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WARRINGTON
Borough Council

Warrington ATF

Central 6 Streets Plan: Westy LTN

Interim Monitoring Report

October 2022

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1. Executive Summary

This Interim Monitoring Report covers the first three months after the LTN implementation – this period includes an initial adjustment phase when drivers have had to adapt to the new restrictions and routing - and the school summer holiday. The results presented in this report are interim and further monitoring is required to fully understand the various impacts and outcomes of the LTN.

We are committed to carrying out comprehensive monitoring of the Low Traffic Neighbourhood (LTN) interventions introduced in Westy, as it is vital to:

- inform the council and the public on the impacts of schemes;
- establish whether schemes are delivering the intended objectives;
- inform whether any changes are required to trial schemes while they are in place, or to any subsequent permanent schemes; and
- support continuous improvement in how the council delivers active travel schemes.

Since the LTN was implemented on 20 June:

Weekday car traffic on A50 Kingsway South[1] has increased by 14% on May 2022. Speeds have not changed and generally no significant increase in journey times has been recorded.

Despite the recorded increase in traffic, the number of vehicles using A5061 Knutsford Road and A50 Kingsway South remains below pre-Covid levels.

More than 3,600 car through-trips have been removed from the neighbourhood.

No significant changes in Air Quality have been recorded on the LTN boundary roads.

[1] A50 Kingsway South's section south of Grange Avenue

Broadbent Avenue has seen an increase in local access traffic. Standing traffic has also been reported on Longdin Street during school drop-off times.

The number of vehicles exceeding the 20mph speed limit has increased by 15% on Broadbent Avenue, and by 18% on Henshall Avenue.

Monitoring of the impacts of the scheme will continue for the duration of the trial period. A full Monitoring & Evaluation Report will be publicly available at the completion of the trial.

2. Methodology

Introduction

This report presents interim findings of the on-going monitoring of the Low Traffic Neighbourhood (LTN) in Westy. The LTN was implemented on **20th June 2022** as an experimental scheme with the aim of reducing through-traffic on residential routes, making the street environment more pleasant and safer for local residents, pedestrians and cyclists - in line with government policies and guidelines.

Method

A comprehensive Monitoring Plan has been designed to ensure that key impacts of the LTN scheme are monitored and recorded. This will enable decisions to be made based upon clear and accurate evidence – identifying benefits and any challenges arising as a result of the LTN.

Monitoring includes (but is not limited to):

- Traffic levels within the LTN area and the encompassing road network;
- Highway journey times and congestion;
- Walking & cycling levels;
- Air quality;
- Community feedback; and
- Feedback from services such as public transport operators, waste collection, and emergency services.

This report is intended to provide an initial snapshot of the LTN impacts in the first three months since implementation. Monitoring will continue for the full length of the trial period and a more comprehensive report will be published at the end of the experimental phase.

Figure 2.1 highlights the area covered by the monitoring strategy – this includes the LTN area and the boundary roads of A50 Kingsway South and A5061 Knutsford Road. Within this report, when discussing the 'internal LTN area' we will be referring to the shaded pink zone and when discussing the 'LTN boundaries' we will be referring to the routes outlined in purple.

Figure 2.2 shows the locations of modal filters and changes to the traffic management arrangements delivered on 20th June 2022. It is this configuration that this report has monitored.

The following chapters illustrate a series of before and after datasets, with the aim of showing how traffic has changed after the LTN installation. Data sources for the monitoring analysis include

- Permanent counter sites to inform the baseline data
- Automatic Traffic Counters (ATCs)
- Automatic Number Plate Recognition (ANPR) surveys
- Google Maps live traffic
- Air quality monitoring tubes

COVID-19

The LTN was implemented in 2022 following the COVID-19 pandemic. Therefore, traffic surveys undertaken before implementation may have been impacted by wider background trends associated with COVID-19. In many cases, post-implementation data has been compared with 2019 data to avoid the significant disruption present throughout 2020 and 2021. All key surveys were undertaken outside of strict lockdown periods and seasonal trends have been compared against historical data to ensure the validity of the baseline data.

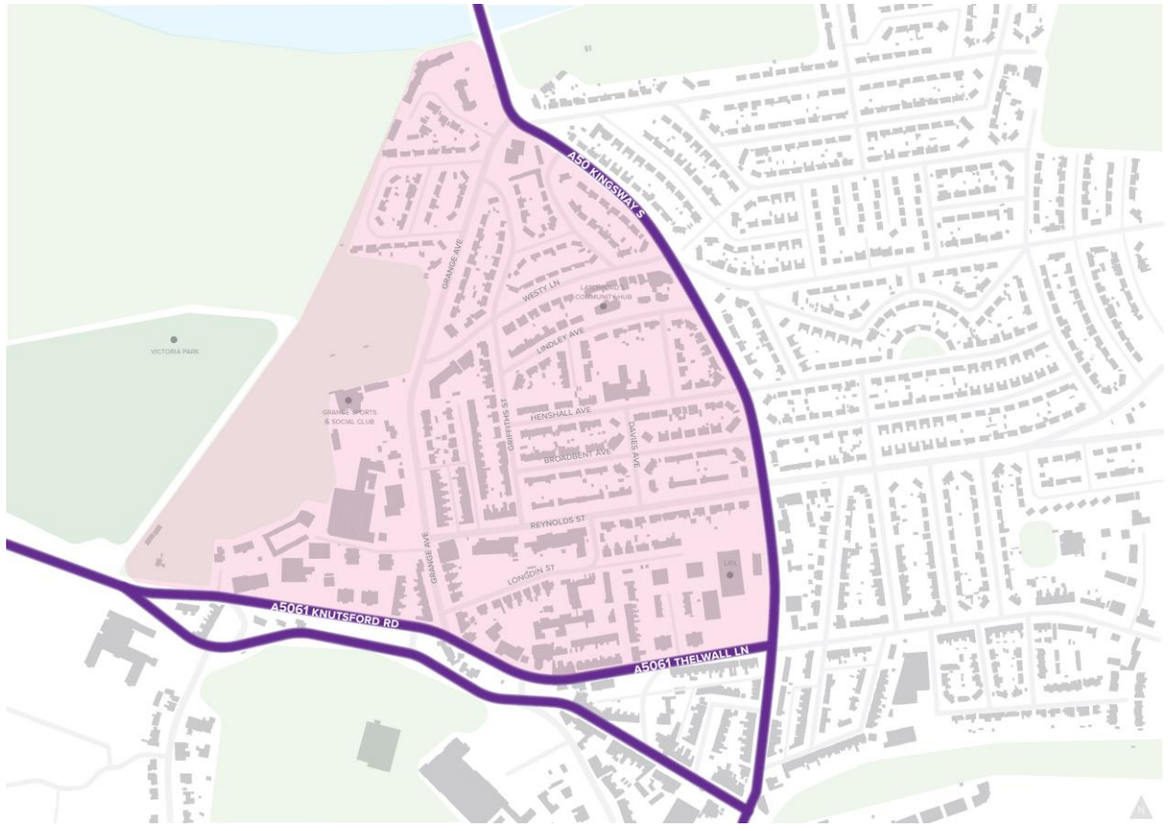


Figure 2.1 – Westy LTN & Boundary Roads

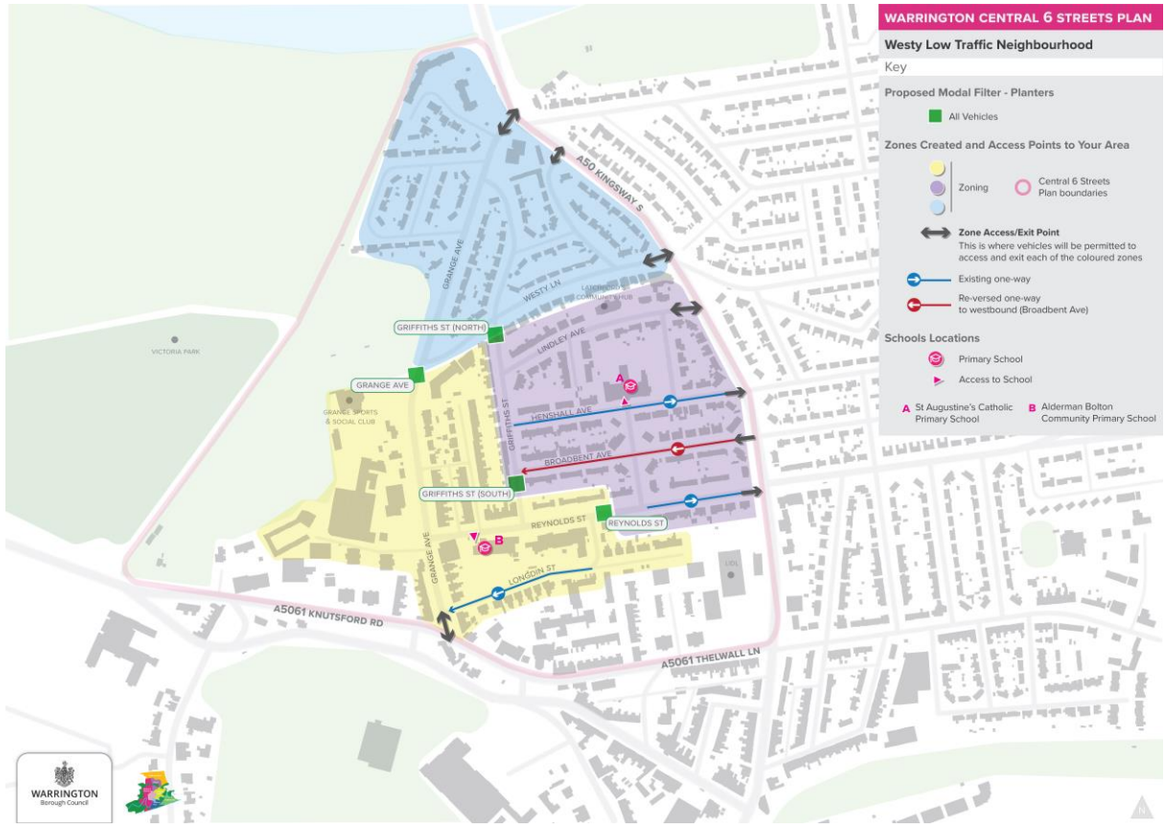


Figure 2.2 – Westy LTN: Scheme Components

3. Highway Network Impacts

Highway Network Impacts

The main objectives of the LTN trial are to reduce through-traffic within the LTN areas and overall reduce motorised vehicles movements across the neighbourhood – improving pedestrians and cyclists comfort.

Therefore monitoring changes in traffic trends is a vital part of identifying the impacts of the experimental LTN, and this requires observing the number of vehicles accessing the area and the boundary roads, their speed and journey time.

This Interim Monitoring Report presents various findings from five sites across the LTN area, as set out in Table 3.1 below.

