Low Traffic Neighbourhoods (LTNs) in Birmingham

Assessing the casualty reduction effect of the Kings Heath Phase 1 Low Traffic Neighbourhood compared to city-wide and historic area data

A review by Birmingham Living Streets Group

Key findings :

- LTN Road Casualty reductions significantly outperform *pro rata* city-wide reductions in the Pandemic/post-Pandemic period
- Significant casualty level reductions found on both LTN boundary roads and within LTN 'cells' of the zone
- LTN casualty reductions now provide a benchmark 'human cost', at 16% excess injuries, of delays to the roll out of similar schemes

LIVING STREETS GROUP Birmingham

Assessing the casualty reduction effect of the Kings Heath Phase 1 Low Traffic Neighbourhood (LTN)

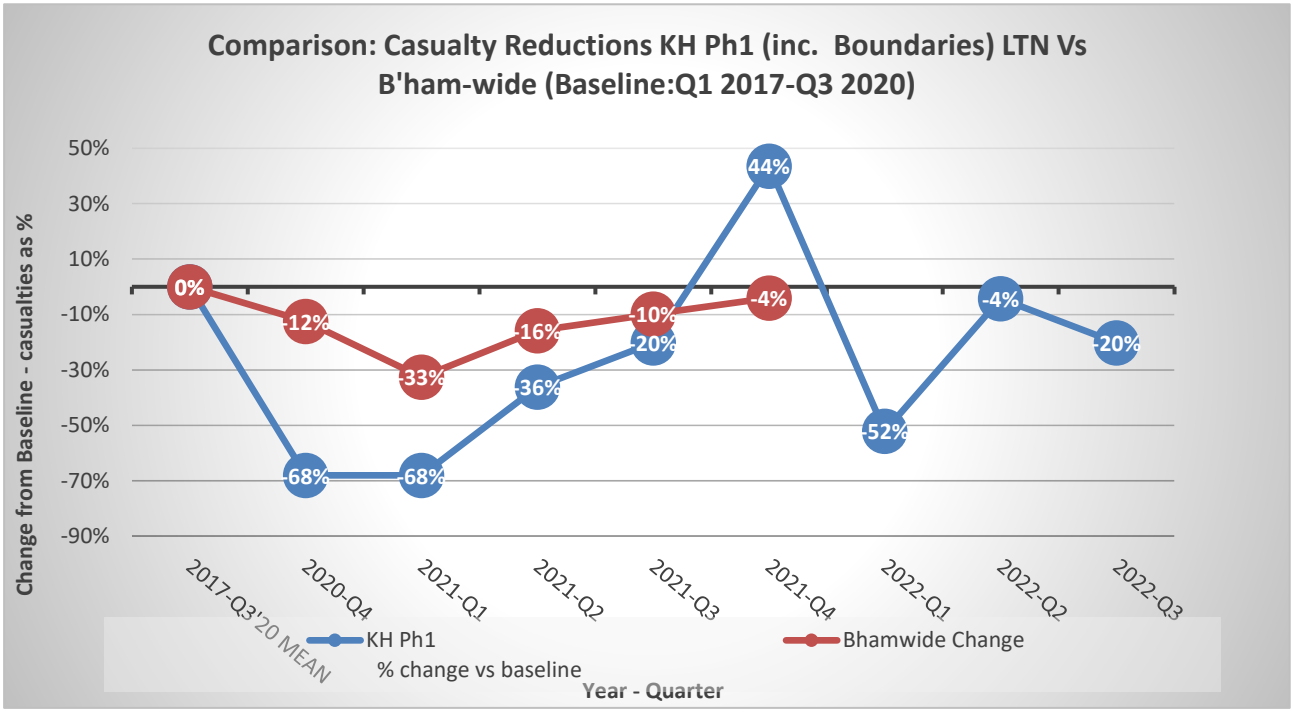
1 Purpose

This paper provides an assessment of casualty reduction trends in the Kings Heath Phase 1 (KH Ph1) LTN zone compared to both city-wide patterns and historic data, to better understand the impact of the LTN. It uses one of the few quantitative sources available with *'before vs after LTN'* data (sourced : TfWM and DfT– see Appendix A).

Comparing KH Ph 1 data to city-wide data over the period is important; it allows better comparison over the pandemic period and subsequently - a time when many travel patterns changed significantly and unevenly. The pandemic renders simple *'before vs after LTN'* local effects difficult to interpret unless city-wide trends are similarly compared.

This paper also includes longer term comparisons regarding KH Ph 1 casualty patterns, over the two years since implementation, relative to prior baseline periods. These provide useful insights given few other measures (air quality, traffic, etc) have much historic data available. Data covers all casualties (slight, serious or fatal) .

