journey times have increased between 30 and 90 seconds in the northbound direction for bus service 5, which travels on Clarence Street and Haxby Road, and between 50 and 90 seconds in the northbound direction for bus service 6 which travels on Wigginton Road.

34. The impact on southbound journeys is not clear with some services showing small delays (up to 30 seconds) and some services showing faster journey times (saving just below a minute). The impact on bus route 12 seems limited to a maximum 43 seconds delay northbound on weekdays
35. It is however not possible to directly attribute these limited changes in bus journey time to the Low Traffic Neighbourhood trial, as the comparison is between August and mid-September and the delays, which are relatively limited, could be due to the seasonal increase in traffic levels and bus use traditionally marking the end of the summer holidays. There are also recurring issues with access and parking at York Hospital on Wigginton Road, which have a much greater impact on journey times.

### **Impact on cycling**

36. As shown in *Table 1* to *Table 13*, traffic data collated for streets in and around The Groves before the start of the trial and a year on generally show increases in the number of cyclists travelling through the area. This is generally valid for streets in The Groves, with the exception of Lowther Street at the junction with Haxby Road and St John Street where the data seems to indicate very small reductions in cycling numbers. More significant increases in cycling were noted in streets around The Groves, between 21% and 29% growth (when considering the 12 hour period). This shows that even on routes motorised traffic has increased as a result of the trial, cyclists have not been deterred as cycling numbers have continued to grow.

### **Impact on road safety**

37. Road safety data was analysed for The Groves and the surrounding area for a period of 60 months before the start of the trial and for a period of 12 months after the start of the trial (collision data for 2021 is provisional and may change during validation in 2021/22). This is shown in Annex I.
38. In the 60 months before the trial, there were 114 collisions (averaging 22.8 collisions /12 month period) of which 14 were serious and one was fatal. In the 12 months during the trial, there were 15 recorded collisions of which one was serious.

39. Although it is not possible to assess the impact of the trial on road safety from such data analysis, the evidence shows that the trial has not had a detrimental impact on collision numbers or severity.

### Impact on air quality

40. Table 14 presents air quality data collated and reported by the Council in The Groves and the surrounding area. This shows a general reduction in annual mean NO<sub>2</sub> concentrations. It is however important to note that any comparison between 2020 data and previous years should be undertaken with caution as the Covid-19 pandemic resulted in significant changes in travel patterns (especially during lockdown periods). Widespread improvements in air quality were observed in York in 2020 compared with previous years, primarily due to a reduction in emissions from vehicles caused by work from home directives and non-essential retail being closed for significant periods of time.

41. Whilst concentrations of NO<sub>2</sub> monitored in York throughout 2020 could be regarded as atypical (due to the Coronavirus pandemic and resultant reductions in traffic), they continue the general downward trend in NO<sub>2</sub> concentrations monitored across the city since 2012.

*Table 14: Diffusion tube monitoring data for the area*

Monitoring locations	Annual mean NO <sub>2</sub> concentrations (µg/m <sup>3</sup> )					
	2020	2019	2018	2017	2016	2015
<b>Lord Mayor's Walk</b>						
Lord Mayor's Walk opposite bike shop	19.2	25.5	24.4	25	25.7	27.2
34 Lord Mayor's Walk	25.3	33.6	32.6	32	34.1	31.7
55 Lord Mayor's Walk	27.9	32.8	34.5	33	32.9	37.6
<b>Clarence Street / Haxby Road</b>						
75 Clarence Street	25.7	31.4	31.6	30	32	31.1
Haxby Road between Markham Crescent and Markham Street	24	29.9	29.4	29	31.7	29.9
Haxby Road near Whitecross Road	20	23.5	23.7	26	25.8	26.9