Site #	ID	Location	Data Observed	Period Observed
A	1041	A50 Kingsway South (north of Grange Avenue)	▪ Vehicular traffic flow ▪ Vehicle classification	Permanent count site (2019 onwards)
B	1032	A5061 Knutsford Road		
C	27	A50 Kingsway South (south of Grange Avenue)	▪ Vehicular traffic flow ▪ Vehicle classification ▪ Vehicle speed	Temporary count sites ▪ 16th-27th May 2022 ▪ 27th June - 24th July 2022
D	28	Henshall Avenue		
E	29	Broadbent Avenue		

Table 3.0 – Highway Network Interim Data Collection Sites

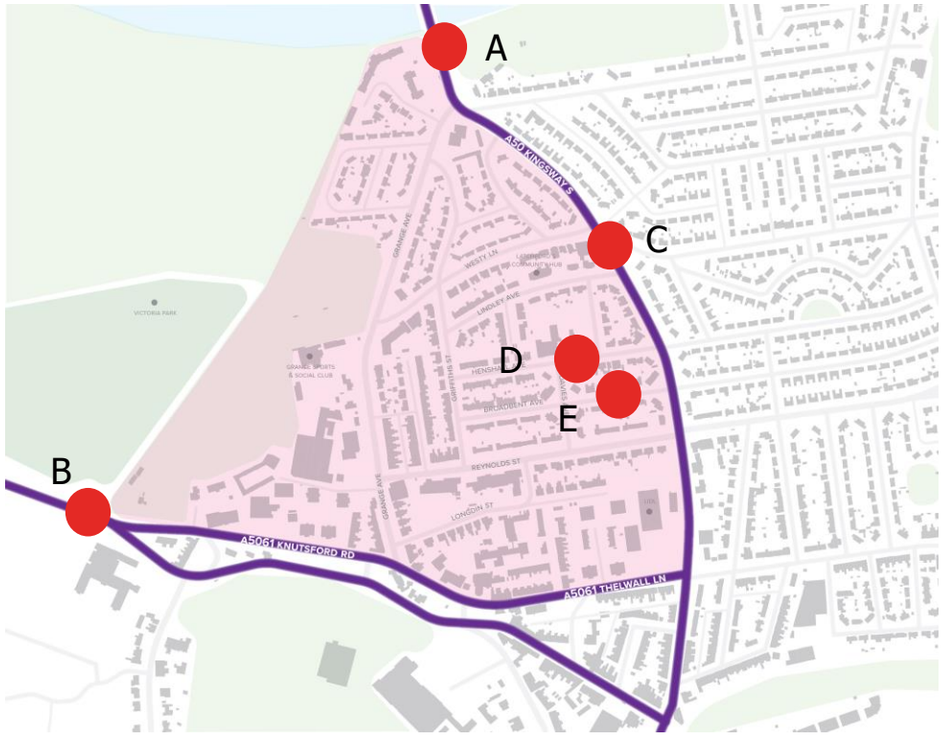
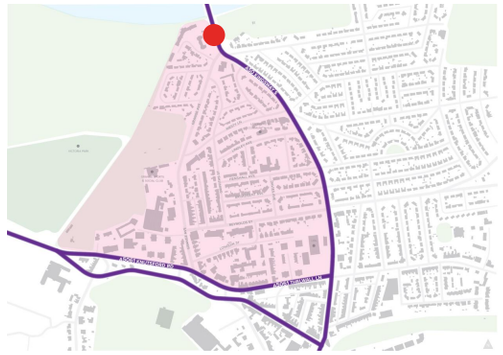


Figure 3.0 – Highway Network Interim Data Collection Sites Locations

In addition to this, highway journey times have been monitored across a variety of routes in the area (see page 18).

Vehicular Traffic Flows – Boundary Roads
(May to September 2022)



A50 Kingsway South (Site A)

Figure 3.1 below shows the number of vehicles recorded travelling along A50 Kingsway South by direction, in the AM and PM peak hours. Figure 3.2 shows the daily total flows by direction on the same route.

Since the LTN was implemented, fewer vehicles were recorded at peak hours passing through Site A - suggesting peak hour traffic conditions are broadly similar. However, when considering daily total traffic flows, the number of vehicles travelling southbound on this route has increased, compared to the period before the school holidays – which suggests the increases are outside of peak hours. In the northbound direction, traffic appears to have decreased over the same period.

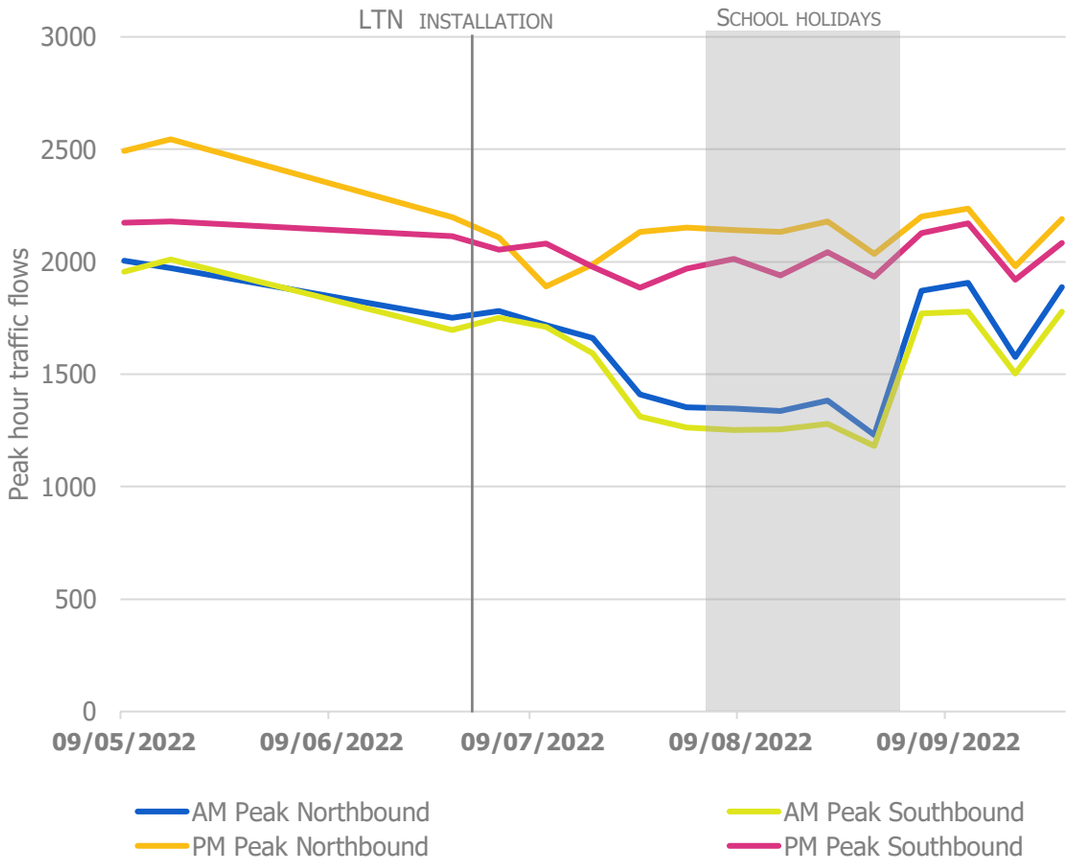


Figure 3.1 – A50 Kingsway South (Site A): Vehicular Traffic Flows – Weekday Peak Hours

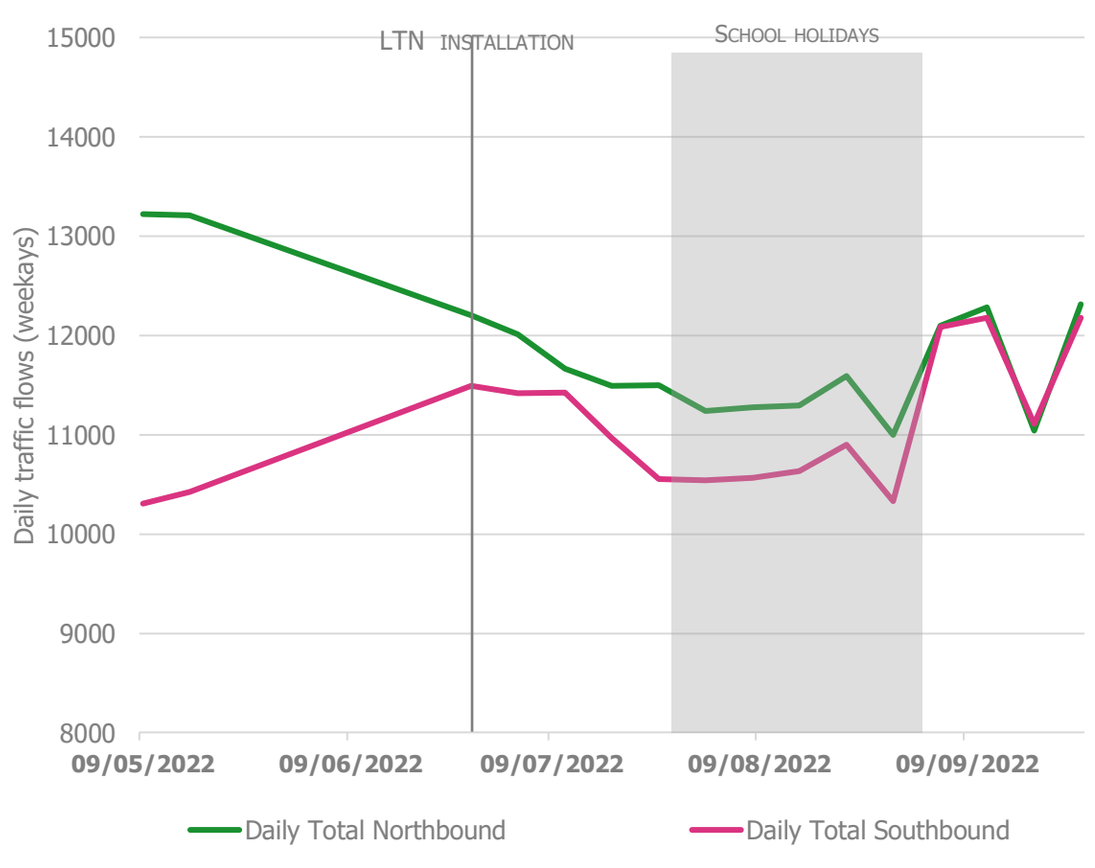
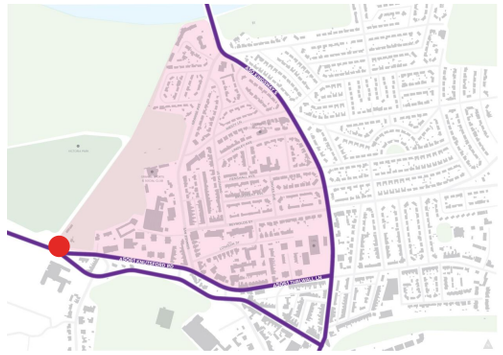


Figure 3.2 – A50 Kingsway South (Site A): Vehicular Traffic Flows – Weekday Totals



A5061 Knutsford Road (Site B)

Figure 3.3 below shows the number of vehicles recorded travelling along A5061 Knutsford Road by direction, in the AM and PM peak hours. Figure 3.4 shows the daily total flows by direction on the same route.

Outside of the school holidays, there has not been a substantial change in the traffic flows between pre- and post-installation. Further monitoring is required to establish the longer term trend.