2 Summary - Key Findings



a) LTN zone casualty reductions have outperformed the Birmingham-wide casualty trend : The data indicates that, relative to the pre-LTN period baseline (2017 to Qtr. 3 2020), city-wide casualty changes were out-performed by the KH Ph 1 LTN zone (**inc LTN boundary roads**) reductions***. The LTN zone averaging a net 30% reduction*** over 5 quarters, ***compared to the city-wide net 14%*** reduction in that same period following the LTN introduction (Section 4 for details)

b) **LTN roads – *both* boundary and within 'cells' show reduced casualties**: Comparing the LTN zone with the baseline period, the boundary roads showed a 33% reduction in casualty levels, while 'cell' roads showed an 80% reduction in the five quarters studied (see section 5).

c) **Improved road safety in and around LTNs now provides an initial 'benchmark' for Birmingham**. The 16% additional reduction for the KH Ph 1 LTN - over and above city-wide trends - acts as a valuable benchmark for what LTNs can deliver to road safety, irrespective of improved active travel or AQ changes. It further highlights the 'human cost' of delays to addressing the road safety problems older neighbourhoods face across the city; built for the age of trams and carts - but now unintentionally very unsafe in an age of unmanaged motoring growth. (Discussed section 8)

d) **Longer term trends, using TfWM local data, show continuing lower LTN road casualty levels relative to the area's baseline**: Data up to September 2022 (i.e. 2 years following LTN introduction) show a net reduction of 28% in reported casualties. Again these reductions comprise improvements on both 'cell' and boundary road data and by severity and mode (sections 5-7).

In terms of external validation, these results accord with the larger study by the University of Westminster[i], conducted across 72 of the 2020 'rapid implementation' LTNs in London, used a similar casualties-based comparison with London-wide figures. This found a significant reduction in road injuries inside LTN 'cell' areas (halved relative to the comparisons with rest of London), though less significant changes in injury numbers on peripheral roads were found. However this study was based on just one winter quarter (Q4 2020) after only a short 'settling down' period.

In the worst performing quarter, Q4 2021, for the Kings Heath Phase 1 LTN zone, casualties chiefly occurred on Kings Heath High St/A435 (7 out of nine injured persons in that quarter); a road with a high proportion of the area's casualties historically. This road is already a 20mph designated road with 7 light-controlled crossings along the Kings Heath section. The persistence of crashes involving injury on this road may hold lessons on the limitations of infrastructure measures on their own, ***without additional enforcement and education programmes***, to modify driver behaviours and reduce injury to the extent required of the city by its Regional Road Safety Strategy.

3 Background, Scope and Sources

See Appendix A for data sources and Appendix B for map,

Casualty Reduction Targets currently

As a member of the West Midlands Combined Authority, Birmingham is currently committed to the 2020 "WM Regional Road Safety Strategy"[ii] targeting, specifically, a 40% reduction in 'Killed and Seriously Injured" (KSI) casualties by 2028 from the regional historic baseline (2015-17) of 1,021 KSIs per year.

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Despite the pandemic's effect of temporarily reducing traffic volumes and casualties, by the end of 2021 progress against the RRSS was 'off track', both regionally and for Birmingham, against pro rata linear reduction targets.

Data for Birmingham[iii] indicates some 13% of all casualties are classed as KSIs, however 88% of KSIs occur on 20-30 mph roads in the city, closely aligned with the 89% of '*All Casualty'* severities occurring on 20-30 mph roads. Over the 2017-19 period, KSIs on 20-30 mph roads in Birmingham averaged 400 per year, compared to just 52 p.a. on higher speed roads including Motorways.

Additionally, without wishing to trivialise the impact of 'Slight' injuries on individuals and the likely deterrence these pose to growing active travel, it is clear that tackling the high level of injury on neighbourhood roads appears critical to meeting the city's KSI strategic commitments and reducing the human and significant societal and economic cost of our 'excess' casualties of all severities.

Area of study – Kings Heath Phase 1 zone

The data for LTN area casualties was extracted from the TfWM road traffic collision (RTC) self-extract mapping tool, selecting a polygon covering all the LTN roads from Phase 1 (i.e. west of A435/High Street) from Howard Rd in the south to Yew Tree Lane/Queensbridge in the north. Peripheral and through roads were included in full. Note that three out-of-scope roads (e.g. Addison Road close to the A435 junction) caught in the polygon have been filtered out of analysis for accuracy but are shown at the foot of the raw data table.

The Phase 1b modal filter section (i.e. Poplar Rd) did not have the planned follow-up LTN constructed around it in 2020, owing to DfT delays in funding. Given the result then, as now, is effectively just some 100 metres of cul-de-sac on the east of the High Street, rather than an LTN, it is excluded from the study ***at this stage***.