Monitoring locations	Annual mean NO <sub>2</sub> concentrations (µg/m <sup>3</sup> )					
	2020	2019	2018	2017	2016	2015
<b>Haley's Terrace / Huntington Road / Monkgate</b>						
Haleys Terrace	21	26.7	26	28	25.7	24.1
70 Huntington Road	15.9	21.5	21.8	22	22	21.5
Huntington Road opposite Park Grove	17.9	24	22.8	24	24.9	24.4
Monkgate Cloisters	18.4	22.3	22.9	22	24.3	25.7
<b>Heworth Green</b>						
Dalguise Grove	17.4	24.1	21.5	22	22.2	19.4
26 Heworth Green, near Villa Grove	18.6	23	22.5	23	23.5	22.9
Heworth Surgery	12.2	17.3	15	15	16.7	15.2
55 Heworth Green, near Dodsworth Avenue	21.1	24.6	25.3	25	25.3	27.6
<b>In The Groves</b>						
Lowther Street opposite Riverside House Flats	18.2	28.9	26.6	28	27.9	29.4
All data published at <a href="http://jorair.co.uk/data-downloads/air-quality-data/">http://jorair.co.uk/data-downloads/air-quality-data/</a>						

42. The independent evaluation of the trial included a preliminary investigation to estimate indicative changes in air pollutant concentrations of nitrogen dioxide (NO<sub>2</sub>) and particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>) following the implementation of the trial. The report is available at Annex H.
43. When considering concentrations of nitrogen dioxide, the highest predicted concentration before the trial was 19.3µg/m<sup>3</sup> on Haxby Road, near Markham Crescent. Local air quality at this location is however predicted to experience the lowest increase in concentrations of 1.6%, with the trial increasing the annual mean NO<sub>2</sub> to 19.6µg/m<sup>3</sup>. The highest increase is observed near Haxby Road Primary Academy, which is predicted to experience a 3.3% increase in annual mean NO<sub>2</sub> from 18.0µg/m<sup>3</sup> to 18.3µg/m<sup>3</sup> with the trial in place. Similarly, increased NO<sub>2</sub> concentrations are modelled on Clarence Street, at the junction with Union Terrace (2.9%) and on Haxby Road at the junction with Fountayne Street (2.3%) due to increased traffic flows along

Haxby Road. The highest decrease in concentrations is modelled for Park Grove Primary Academy, with an 11.9% reduction in annual mean NO<sub>2</sub> from 16.0µg/m<sup>3</sup> to 14.1µg/m<sup>3</sup>. Other receptors predicted to experience improvements in local air quality are on Lowther and Townend Street, showing changes of -3.4% and -9.6% respectively, following the implementation of the trial.

44. When considering predicted annual mean PM<sub>10</sub> concentrations, the highest predicted concentration before the trial was 13.3µg/m<sup>3</sup> on Haxby Road, near Markham Crescent. This location is predicted to experience a 0.8% increase to 13.4µg/m<sup>3</sup> with the trial in place. Similarly, increased PM<sub>10</sub> concentrations of 0.8 % are also observed at Haxby Road Primary Academy, on Clarence Street, at the junction with Union Terrace, and on Haxby Road at the junction with Fountayne Street. Park Grove Primary Academy is predicted to benefit from a 3.1% reduction in annual mean PM<sub>10</sub> from 12.9µg/m<sup>3</sup> to 12.5µg/m<sup>3</sup>. Other receptors that are predicted to experience air quality improvements include Lowther Street and Townend Street.
45. When focusing on annual mean PM<sub>2.5</sub> concentrations, the highest predicted concentration before the trial was 8.5µg/m<sup>3</sup> on Townend Street. This location is predicted to experience the highest improvement in PM<sub>2.5</sub> concentrations, with a 5.9% decrease to 8.0µg/m<sup>3</sup>. Other receptors showing a reduction in annual mean PM<sub>2.5</sub> concentrations are Park Grove Primary Academy and Lowther Street, with reductions of 2.4% and 3.6% respectively. The strongest deterioration in in PM<sub>2.5</sub> concentrations is predicted to occur on Haxby Road, near Markham Crescent (4.9%), with other deteriorations also observed at Haxby Road Primary Academy, on Clarence Street, at the junction with Union Terrace, and on Haxby Road at the junction with Fountayne Street (all estimated at 1.2%).