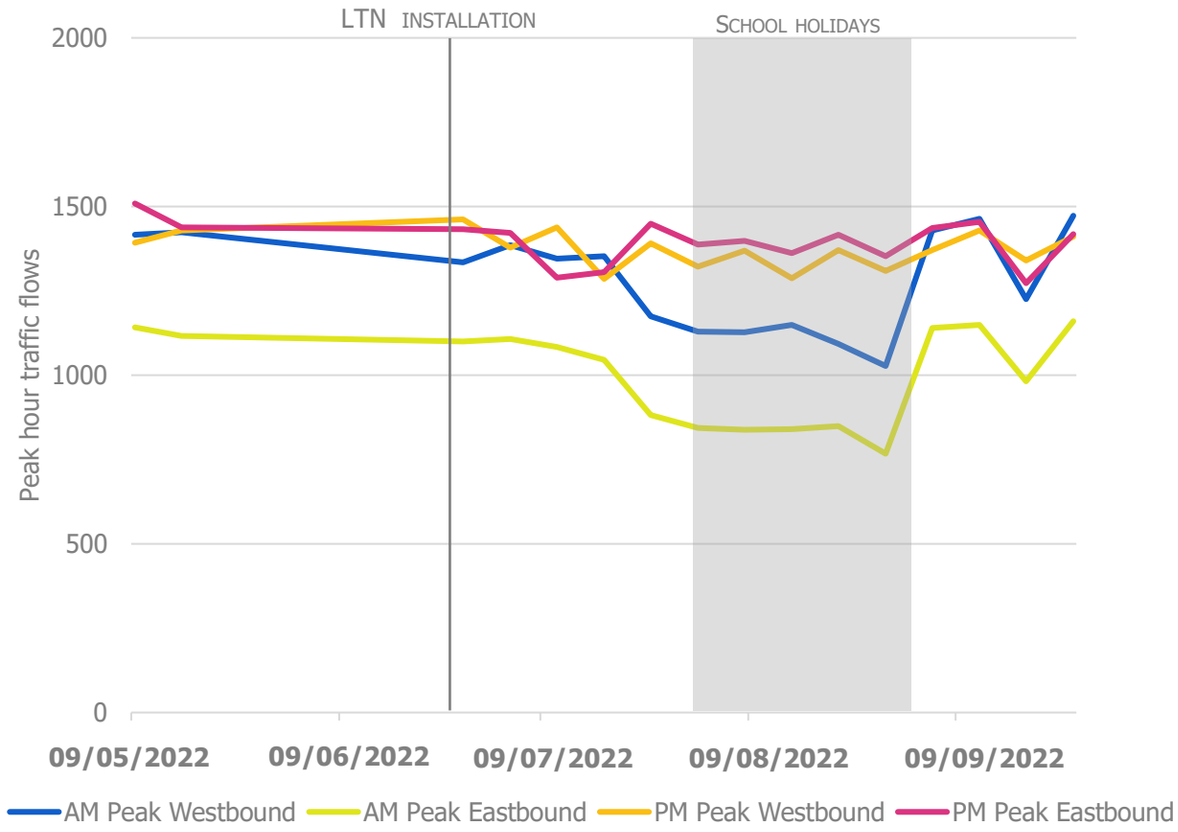


Figure 3.3 – A5061 Knutsford Road (Site B): Vehicular Traffic Flows – Weekday Peak Hours

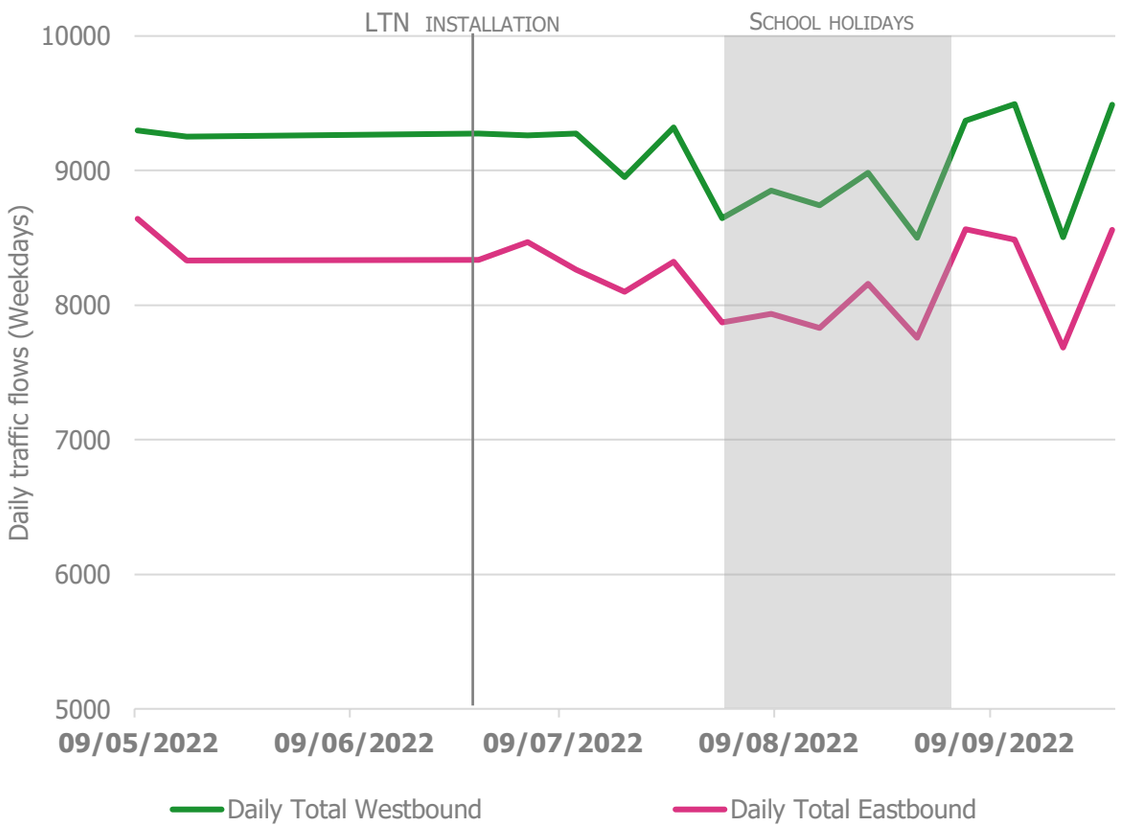
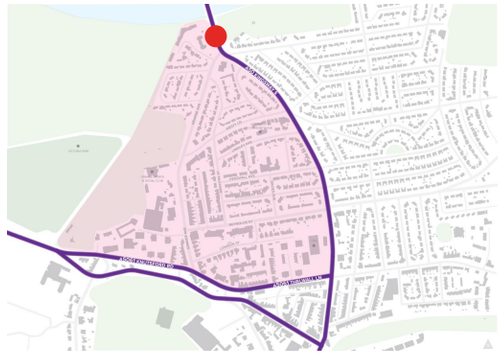


Figure 3.4 – A5061 Knutsford Road (Site B): Vehicular Traffic Flows – Weekday Totals

Vehicular Traffic Flows – Boundary Roads

2019 v 2022



Kingsway South (Site A)

Figure 3.5 – A50 Kingsway South (Site A): Vehicular Traffic Flows – 24hr Mid-Week Average (2019 v 2022)

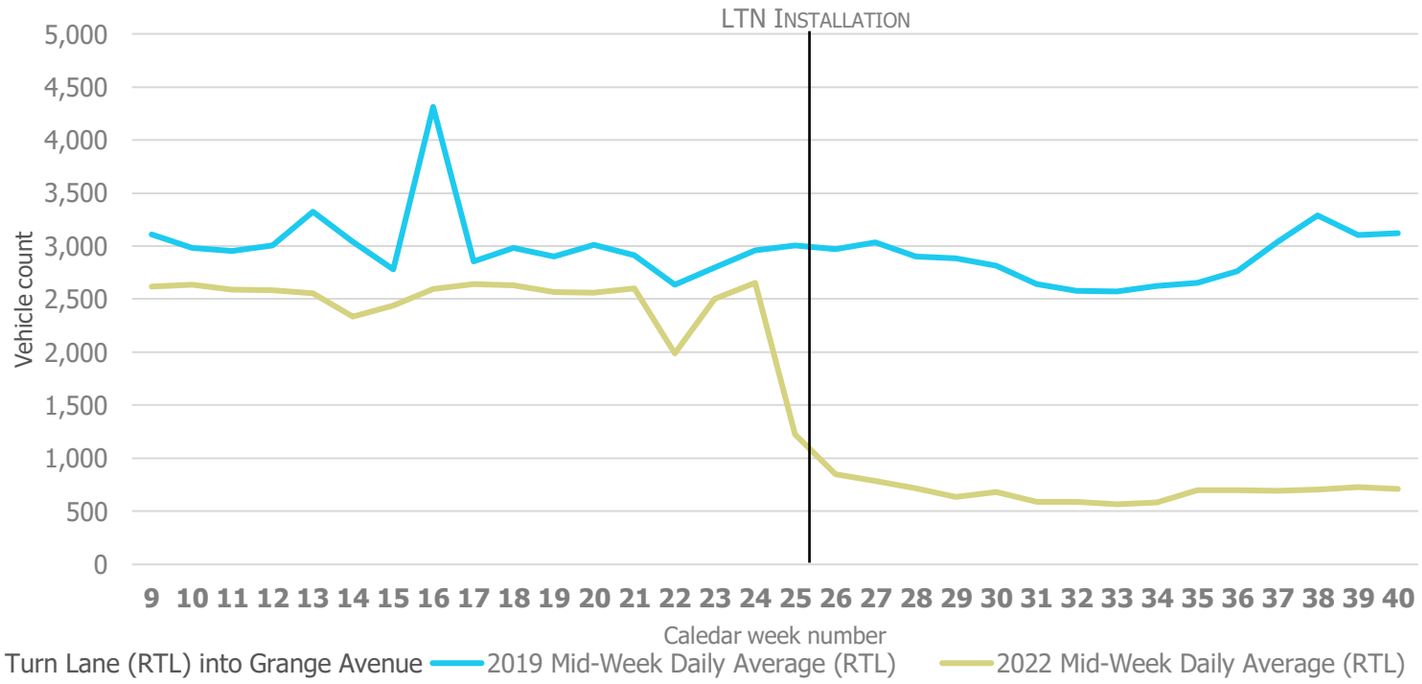
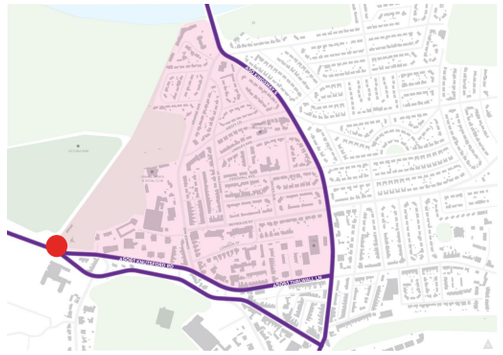


Figure 3.6 – A50 Kingsway South (Site A): Vehicular Traffic Flows – 24hr Mid-Week Average – Right Turn Lane (RTL) into Grange Avenue (2019 vs 2022)

Figure 3.5 shows the 24-hour mid-week daily average number of vehicles travelling along A50 Kingsway South, in both directions, for comparative weeks in 2019 and 2022.

Figure 3.6 shows the 24-hour mid-week daily average number of vehicles in the southbound right turn lane (RTL) towards Grange Avenue. It can be seen that the number of vehicles in the right turn lane decreased dramatically following the LTN's installation in week 25 of 2022.

Overall, the number of vehicles using A50 Kingsway South remains below pre-Covid levels.



A5061 Knutsford Road (Site B)

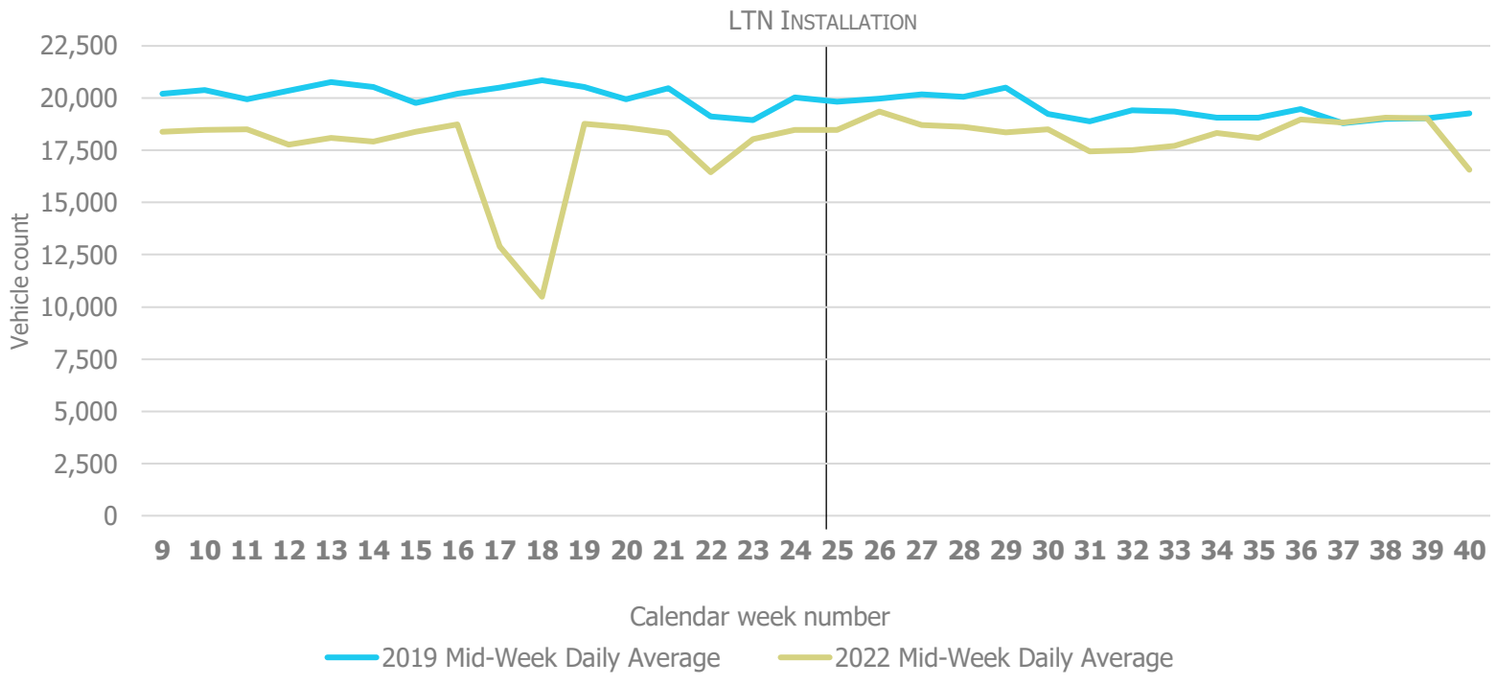


Figure 3.7 – A5061 Knutsford Road (Site B): Vehicular Traffic Flows – 24hr Mid-Week Average (2019 v 2022)

Figure 3.7 shows the number of vehicles travelling along A5061 Knutsford Road, in both directions, for comparative weeks in 2019 and 2022. The data presented here is taken from the permanent Automatic Traffic Counters, and shows the 24-hour mid-week daily average (Tuesdays, Wednesdays and Thursdays).