Timings

The 'before' baseline period for this 'before vs after' review is data from January 2017 to September 2020 (i.e. 15 quarters). For pragmatic reasons, the 'cut-over' point for the LTN is taken as October 2020, when the Kings Heath modal filters (MF) bollards were applied in early October. The introduction of the LTN cells on the west side of KH High Streets did not occur in a single operation. While planters and signage were introduced to side roads at various times in the summer and autumn of 2020, through-traffic continued irrespective of initial prohibitions. Indeed, even following the introduction of Modal Filter bollards, repeated criminal damage to them meant through traffic in 'cell' roads sporadically continued throughout Qtr. 4 and beyond, sometimes for weeks and often at high speeds if social media is to be believed.

'After' period for City-wide comparison : This is the 5 Quarters city-wide running from October 2020 to December 2021. Casualty data is not yet readily publicly available for 2022 from the DfT.

'*After' period for Local Area comparisons* : TfWM's system has data available for the KH area for all quarters up to September 2022, hence the analyses of effects over a full two years of operation are provided below. Local data for Q4 2022 was incomplete at the time of analysis.

Data – Casualties and circumstances

All casualty data collated by both TfWM and DfT is ultimately sourced from local police force reports (STATS19 forms) where police officers record information on locations, injury severity, etc. relating to the any reported collision where injury occurs on public highways. The TfWM data extract (see sources, Appendix A) includes all anonymised fields from the police forms, including judgement on 'contributory' factors. The DfT extract system holds less detail in its aggregated data, but adequately provides the required key comparison information.

It is generally considered these data collection methods understate the incidence of injury collisions (See DfT analysis[iv]) as injured parties may not request police attendance due to the minor nature of injury, shock, 'hit and run' incidents or whatever. Clearly busy police officers also may record details incorrectly (in the TfWM KH LTN zone sample, some 85% of Kings Heath's 20mph roads being incorrectly identified by officers as 30mph). The study assumes any under-reporting and other inaccuracies are are similar across both 'before and after' timescales and respective areas

Data – Injury Risk

Conventionally road safety risk is most accurately expressed in terms of the number of casualties or fatalities ***per x miles travelled by mode X (e.g. walking, cycling, driving)*** This more insightful type of analysis has shown that the UK has a significant deficit in the safety of pedestrians and cyclists against European comparator nations (PACTS report "Safest Roads in the World…but not for pedestrians", 2016 [v]) based on national averages. The UK's National Travel Survey only provides usable data at national or regional level only, so little accurate objective data exists at city or neighbourhood level on distances walked, cycled or driven. Accordingly assessing true 'before' and 'after' risk by distance for various groups is not feasible in this assessment.

However indications from London surveys of LTN residents (Centre for London review [vi]) indicate significant increases in self-reported levels of active travel, even where trips use boundary roads in some surveys. While the evidence from these studies cannot be distilled into an average x% increase in walking or cycling, it does indicate that reductions in pedestrian and cyclist casualty ***risk*** by distance is likely. Hence improvements in actual levels of road safety (risk per mile) may be understated if viewing casualty changes in isolation.

4 Comparison – all classified injuries KH LTN phase 1 vs City-wide (5 Qtrs.)

Table 4a - Comparison: Casualty Reductions KH Ph1 (inc. Boundaries) LTN Vs B'ham-wide (Baseline:Q1 2017-Q3 2020) - See Appendix C for input casualty data

	a - KH Ph1 % change vs baseline	b - Bham-wide % Change vs baseline	c - % diff. KH Ph 1 vs City by Qtr.	d - % diff KH Ph1 vs City averaged since LTN	e-Casualties pro rata change by Qtr., KH Ph1 vs City, since LTN	f-Casualties – pro rata cumulative change, KH Ph1 vs City, since LTN
2017-Q3'20 Mean	Baseline Mean=6.27 casualties per Qtr.	Baseline Mean=839.7 casualties per Qtr.	-			
2020-Q4	-68%	-12%	-56%	-56%	-3.5	-3.5
2021-Q1	-68%	-33%	-35%	-46%	-2.2	-5.7
2021-Q2	-36%	-16%	-20%	-37%	-1.3	-7.0
2021-Q3	-20%	-8%	-12%	-31%	-0.7	-7.7
2021-Q4	44%	-2%	46%	-16%	2.9	-4.9
2022-Q1	-52%	n/a	Comparative city-wide data not available			
2022-Q2	-4%	n/a	Comparative city-wide data not available			
2022-Q3	-20%	n/a	Comparative city-wide data not available			
5 Qtr. mean	-29.8%	-14.0%	Average reduction in 5 Qtrs. since LTN, Q4-2020 to Q4-2021			

This table uses % changes to provide comparisons. Casualty values underpinning this table are in Appendix C

This table summarises and compares how casualties per quarter have changed at local level for KH Phase 1 zone (inc. boundary roads) ***relative to Birmingham as a whole***. A baseline period of Jan 2017 to September 2020 is used to provide the averages (means) for comparison with the post-LTN period (Quarter 4 2020) when the KH phase scheme had Modal Filters introduced. Baselines average are respectively 6.27 classified casualties (for KH Ph 1 zone) and 829.7 casualties (Birmingham-wide).