### **Impact on network resilience**

46. There are only a limited number of routes available to traffic between the B1363 (Clarence Street/Wigginton Road) and the A1036 (Heworth Green/Malton Road) due to the geography of the area, the road layout and existing road closures. For traffic aiming to move between the B1363 and A1036 corridors before the trial, the main options were:
- Haxby Road/ Haley's Terrace/ Huntington Road of Fossway/ Dodsworth Avenue;

- Through the Groves, using Lowther Street eastbound or Penley's Grove Street/ Townend Street westbound; or
  - Monkgate/ Lord Mayor's Walk/ Clarence Street.
47. The trial has resulted in the removal of the routes through The Groves, increasing reliance on the other two routes for traffic moving between the B1363 and A1036 corridors.
48. Some major road and street works took place in the area during the trial (for example on Heworth Green and Eboracum Way and then at the Gillygate/ Bootham junction) for which suitable diversion routes were provided, although resulting in additional delays and increased journey times for road users.
49. If a road closure was required on Haxby Road or Lord Mayor's Walk however, it may not be possible to provide suitable diversion routes without reopening some of the routes in The Groves to through traffic on a temporary basis. It is therefore important that consideration be given to these requirements when designing the final closure points and road layout in The Groves if the decision is made to make the trial permanent.

### **Consideration of development sites in the area**

50. Vehicular traffic and the number of people cycling, walking and using public transport are expected to grow in the area as a result of proposed developments. The main development sites identified as having an impact on traffic in and around The Groves are:
- Cocoa Works (Nestle south)  
21/01371/FULM (and 18/01011/OUTM) - Erection of up to 302 dwellings and crèche, taking vehicular access off Wigginton Road. Estimated maximum vehicular traffic generation is 98 vehicles (two way) in the pm peak – based on the modelling undertaken for the planning application approximately half of these trips would use Wigginton Road south although some would then use Crichton Avenue (estimated max number of trips generated on Wigginton Road south in the am peak: 49 two-way vehicle trips);
  - 17/00284/FULM & 19/01509/FULM - Conversion and extension of the former Almond and Cream blocks to form 279 apartments, community room, convenience store, taking vehicular access off Haxby Road.

Estimated maximum vehicular traffic generation is 87 vehicles (two way) in the pm peak - based on the modelling undertaken for the planning application approximately one fifth of these trips would use Haxby Road south (estimated max number of trips generated on Haxby Road south in the am peak: 18 two-way vehicle trips);

- Former Gas Works Heworth Green - 19/00979/OUTM and subsequent applications, main vehicular access off Heworth Green - erection of a maximum of 607 residential apartments and retail or community use. Estimated maximum vehicular traffic generation is 134 vehicles (two way) in the am peak - based on the modelling undertaken for the planning application approximately 30 trips (two way) would use the Monkgate/Lord Mayor's Walk area in the am peak ;

- York Hospital - 19/01880/FULM - Erection of vascular imaging unit, removing up to 150 staff parking spaces from the site during construction (with temporary parking available on the Bootham Park Hospital site) and removing up to 50 spaces permanently once construction is complete – the impact of these changes on traffic is unclear as the removal of parking on site is likely to result in a mode shift for some staff whilst others may drive around the hospital area to find on street parking;

- Bootham Park Hospital - 21/02108/FULM – Creation of residential care community with 170 residential units, taking vehicular access off Clarence Street. Based on the modelling undertaken for the planning application, the estimated maximum vehicular traffic generation is 48 vehicles (two way) in the inter peak (12.00 – 13.00), with 34 two way vehicle movements in the am peak. All vehicles would use Clarence Street as the proposed site vehicular access is through Union Terrace.

51. If the trial in The Groves was to be made permanent, it is not considered that the estimated additional 130 two way trips travelling around The Groves in the am peak would have a severe impact on the highway network. The estimated number of additional vehicles associated with these development sites on the key corridors of Monkgate, Clarence Street, Wigginton Road and Haxby Road, are much lower than the amount of traffic which has rerouted on these corridors during the trial, estimated at around 400 vehicle trips in the am peak.