Overall, the number of vehicles using A5061 Knutsford Road remains below pre-Covid levels. Please note that roadworks in weeks 17 and 18 of 2022 at A5061 Knutsford Road were recorded as the cause of the atypically low flows.

Vehicular Traffic Flows

Observed Changes – Pre- & Post-Installation

Figures 3.8 to 3.9 show the percentage change and actual change in pre- and post-installation weekday vehicular traffic flows on Broadbent Avenue, Henshall Avenue, A50 Kingsway South, and A5061 Knutsford Road. The pre-installation data was taken for one neutral week in May 2022, and the post-installation data is the average of four weeks of weekday flows between 27th June and 24th July 2022. Daily changes in vehicular traffic are as follows:

- Broadbent Avenue increased by 216%
- Henshall Avenue increased by 60%
- A50 Kingsway South (south of Grange Avenue) increased by 14%
- A50 Kingsway South (north of Grange Avenue) decreased by 2%
- A5061 Knutsford Road decreased by 1%

In terms of actual flows, weekday daily flows changed as follows:

- 238 more vehicles on Broadbent Avenue
- 95 more vehicles on Henshall Avenue
- 2,868 more vehicles on A50 Kingsway South (south of Grange Avenue)
- 464 fewer vehicles on A50 Kingsway South (north of Grange Avenue)
- 98 fewer vehicles on A5061 Knutsford Road

This suggests most pre-LTN through-traffic has transferred to A50 Kingsway South. Prior to the LTN implementation nearly 3,500 vehicles a day were making through-trips on Grange Avenue. It is fair to assume most of those 3,500 trips are now accounted for in the 2,868 extra vehicles recorded on Kingsway South – while the remaining has been removed by drivers re-routing or avoiding the trip.

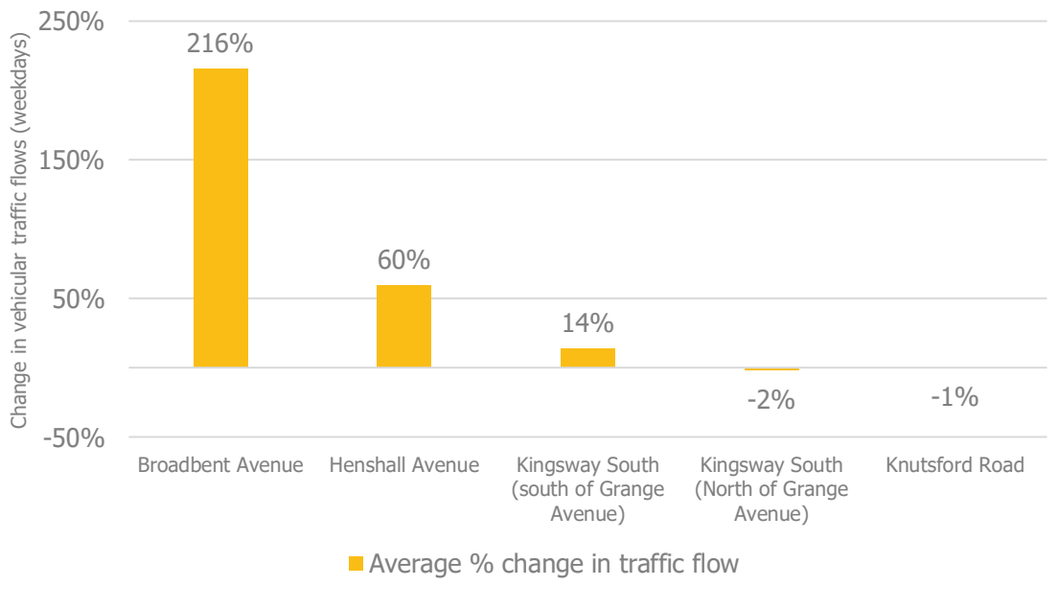


Figure 3.8 – % change in weekday traffic flows between pre-implementation and 4-week average post-implementation

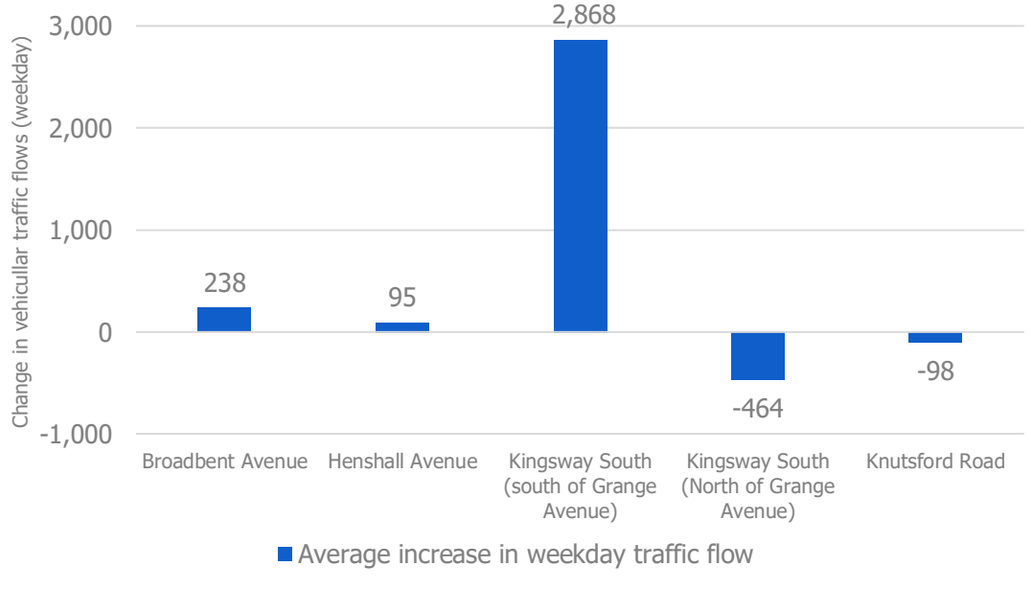


Figure 3.9 – Change in weekday traffic flows between pre-implementation and 4-week average post-implementation

Vehicular Traffic Mix

Figures 3.10 to 3.12 show the mix of vehicular traffic pre- and post-installation on A50 Kingsway South as a boundary road and on two internal routes (Henshall Avenue and Broadbent Avenue). The pre-installation data was taken for one neutral week in May 2022, and the post-installation data is the average of four weeks of weekday flows between 27th June and 24th July 2022.

The mix of traffic has not significantly altered at any of the monitored locations.

Figure 3.11 – Henshall Avenue (Site D): Vehicular Traffic Mix – Pre- and Post-Installation

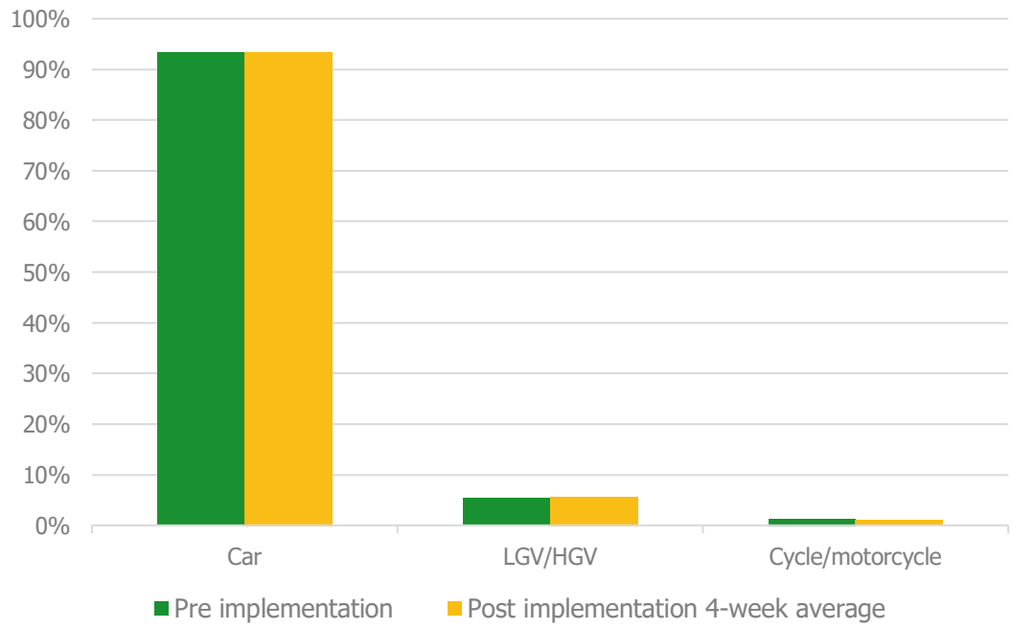


Figure 3.10 – A50 Kingsway South (Site C): Vehicular Traffic Mix – Pre- and Post-Installation

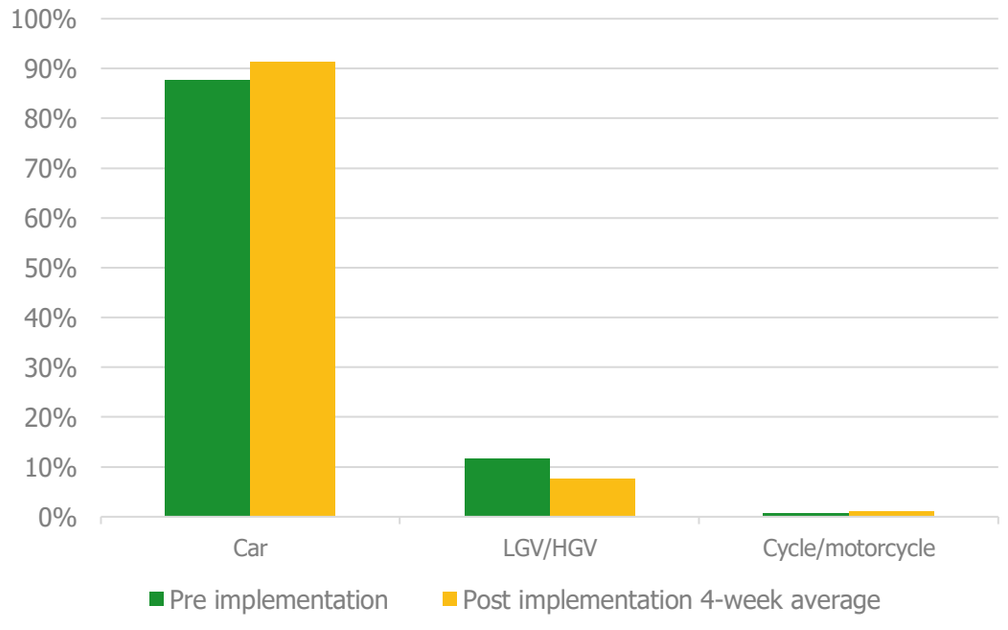


Figure 3.12 –Broadbent Avenue (Site E): Vehicular Traffic mix – Pre- and Post-Installation

Vehicular Traffic Speeds

Figures 3.13 to 3.15 show recorded traffic speeds pre- and post-implementation on A50 Kingsway South as a boundary road and on two internal routes (Henshall Avenue and Broadbent Avenue). The average speed is shown in blue, the 85th percentile in green and the percentage of traffic travelling over the posted speed limit (PSL) in black. The pre-installation data was taken for one neutral week in May 2022, and the post-installation data was taken for four weeks between 27th June and 24th July 2022, numbered weeks 1 to 4 to for simplicity.