Columns a and b show the change as a % for each quarter compared to the baseline mean.

Column c shows the difference as a %, between the level of change in the LTN zone relative to the city-wide change for the given Quarter. This seeks to ensure that a like-for-like comparison in any specific period is made given the ever-changing lockdown, home-working and other pandemic factors affecting traffic during the study periods.

Column d provides a net quarterly average as the study period progresses following the LTN introduction. Up to Qtr. 4 2021, this shows an additional 16% reduction in KH casualties relative to any city-wide reductions. City-wide data for 2022 Quarters is not readily available, so comparisons for cannot yet be made.

Columns e and f interpret the extra reductions in the KH Phase 1 zone in terms of actual casualties by quarter or aggregated over time. While showing considerable variability, as would be expected of a smaller sample area, the comparison shows net reduction of 16% averaging over the 5 comparable quarters.

In summary, over the study period of 5 quarters, this analysis indicates general traffic factors, occurring city-wide, would have reduced KH Ph1 zone casualties by between 4 and 5 injured persons (4.5) relative to baseline, ***but the KH LTN area outperformed this by an additional further casualty reduction of nearly 5 injured persons (4.9).***

5 Comparison : KH Ph 1 - Boundary and 'Cell' Roads, 2 year and 5 Qtr. comparisons

Casualty value details for this table are available in Appendix D

As highlighted by the University of Westminster study of 72 rapidly introduced LTNs across London in 2020, there was substantial evidence LTNs can deliver significant reductions of casualties within 'Cell' roads of an LTN - of approximately 50%

The KH Ph 1 review of casualties indicates a higher level of casualty reduction within 'cells' can be achieved than the London review identified, potentially this may be due to the longer study period.

In these analyses of KH Phase 1 zone, the Boundary roads, which include remaining through routes between cells, such as Vicarage Rd, also show significant reductions in casualties.

KH Phase 1 LTN zone - 2 Year comparison with prior baseline

Table D3b
SUMMARY - KH Ph1 Casualties per Qtr. averages (means) pre- / post- LTN (Oct20) - Boundary Roads vs Cell roads Baseline period (Q1-2017 to Q3-2020) Vs period Q4-2020 to Q3-2022

	Boundary	Cell	Grand Total
Q1-2017 to Q3-2020 Mean :	5.27	1.00	6.27
Q4 2020 to Q3-2022 Mean :	4.250	0.250	4.500
Change less/more	-19.3%	-75.0%	-28.2%

KH Phase 1 LTN zone – 5 Quarter comparison with prior baseline

Table C3b
SUMMARY - KH Ph1 Casualties per Qtr. averages (means) pre- / post- LTN (Oct20) on Boundary Roads vs Cell roads. Baseline period (Q1-2017 to Q3-2020) Vs period Q4-2020 to Q4-2021

	Boundary	Cell	Total
Q1-2017 to Q3-2020 Mean :	5.27	1.00	6.27
Q4 2020 to Q4-2021 Mean :	3.50	0.20	4.00
Change less/more	-33.54%	-80.00%	-36.17%

It is noteworthy that in the comparison over 5 quarters, both Cell and Boundary Road casualty reductions are better than the 'Birmingham-wide' aggregated reduction over 5 quarters (-14%) given in Section 3 above.

6 Comparison - Severity of injuries in KH Phase 1 zone – 2-year comparison

Casualty value details for this table are available in Appendix E

As the tables below show, the relative proportions of Serious vs Slight casualty injuries, as judged by officers attending crashes was little changed following the LTN introduction, with both categories having reduced by over 20%.

KH Phase 1 LTN zone - 2 Year comparison with prior baseline

Table D5b SUMMARY - KH Ph1 Casualties per Qtr. averages (means) pre- / post- LTN (Oct20) by casualty severity

		Serious	Slight	Total
Q1-2017 to Q3-2020 Mean :		0.80	5.47	6.27
Q4 2020 to Q3-2022 Mean :		0.63	3.88	4.50
Change less/more		-22%	-29%	-28%

7 Comparison - KH Ph 1 zone casualties by casualty Travel Mode groupings – 2-year comparison

Casualty value details for this table are available in Appendix E

The following tables has used references to pedal cycle in the STAT19 data to identify casualties on bicycles, albeit this data does not always make circumstances wholly clear. Where a cyclist casualty has been indicated in the raw data, this is subtracted from the TfWM driver or rider values.