The 85th percentile is defined as: the speed at or below which 85% of all vehicles are observed to travel under free-flowing conditions past a monitored point. Another way to view this is the speed which 15% of traffic exceeds on average.

The interim traffic speed monitoring highlighted the following trends:

- The average speeds on Broadbent Avenue and Henshall Avenue have increased by 2.5mph
- The % of vehicles travelling above speed limit on Broadbent Avenue has increased by 15%
- The % of vehicles travelling above speed limit on Henshall Ave has increased by 18%
- Speeds on A50 Kingsway South have not changed following the LTN implementation. This suggests that congestion levels did not significantly increased post-implementation.

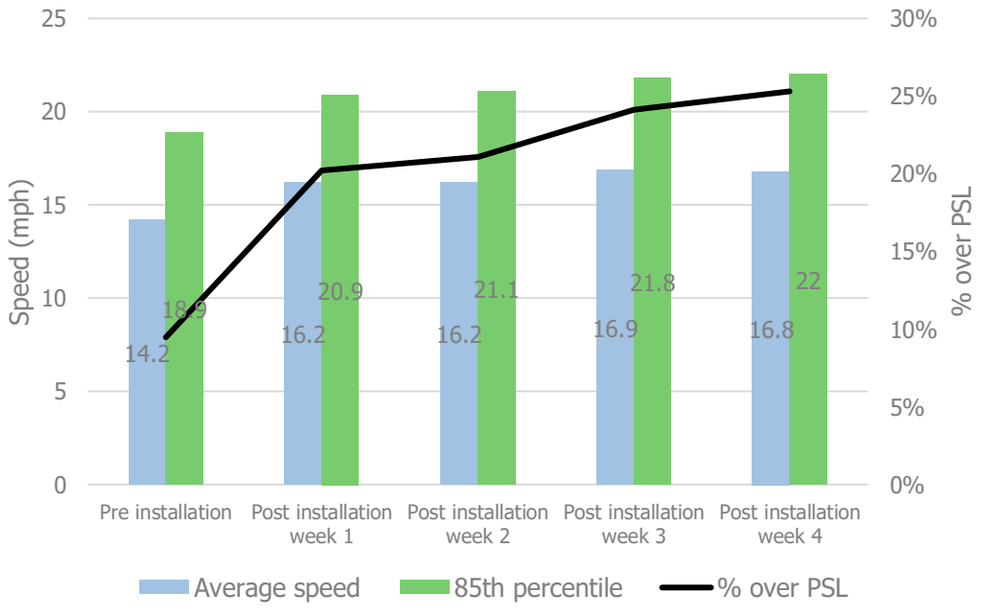


Figure 3.14 – Henshall Avenue (Site D): Vehicular Traffic Speeds – Pre- and Post-Installation

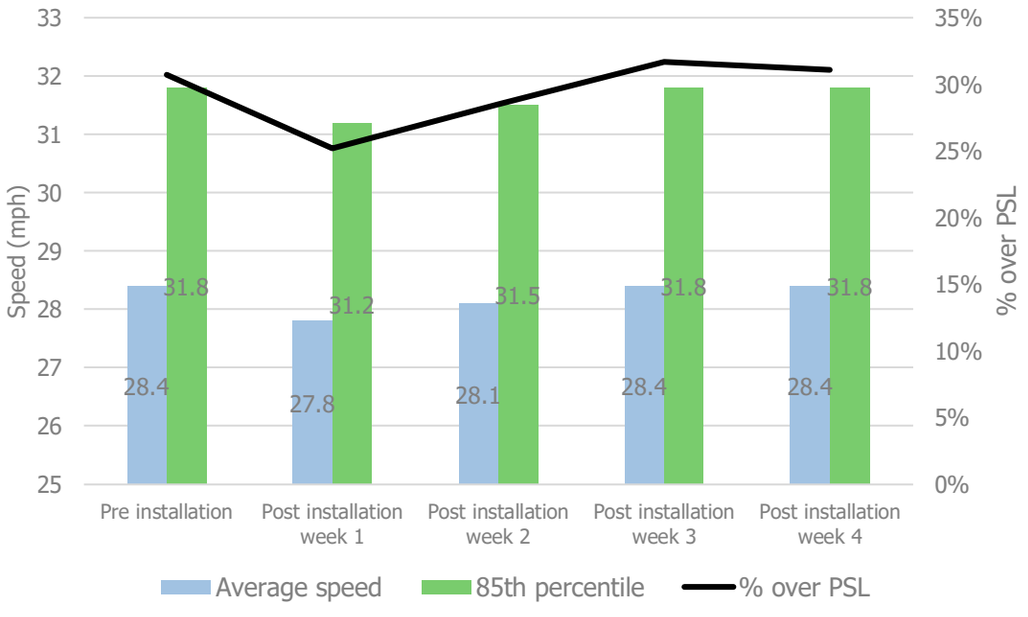


Figure 3.13 – A50 Kingsway South (Site C): Vehicular Traffic Speeds – Pre- and Post-Installation

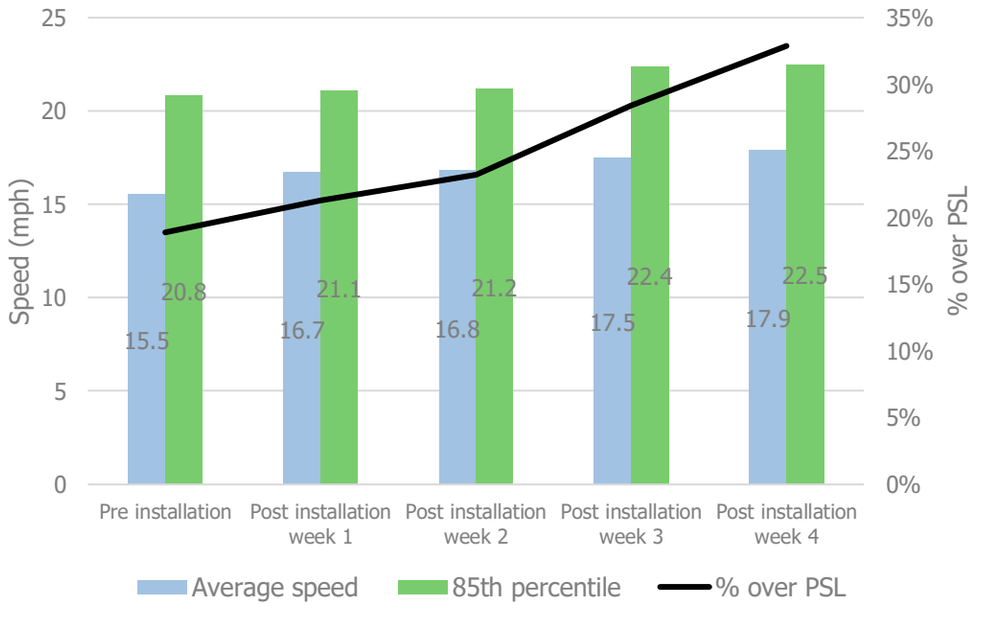


Figure 3.15 – Broadbent Avenue (Site E): Vehicular Traffic Speeds – Pre- and Post-Installation

Vehicular Journey Times

Table 3.1 and Figure 3.16 and 3.17 show the selection of routes where the average vehicular journey times have been recorded.

Five routes (A-E) originate within the neighbourhood and terminate at key locations across Warrington. Route F originates outside of the LTN and runs north-south on A50 Kingsway South. Some of the routes have been adapted following the LTN installation, due to the filtering and redirection of vehicular traffic.

	Origin	Destination
A	106-116 Grange Avenue	Novelis Recycling Centre
B	42-52 Grange Avenue	Sainsbury's Church Street
C	12-30 Griffiths Street	Warrington Central Station
D	106-116 Grange Avenue	Black Bear Park
E	Padgate Station	42-52 Grange Avenue

Table 3.1 –Vehicular Journey Time Monitoring – Origins & Destinations

AM and PM Peak journey times have been monitored weekly since the LTN implementation, on a Wednesday, using Google Maps live traffic. This is subsequently compared against the pre-installation times.

The following pages show the journey time trends pre- and post-installation of the LTN. It should be noted that journey times can vary depending on a number of factors beyond the impacts of the LTN interventions - these include roadworks, closures, accidents and weather related events. Information on these external factors are recorded through the full monitoring process to help understanding the cause relevant delays.

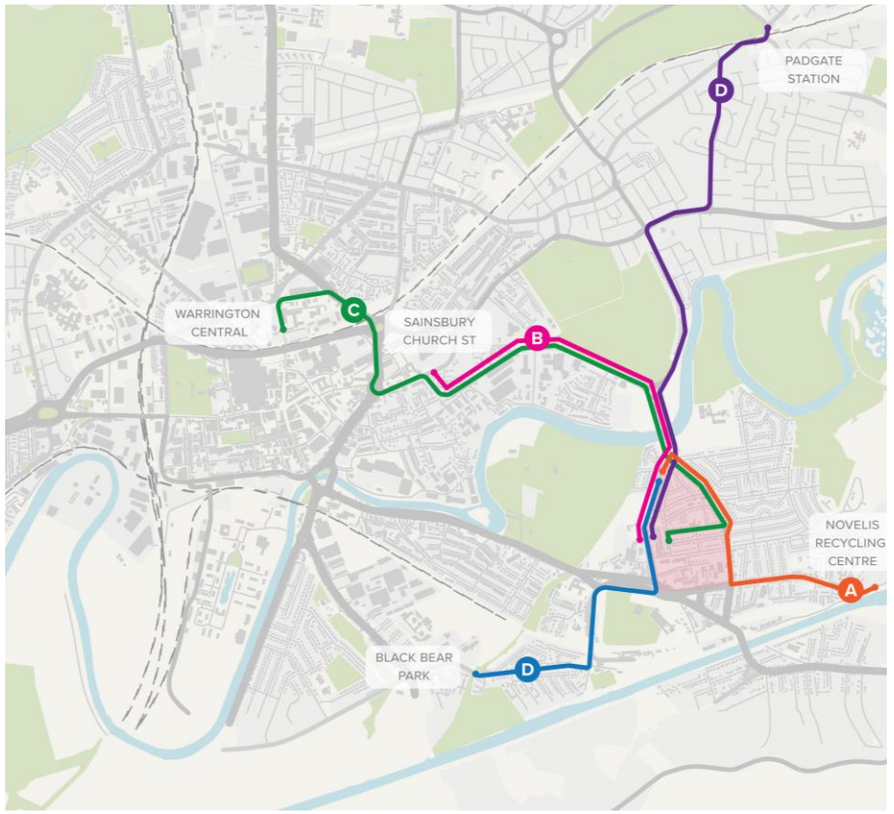


Figure 3.16 – Highway Journey Time Monitoring – Pre-Installation Routes

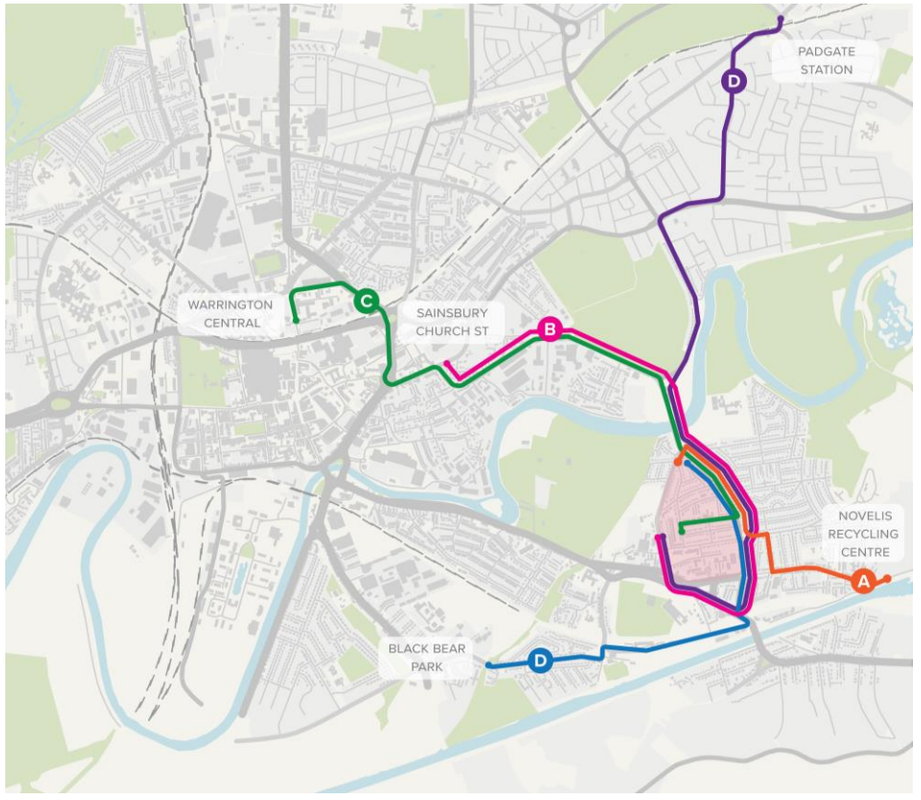


Figure 3.17 – Highway Journey Time Monitoring – Post-Installation Routes

Route A
Grange Avenue to Novelis Recycling Centre

Figure 3.18 shows the *typical pre-installation* vehicular journey times and the *observed post-installation* journey times for Route A during AM and PM peak periods.

The two vertical arrows on the left show the typical range of journey times by peak, pre-installation. The journey times recorded post-implementation stayed within the pre-installation range.

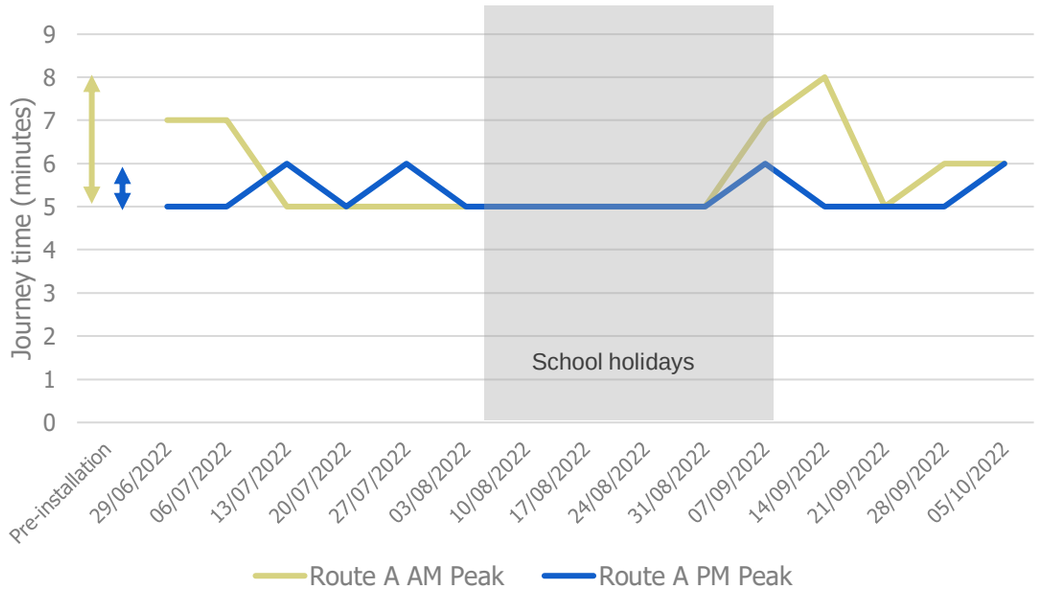


Figure 3.18 – Route A: Pre- and Post-Installation Journey Times - AM and PM Peak

Route B
Grange Avenue to Sainsburys, Church Street

Figure 3.19 shows the *typical pre-installation* vehicular journey times and the *observed post-installation* journey times for Route B during AM and PM peak periods.

The two vertical arrows on the left show the typical range of journey times by peak, pre-installation. The journey times recorded post-implementation were generally at the upper band of pre-installation times, with up to 2-minutes additional journey time in some weeks.

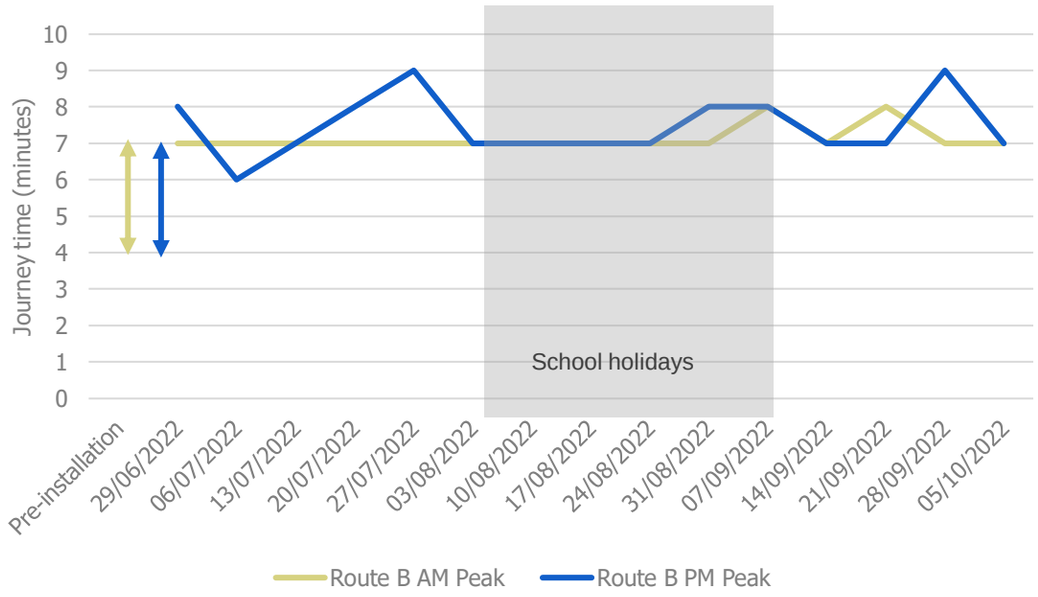


Figure 3.19 – Route B: Pre- and Post-Installation Journey Times - AM and PM Peak

Route C
Griffiths Avenue to Warrington Central Station

Figure 3.20 shows the *typical pre-installation* vehicular journey times and the *observed post-installation* journey times for Route C during AM and PM peak periods.

The two vertical arrows on the left show the typical range of journey times by peak, pre-installation. The journey times recorded post-implementation were generally at the lower end of pre-installation times.

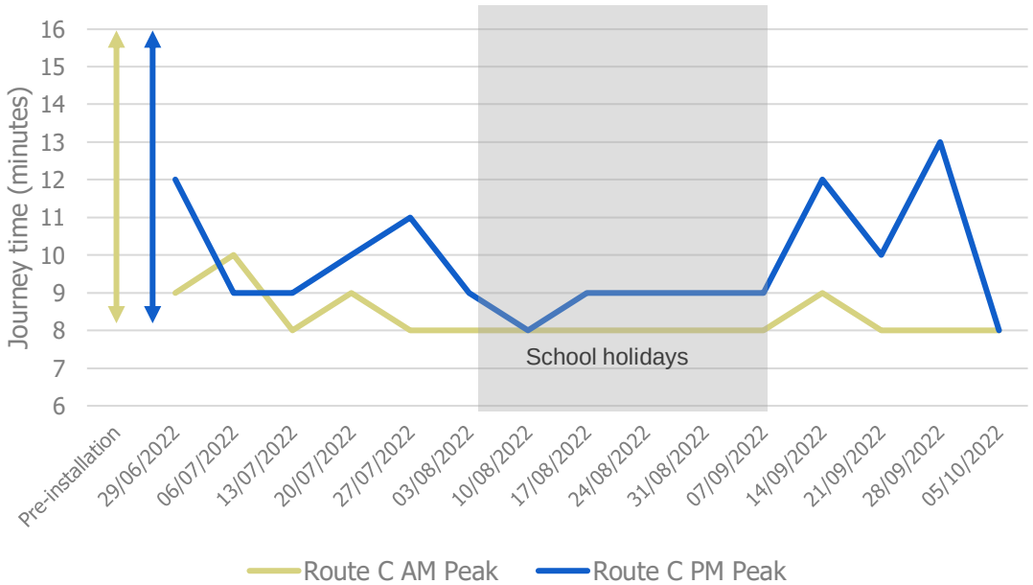


Figure 3.20 – Route C: Pre- and Post-Installation Journey Times - AM and PM Peak

Route D
Grange Avenue to Black Bear Park

Figure 3.21 shows the *typical pre-installation* vehicular journey times and the *observed post-installation* journey times for Route D during AM and PM peak periods.

The two vertical arrows on the left show the typical range of journey times by peak, pre-installation. The journey times recorded post-implementation were generally within the bounds of pre-installation times.

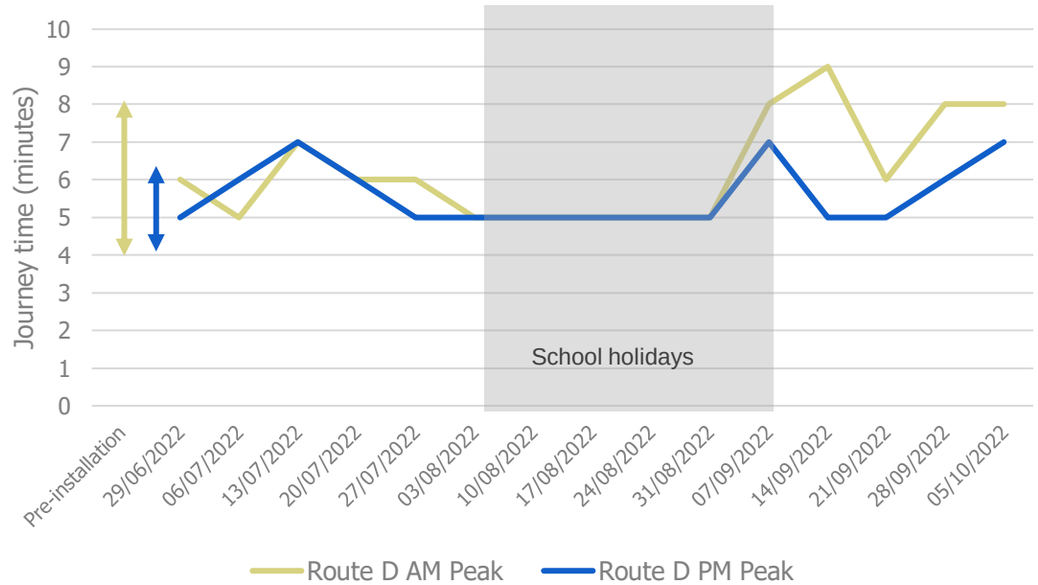


Figure 3.21 – Route D: Pre- and Post-Installation Journey Times - AM and PM Peak

Route E
Padgate Station to Grange Avenue

Figure 3.22 shows the *typical pre-installation* vehicular journey times and the *observed post-installation* journey times for Route E during AM and PM peak periods.