Table D4a SUMMARY - KH Ph1 Casualties per Qtr. averages (means) pre- / post- LTN (Oct20) by casualty travel mode - Baseline period (Q1-2017 to Q3-2020) Vs period Q4-2020 to Q3-2022						
		Cyclist	Driver or rider*	Passenger	Pedestrian	Total
Q1-2017 to Q3-2020 Mean :		0.53	2.67	1.13	1.93	6.27
Q4 2020 to Q3-2022 Mean :		0.38	1.88	0.50	1.75	4.50
Change less/more		-29.7%	-29.7%	-55.9%	-9.5%	-28.2%

As discussed in Section 3, "Data on Injury Risk", simple 'before vs after' casualty values on their own cannot show accurately the true reduction in injury risk (risk of injury per x miles travelled) . Studies elsewhere indicate active travel levels may increase significantly over time as LTNs 'bed in' and behaviours change, but as we lack Kings Heath area prior data no value for this further reduction of risk per x miles cycled or walked can be derived.

*Driver and Rider values in TfWM source data have been amended to separate out cyclist 'rider' casualties in this analysis

8 The human cost of poor Active Travel infrastructure in our city .

While a significant body of evidence has growth from international and, more recently, London-based studies on the value of providing safer infrastructure for those walking and cycling, this has taken some time to affect transport thinking in UK regions. LTNs, in particular, have suffered significant wariness and delay by decision-makers in many major regional cities.

An objection repeatedly raised by detractors is that benefits seen, for example, in London boroughs cannot translate to UK provincial cities owing to unique, if ill-defined, features and circumstance in their own city or neighbourhood.

Meanwhile those supportive of trialling schemes outside the capital have often lacked quantitative data on local traffic volumes, air quality etc. that might demonstrate the value of trial schemes 'before' and during their 'bedding in' period.

The review of Kings Heath Phase 1 casualty level changes, therefore, is a significant advance in demonstrating that benefits seen elsewhere can be replicated in Birmingham just as in the capital with its diverse boroughs. The study provides a quantified indication of how we can reduce some 16% 'excess' injuries in neighbourhoods across the Birmingham; city-wide with would translate to approximately 120 fewer casualties in any year.

For a city previously struggling to keep on track with its Regional Strategic Road Safety Strategy targets, the opportunity these low cost infrastructure changes can provide for casualty reduction is immense. The only question remaining therefore is how can we best campaign for funding and take action faster, given the routine human cost, week after week, of inaction and delay?

Appendix A – Source Data

a) City wide casualty data is provided from Department for Transport data (up to Dec 2021) to provide a picture of overall B'ham city-wide casualty levels each quarter for the period Q1-2017 – Q3 2021[vii].

Link: https://roadtraffic.dft.gov.uk/custom-downloads/road-accidents
The values from this file are included in the labelled sheet within the Analysis file

b) Local casualty data is drawn from WMCA's Transport for the West Midlands self-serve RTC data tool covering the area of the KH Phase 1 LTN – PLUS its peripheral roads – over the period Q1 2017 -Q3 2022.

The link to the raw data is provided in the zip file from TfWM (select download, zipped files do not display in browsers):
https://drive.google.com/file/d/19K3tpQFfyQ6t88R0b3hZusxKimwmwR47/view?usp=share_link

Important notes on this data:

1- 'Unclassified' casualty in STATS19 records generally refers to persons involved in a crash but not themselves injured, usually drivers who have hit and injured more vulnerable road users with their vehicle. While these parties may be psychologically affected, they have been left out of analyses as they would otherwise inflate the reductions.
2- Records are included up to end-November 2022, but the data for recent months can be subject to later verification changes and additional reports arriving. Accordingly, to avoid understating casualties only data up to the end of Quarter 3 (September 2022) are included in analyses against historic baseline.
3- Some out-of-scope roads , e.g. Addison Road, are captured in the requested geographic 'polygon' phase 1 area due to incident nearness to a peripheral road. These are filtered to the bottom of the raw data sheet to exclude from pivot table inaccuracy.

c) Analysis file – multiple analysis tables, with copies of raw data are provided via this link :

https://drive.google.com/drive/folders/1k-D3oXkj12U0robp4kQ4Hze3EYYUD_Yq?usp=share_link

Sheets are as labelled, but please note :