The two vertical arrows on the left show the typical range of journey times by peak, pre-installation. The journey times recorded post-implementation were generally at the upper end of pre-installation times, with two instances showing an additional 4-minutes over the pre-installation AM peak journey time.

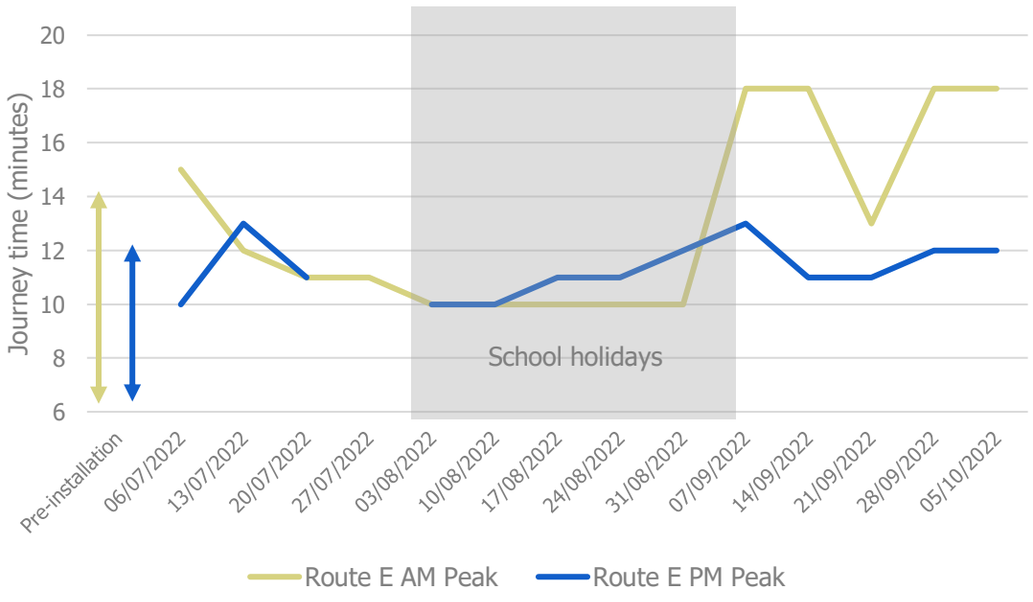


Figure 3.22 – Route E: Pre- and Post-Installation Journey Times - AM and PM Peak

Wider Highway Network Incidents

As part of the monitoring plan, major incidents that happened on the wider highway network have been recorded, as these resulted in excessive congestion not directly attributed to the LTN scheme. Major incidents recorded since the LTN implementation include:

- Major incident on the M6 Thelwall Viaduct on Wednesday 26th July, resulting in significant journey time delay for Route E.
- Major accident occurred on A50 Kingsway South on Wednesday 5th October, resulting in a significant journey time delay for Route E.
- Emergency United Utilities works affected the A5061 Knutsford Road Permanent Traffic Counter week commencing 3rd October. A two-way temporary signal was used between 10am on Wednesday 5th October and 8am on Friday 7th October.

4. Air Quality

Air Quality – Monitoring Approach

Air quality is a key environmental indicator as pollutants can negatively impact health. To determine air quality in an area, pollutant concentrations are measured, analysed and reported. The calculations are based on the average concentrations of a particular pollutant measured over a period of minimum 3-months.

Warrington Borough Council monitors Nitrogen Oxides (NOx) levels using diffusion tubes, also known as diffusive samplers, widely used for indicative monitoring of ambient NOx. This collection method is also the one used in the context of the LTN monitoring as it is particularly useful when dealing with emissions sources such as traffic.

Air quality is influenced by a number of factors other than traffic, including weather conditions, temperatures, wind speed, and air turbulence as they all affect pollutant concentrations.

Therefore , the current three months of interim monitoring are insufficient to take the full seasonality of factors into account. A longer period of monitoring is necessary to appropriately record and analyse changes in air quality.

However, the data illustrated in the following pages do offer a screenshot of the on-going air quality trends and will be integrated with further monitoring – to allow a solid comparison with the historical data to verify the LTN's impacts.

The locations of the diffusion tubes used for the LTN monitoring are shown in Figure 4.1.

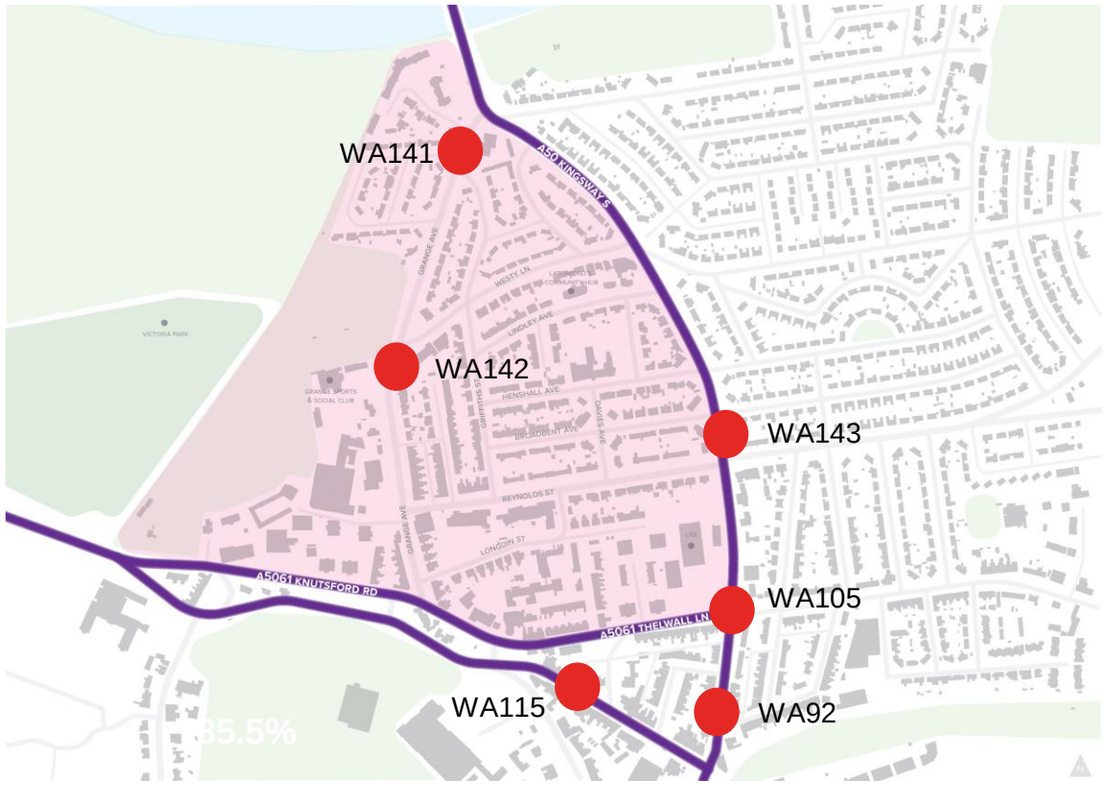


Figure 4.1 – NOx Monitoring Locations

The dates of installation vary by site:

- Site WA92 A50 Kingsway South 1: January 2018
- Site WA143 A50 Kingsway South 2: April 2022
- Site WA141 Grange Avenue 1: May 2022
- Site WA142 Grange Avenue 2: April 2022
- Site WA105 Latchford Village 2: January 2018
- Site WA115 Latchford Village 3: January 2018

A50 Kingsway South (Sites WA92 and WA143)

Figure 4.2 shows the average monthly readings for NOx emission on A50 Kingsway South. Data has been collected at two locations on the route, north and south of A50 61 Knutsford Road junction. Grey shading indicates months with school holidays. The exact dates of holidays vary between years and schools.

Site WA92 covers data between 2018-21 and monthly readings for January – July for 2022. Site WA143 is a newer monitor and only covers the period April – July 2022. There are no earlier readings available for this site.

NOx emissions recorded in 2022 are lower or in line with historical trends.

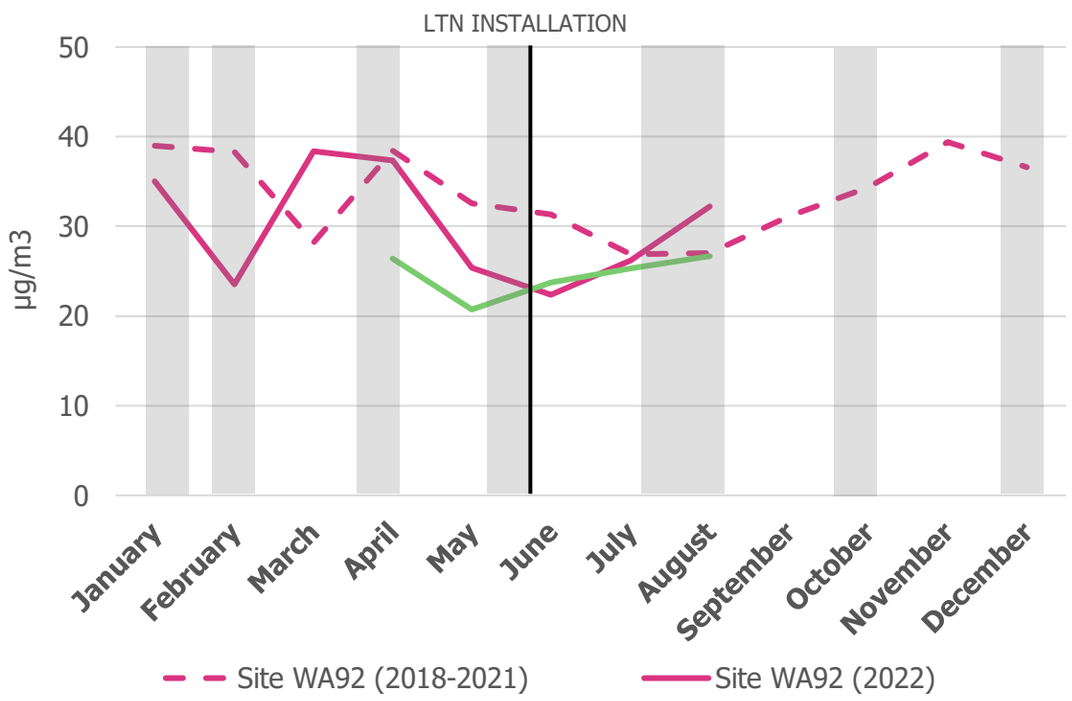


Figure 4.2 – A50 Kingsway South (Sites WA92 & WA143): Average Monthly NOx Values

Grange Ave (Sites WA141 and WA142)

Figure 4.3 shows the average monthly readings for NOx emission on Grange Avenue – data have been collected at two locations at the north end and central section of the route. Grey shading indicates months with school holidays. The exact dates of holidays vary between years and schools.

Site WA141 covers data between April and July 2022 while recording at Site WA142 started in May 2022. There are no historical readings available for these sites as new diffusion tubes have been implemented on Grange Ave as part of the LTN monitoring strategy.

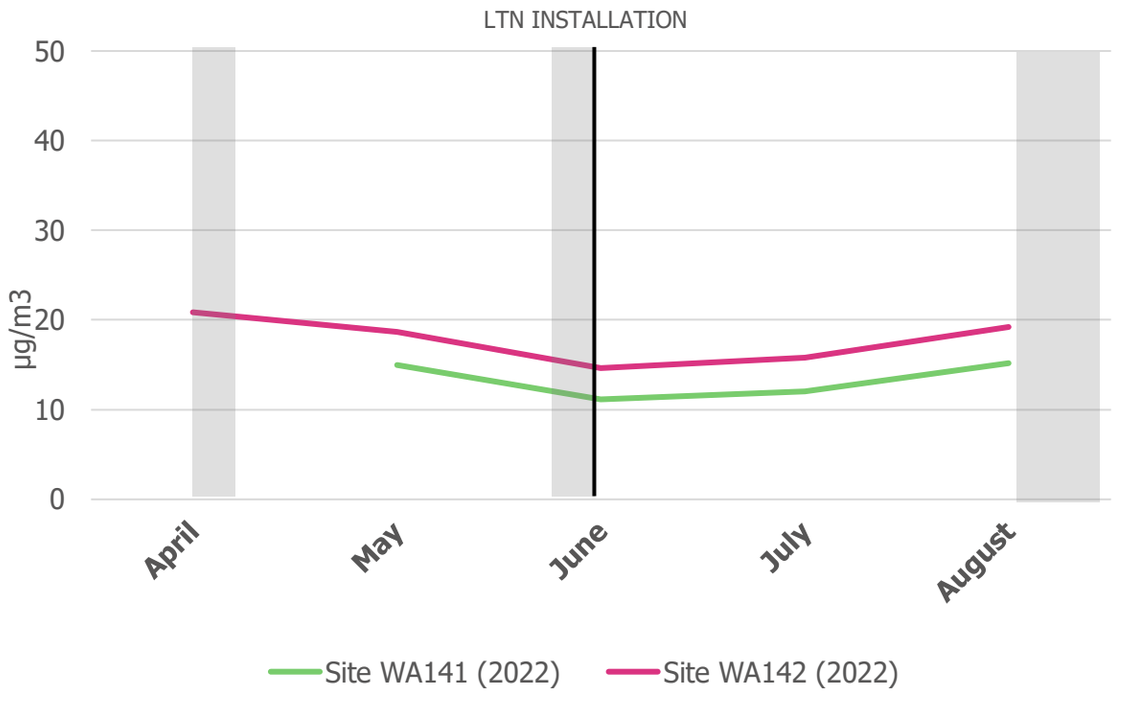


Figure 4.3 – Grange Avenue (Sites WA141 & WA142): Average Monthly NOx Values

Grey shading indicates months with school holidays. The exact dates of holidays vary between years and schools.

A5061 Knutsford Road (Sites WA105 and WA115)

Figure 4.4 shows the average monthly readings for NOx emissions on A5061 Knutsford Road. Data has been collected at two locations on the route, one on each of the eastbound (WA105) and westbound (WA115) lanes.

Figure 4.4 presents the average monthly readings for NOx at two sites for 2018-21 with the monthly readings for January to July 2022. Data was not collected at Site WA115 between March and April 2022 due to a technical fault. This was replaced in May 2022 before the LTN implementation.

Whilst longer-term trends require monitoring, NOx emissions recorded in 2022 are lower than or in line with historical trends.

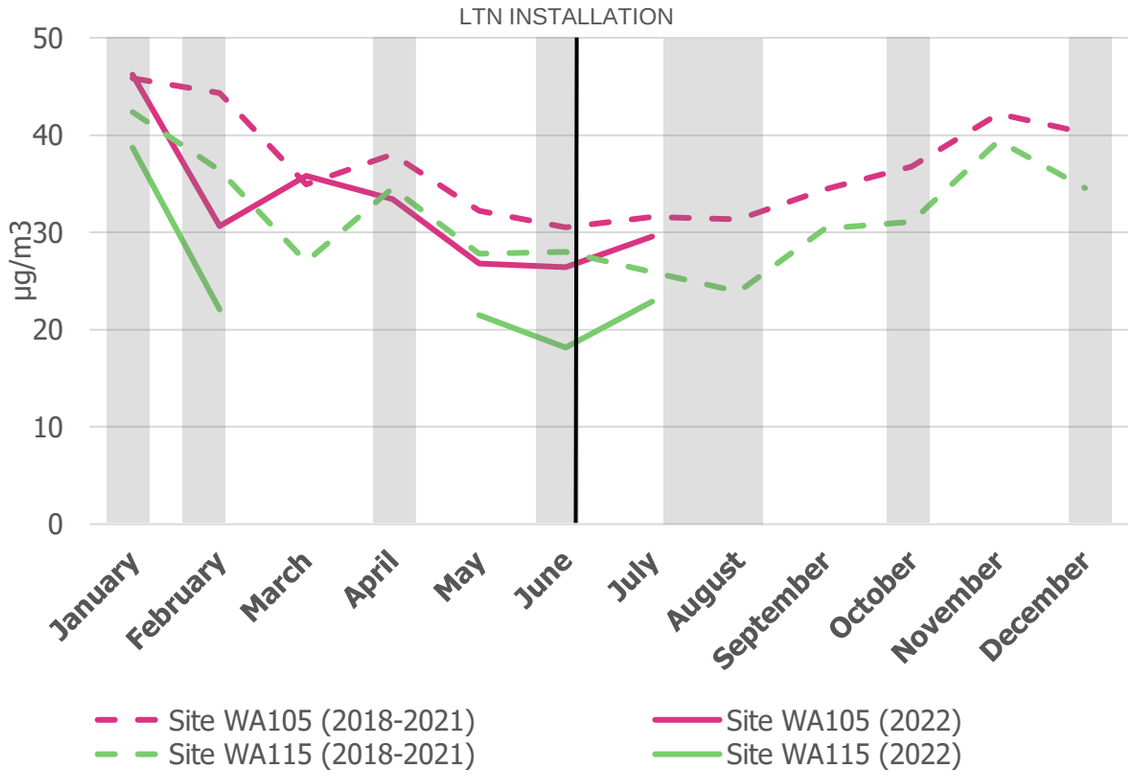


Figure 4.4 – Latchford Village (Sites WA105 & WA115): Average Monthly NOx Values

Grey shading indicates months with school holidays. Exact dates of holidays vary between years and schools.

5. Next Steps

Proposed Changes to the Westy LTN

A review of the existing scheme has now been carried out using both the survey findings and previous email comments sent to us over the life of the scheme. The review has also been informed by monitoring information collected on traffic patterns and impacts.

A summary of the consultation feedback and interim monitoring report can be found online on the Central 6 Streets Plan website https://www.warrington.gov.uk/central-6-streets-plan

As part of the review, several issues have been identified, including:

- Some increases in access traffic and increased speeds on residential streets (i.e Lindley Avenue and Broadbent Avenue).
- Challenges accessing homes in the Griffiths Street and Reynolds Street areas.
- Difficulties operating the lockable bollard on Reynolds Street, to provide access for school coach trips.
- Planters appearing overgrown and untidy.

To address the concerns and issues identified above, we will make the following changes, as shown in the plan on the next page:

1. **Remove the planters at the north end of Griffiths Street**. This will allow greater access options to homes in this area.
2. **Remove the bollard on Reynolds Street, and extend the eastbound one-way from Davies Avenue to the planters at Tinsley Street**. This will improve access to Reynolds Street, relieve pressure on Longdin St and allow coaches to pick up from the schools unhindered.
3. **Restore Broadbent Avenue to two-way traffic, between Griffiths Street and Davies Avenue**. To return this section of road to its previous arrangement.

In addition, we will be improving the maintenance of the planters that remain in place during the trial.

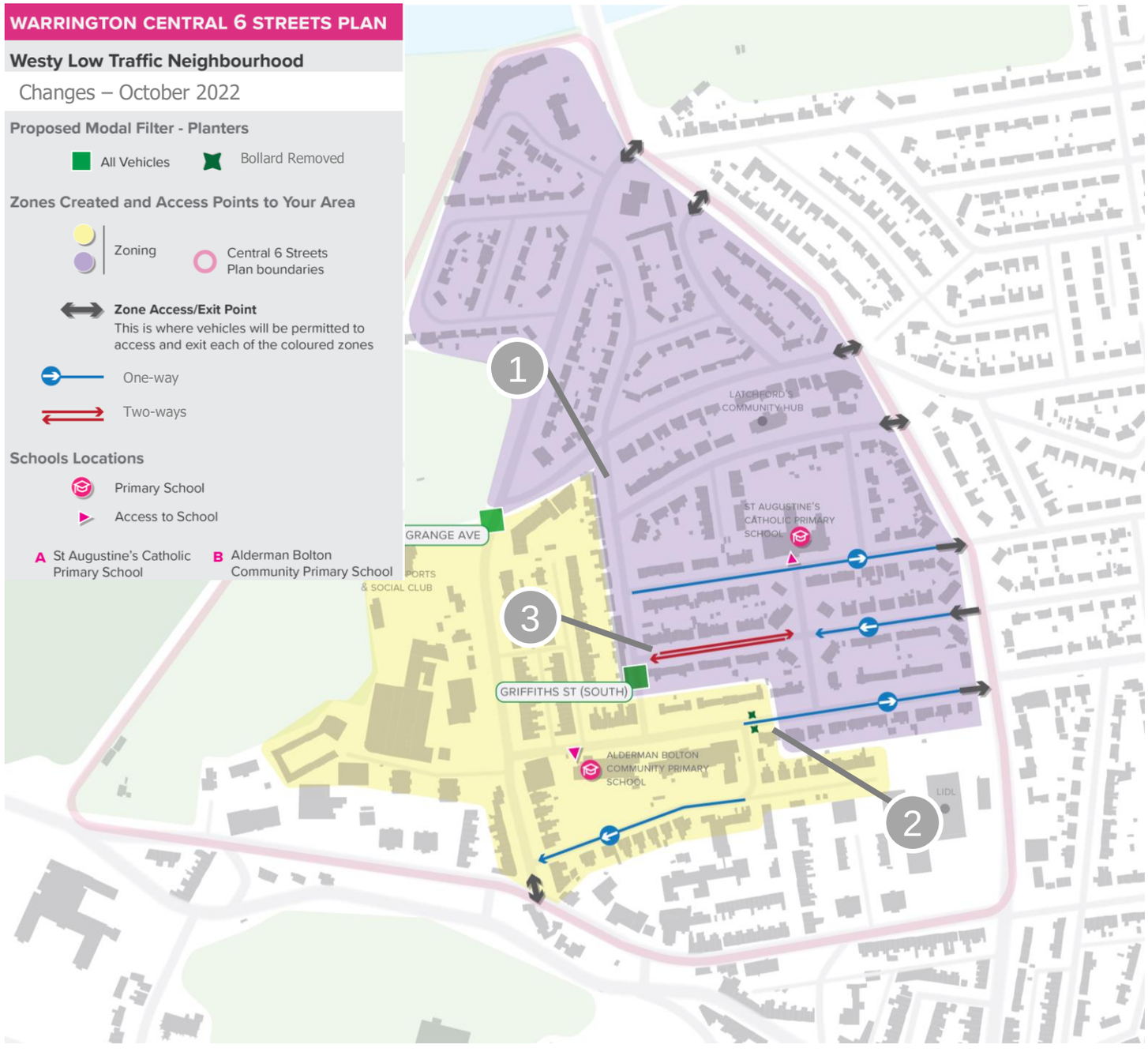


Figure 5.1 – Westy LTN – Proposed Changes

The changes will be made to the LTN in the first week of November. Monitoring of the impacts of the revised scheme will continue for the duration of the trial period. A full Monitoring & Evaluation Report will be publicly available at the completion of the trial.

A new feedback survey will go live in early 2023 to allow us to understand how the revised scheme is working. This feedback will inform any future decision as to whether the scheme is made permanent or not, which we expect to make in 6 months' time.

Once the trial period ends, a final review of the LTN will be undertaken, based on the quantitative and qualitative data collected during the monitoring phase. The final evaluation will provide evidence for the decision to keep, remove or amend the LTN trial schemes.

The LTN evaluation will not be dependent on any single criteria, but a combination of metrics mentioned throughout this monitoring plan as well as feedback from the consultation of residents and stakeholders.

At the end of the experimental phase, all of the evidence collected will be presented for consideration by locally elected representatives. Subsequently, a decision will be made through an established democratic process as to whether the scheme will be made permanent or not.

MOTT MACDONALD

WARRINGTON
Borough Council