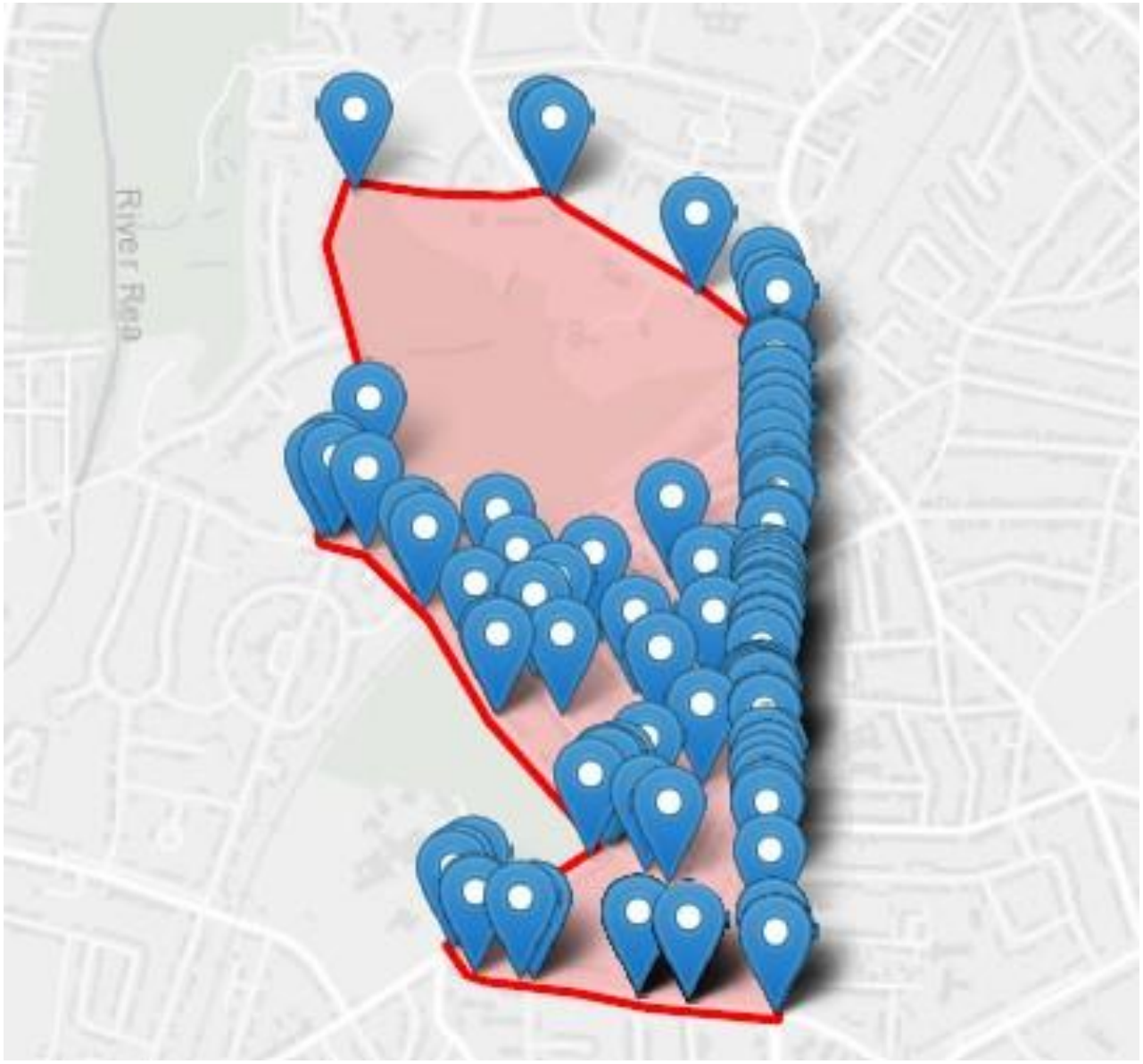
- Excel 'pivot' tables used in analysis sheets do not display correctly in google docs within the browser; downloading to excel is required

- The "TfWM extract enhanced" sheet has been created to add the following to the raw data provided by the TfWM extract file itself :
    - Common naming conventions for roads in the KH Ph 1 area (e.g. Incidents on A435 sections are named in numerous different ways on the STAT19 records)
    - Identification of cyclist casualties using other fields (vehicle) from a given incident record. These are otherwise aggregated into Driver or Rider field values, so disaggregation is needed for mode specific analysis in relevant table.

Appendix B – Map

The data extract area ‘polygon’ is shown below. Boundary roads were included to their full width. Casualties captured on out-of-scope roads (e.g. Addison Road) due to proximity to peripheral roads on the drawn polygon we manually filtered to the foot of the data input sheet in the analysis file

A GIS file is provided in the source date TfWM zip file of extract data.



Appendix C – Data for 'City-wide' vs KH Ph 1 zone comparisons

This appendix shows the values derived from TfWM and DfT for actual casualties in Birmingham (table C1) and Kings Heath LTN (table C2) over the baseline period and the 'like for like' 5 comparator quarters.

Table C1 - Casualty Levels and changes - B'ham-wide (Baseline:Q1 2017-Q3 2020) to Q4-2021

Figures for baseline period by Quarter are shown in green, figures for the comparator 5 quarters are shown in blue. Change columns reflect change by casualty numbers by Quarter and cumulatively, and as % changes by Quarter and cumulatively

Birmingham-wide all casualties (classifieds)						
Year-Qtr.	Casualties	Baseline value				
2017-Q1	849					
2017-Q2	920					
2017-Q3	995					
2017-Q4	900					
2018-Q1	765					
2018-Q2	888					
2018-Q3	904					
2018-Q4	982					
2019-Q1	825					
2019-Q2	859					
2019-Q3	810					
2019-Q4	1057					
2020-Q1	700					
2020-Q2	317		**Casualties Change from baseline Mean**			
2020-Q3	674	**2017-Q3 2020 Qtrly MEAN 829.7**	Casualties - Change by Qtr. vs baseline average	Casualties - cumulative casualty change since Oct '20	% casualty change by Qtr. vs baseline average	Averaged net % casualty change vs baseline since Oct '20
2020-Q4	726	829.7	-103.7	-103.7	-12%	-12%
2021-Q1	559	829.7	-270.7	-374.3	-33%	-23%
2021-Q2	698	829.7	-131.7	-506.0	-16%	-20%
2021-Q3	761	829.7	-68.7	-574.7	-8%	-17%
2021-Q4	813	829.7	-16.7	-591.3	-2%	-14%

Kings Heath data - Next Table – PTO

Table C2 - Comparison: Casualty Reductions KH Ph1 (inc. Boundaries) LTN (Baseline:Q1 2017-Q3 2020)

Figures for the baseline period by Quarter are shown in green, figures for the city-wide comparator 5 quarters are shown in blue. Additionally purple figures show the casualty changes for Q1-Q3 2022, for comparison against historical baseline over a full two-year period.
Columns reflect change by casualty numbers by Quarter and cumulatively, and as % changes by Quarter and cumulatively

	Kings Heath Phase 1 Area - Classified casualties					
Year-Qtr.	Casualties	Baseline value				
2017-Q1	8					
2017-Q2	6					
2017-Q3	8					
2017-Q4	11					
2018-Q1	8					
2018-Q2	4					
2018-Q3	9					
2018-Q4	6					
2019-Q1	5					
2019-Q2	7					
2019-Q3	4					
2019-Q4	8					
2020-Q1	6					
2020-Q2	0		**Casualties Change from baseline Mean**			
2020-Q3	4	**2017-Q3.2020 Qtrly MEAN 6.27**	Casualties - Change by Qtr. vs baseline average	Casualties - cumulative casualty change since Oct '20	% casualty change by Qtr. vs baseline average	Averaged % net change in Casualties vs baseline since Oct '20
2020-Q4	2	6.27	-4.3	-4.3	-68%	-68.1%
2021-Q1	2	6.27	-4.3	-8.5	-68%	-68.1%
2021-Q2	4	6.27	-2.3	-10.8	-36%	-57.4%
2021-Q3	5	6.27	-1.3	-12.1	-20%	-48.1%
2021-Q4	9	6.27	2.7	-9.3	44%	-29.8%
2022-Q1	3	6.27	-3.3	-12.6	-52%	-33.5%
2022-Q2	6	6.27	-0.3	-12.9	-4%	-29.3%
2022-Q3	5	6.27	-1.3	-14.1	-20%	-28.2%

APPENDIX D – KH Ph1 ZONE – CASUALTY CHANGE ON BOUNDARY Vs 'CELL' ROADS

The comparison tables below compare KH Ph 1 zone casualty changes against the Baseline period for : – for

- Comparison with city-wide data over five Quarters (Q4 2020 to Q4 2021 inclusive)
- Longer term (2 year) comparison against baseline for the area

For input data see pivot table below the comparison tables

Table D1 - PIVOT TABLE – Totals categorised from TfWM data

Row Labels	Boundary	Cell	Total
2017	**27**	**6**	**33**
Qtr1	6	2	8
Qtr2	5	1	6
Qtr3	6	2	8
Qtr4	10	1	11
2018	**23**	**4**	**27**
Qtr1	8	0	8
Qtr2	3	1	4
Qtr3	6	3	9
Qtr4	6	0	6
2019	**21**	**3**	**24**
Qtr1	4	1	5
Qtr2	7	0	7
Qtr3	2	2	4
Qtr4	8	0	8
2020	**10**	**2**	**12**
Qtr1	6	0	6
Qtr2	0	0	0
Qtr3	2	2	4
Qtr4	2	0	2
2021	**19**	**1**	**20**
Qtr1	1	1	2
Qtr2	4	0	4
Qtr3	5	0	5
Qtr4	9	0	9
2022 to Q3	**13**	**1**	**14**
Qtr1	3	0	3
Qtr2	6	0	6
Qtr3	4	1	5

APPENDIX E – KH Ph 1 ZONE – CASUALTY CHANGES BY SEVERITY

Data for the 2-year comparison is provided below

Table E1- All classified Casualties KH Phase 1 by Casualty severity Q1 2017 to Q3 2020

Row Labels	Serious	Slight	Total
2017	**5**	**28**	**33**
Qtr1	0	8	8
Qtr2	1	5	6
Qtr3	1	7	8
Qtr4	3	8	11
2018	**2**	**25**	**27**
Qtr1	0	8	8
Qtr2	0	4	4
Qtr3	2	7	9
Qtr4	0	6	6
2019	**3**	**21**	**24**
Qtr1	1	4	5
Qtr2	1	6	7
Qtr3	0	4	4
Qtr4	1	7	8
2020	**2**	**10**	**12**
Qtr1	1	5	6
Qtr2	0	0	0
Qtr3	1	3	4
Qtr4	0	2	2
2021	**3**	**17**	**20**
Qtr1	0	2	2
Qtr2	0	4	4
Qtr3	2	3	5
Qtr4	1	8	9
2022 to Q3	**2**	**12**	**14**
Qtr1	0	3	3
Qtr2	2	4	6
Qtr3	0	5	5

APPENDIX F – KH Ph 1 ZONE – CASUALTY CHANGES BY USER TRAVEL MODE

Data for the 2-year comparison is provided below

Table F1 - All classified Casualties KH Phase 1 by Casualty severity Q1 2017 to Q3 2020

Row Labels	Cyclist	Driver or rider	Passenger	Pedestrian	Total
2017	**1**	**14**	**9**	**9**	**33**
Qtr1	0	0	4	4	8
Qtr2	0	4	1	1	6
Qtr3	0	6	1	1	8
Qtr4	1	4	3	3	11
2018	**4**	**15**	**5**	**3**	**27**
Qtr1	0	4	2	2	8
Qtr2	1	3	0	0	4
Qtr3	2	6	0	1	9
Qtr4	1	2	3	0	6
2019	**2**	**6**	**3**	**13**	**24**
Qtr1	0	0	0	5	5
Qtr2	0	2	1	4	7
Qtr3	0	1	2	1	4
Qtr4	2	3	0	3	8
2020	**2**	**6**	**0**	**4**	**12**
Qtr1	1	2	0	3	6
Qtr2	0	0	0	0	0
Qtr3	0	3	0	1	4
Qtr4	1	1	0	0	2
2021	**1**	**7**	**1**	**11**	**20**
Qtr1	0	2	0	0	2
Qtr2	0	1	0	3	4
Qtr3	0	2	0	3	5
Qtr4	1	2	1	5	9
2022 to Q3	**1**	**7**	**3**	**3**	**14**
Qtr1	0	1	2	0	3
Qtr2	1	3	1	1	6
Qtr3	0	3	0	2	5

APPENDIX G - FOOTNOTE REFERENCES

[i] https://westminsterresearch.westminster.ac.uk/download/c0185aaf9635183c66d0165b937a412b665769f927d3cb57e0e3d090577ba06a/728086/25633-impacts-of-2020-low-traffic-neighbourhoods-in-london-on-road-traffic-injuries.pdf

[ii] https://www.tfwm.org.uk/media/blti33m5/wmca-regional-road-safety-strategy-version-1-updated.pdf

[iii] Averaged over 2017-2019, using data from DfT custom download tool (customise for Road Speed Limit analysis) https://roadtraffic.dft.gov.uk/custom-downloads/road-accidents

[iv] https://www.gov.uk/government/publications/reported-road-casualty-statistics-background-quality-report/reported-road-casualty-statistics-background-quality-report#annex-under-reporting-of-road-casualties

[v] https://www.pacts.org.uk/safest-roads-in-the-world/

[vi] https://www.centreforlondon.org/wp-content/uploads/2022/06/CFL-StreetShift-LTNs-Final.pdf

[vii] Source for DfT data https://roadtraffic.dft.gov.uk/custom-downloads/road-accidents