

Annex A - Data Evaluation

1. This Annex summarises the evaluation of the data collected during the trial period. In summary it includes the following elements.

Data Evaluation

- City Centre Economy
- Parking
- Traffic – Flows
- Public Transport
- Cycling/Walking
- Speed and Accident Data
- Air Quality

Consultation

- emails
- On Line Surveys
- Resident/Visitor
- Business
- Pedestrian Surveys

2. Overall evaluation of the data for the trial was undertaken by the Institute of Transport Studies (ITS) at Leeds University, providing a sound methodology and academic independence to the assessment of the data.
3. Evaluating the impact of public realm changes in relation to Lendal Bridge is difficult and has been undertaken via perception surveys conducted by ITS. The results of the perception surveys are included with the other consultation responses.
4. Summaries of the main findings are set out below. More detail can be found in annexes B to G

City Centre Economy

5. Since 2010 there has been a downward trend in footfall in the city centre, approximately 11% reduction in the annual total 2010-2013 (as measured in Parliament St). Nationally, moving averages for footfall in city centres is also down, although not by as much as in York. Provisionally, while there may be an effect from the perception that York city-centre is more challenging to access easily, there are certainly other longer-term forces at work. It is being influenced by reduced consumer spending, competition

from online shopping, out of town shopping destinations with free car parking (all national issues and not specific to York). Car parking costs in the city centre are a little higher than shopping centres around the region. York has lower levels of unemployment than other areas and has been less affected by real earnings change too, but, it could be the surrounding areas, those within the visitor/retail catchment area that have been much more affected may not be visiting York as much as day visitors.

6. Footfall fluctuated in early 2013. Monitoring on Parliament Street showed reductions from May to September compared to 2012 but footfall since December has shown increases every month on the previous year. Footfall across the whole trial period is static compared to same period in the previous year but March figures of a 10% increase shows that the upward trend has been maintained. It is therefore difficult to determine whether the trial closure of Lendal Bridge has had any effect, or if it has, just how much. Recording of the trend data to May 2013 has also been affected by the demolition of the toilet block on Parliament Street which was completed in May 2012. Year on year comparisons from May 2012 are unaffected.
7. Visit York undertake a hotel room occupancy survey on behalf of the York Hoteliers Association. The survey reports on nine hotels with 530 rooms (19% of all hotel rooms in the City) in the 2 to 4 star range. The results of that survey show from January to June 2013 monthly occupancy rates were slightly down compared to 2012. From July 2013 to February 2014 occupancy rates are equal to or higher than comparable months in every year since 2007 when the survey started, indicating that the Bridge restriction has not adversely impacted on this sector of the economy. This does have to be considered alongside comments from visitors who have received a Penalty Charge Notice and advised that as a result they will not be returning to York. It is not possible to know at this stage whether that is true in the long term or any impact that may arise.
8. There was an issue with the data collection for the second half of the trial which means that evaluation can only be carried out on data for September, October and November 2013.
9. The number of parking transactions in Council run car parks which were open before and during the trial (ie. Peel Street and St. Leonards Place excluded) indicate that parking levels have

been close to stable (-0.3%) between 2012 and 2013 for September to November. There are significant differences between months between 2012 and 2013 so trends and causes are difficult to establish.

10. Although parking levels have been static overall there have been variations in parking levels at individual car parks which have been affected by flooding, gas works etc. as well as the Lendal Bridge restriction. There is some evidence to suggest that car parks in the north of the city are slightly less well used and this could be influenced by the trial which makes them less convenient for travellers from the opposite sides of the river.

Traffic

11. There are some routes where there have been network changes ongoing during the trial period: signalling of the A64/A19 roundabouts by the Highways Agency, improvements to the Fishergate Bar junction and ongoing changes to the A59 corridor to accommodate the new P&R site. Ongoing improvement works at the A59/A1237 roundabout is causing some disruption to traffic on the A1237 with knock on effects on Water End and the A59 and A19 corridors.
12. During the trial a number of network management events took place that required road closures and therefore affected traffic flows. Major gasworks occurred for different periods of time between 3rd September and 6th November 2013 on Melrosegate, Pavement and High Ousegate. Additional gasworks were undertaken on Goodramgate between 6th January and 6th February 2014, followed by carriageway resurfacing for 10 days. Two burst watermains occurred in early November 2013 requiring closures for 6 days on Hull Road and Lead Mill Lane. None of these closures impacted the overall results of the trial but would have had localised effects.
13. Traffic count data shows that traffic flows across York during the restricted period 2013/14 were broadly the same as traffic flows for the same period in 2012/13. There were significant differences between areas of the City; in particular the Gillygate/Clarence Street/Station area saw a reduction, whilst Water End and Foss Islands Road both saw increases.

14. A potentially interesting radial trend is the evidence that Tadcaster Road (to the southwest of the centre) and to a lesser extent Boroughbridge Road and Shipton Road experienced opposite trends by direction. This could suggest that some traffic which was previously travelling on routes through the city centre, including Lendal Bridge, diverted to an outer orbital route using the A1237 and/or the A64. As Tadcaster Road has particularly good access to the high capacity A64, it is not surprising that this is where the trend was most visible.

15. TrafficMaster data provides the most reliable source of journey time data and is obtained from GPS tracked vehicles. The TrafficMaster data supports the modelling in that it is showing that there were significant improvements on Gillygate, Lord Mayor's Walk, Clarence Street, Blossom Street, Nunnery Lane and Queen St. Links showing a worsening in journey times were Foss Islands Road, Layerthorpe, Water End, Cemetery Road and Shipton Road. Some key routes were selected for analysis and the detailed outcome from the data is contained in Annex B. Average and 85th percentile travel times are provided. Average travel times can disguise additional delay experienced at peak times and the 85th percentile times in Annex B reflect some of the comments received through the consultation feedback. General traffic flows on the city's bridges was up approx +0.75% based on data from all river crossings (including A64). Nationally traffic flows were up +2.3% in quarter 3 (July to Sep 2013) and +1.3% in quarter 4, it might therefore be expected that there would be a slight worsening in the base level of delay observed in the network.

16. The 85th percentile tells us the upper time range by which 85% of journeys will be completed on the network. It is a good indicator of what drivers experience day to day and is a more accurate reflection of peak hour travel times than average journey times for the route. Drivers who used to use Lendal Bridge are comparing their journey times pre-trial over Lendal Bridge with a journey time via a different (longer) route e.g. In October/November 2013 Micklegate Bar to the hospital via Foss Islands road, 5:00–6:00pm, 85th percentile journey time was almost 37 minutes compared to an 85th percentile pre-trial time over Lendal Bridge of 25 minutes. Either side of the 5:00-6:00pm period the 85th percentile journey times using Foss Islands Road decrease significantly and by January/February 2014 traffic flows on Foss

Islands Road had decreased, reducing the 85th percentile journey times to pre-trial levels. However vehicles able to use Lendal Bridge were saving up to 5 minutes indicating that public transport journey times could have been significantly improved.

17. Where journey time increases were significant, mitigation measures would have been sought where possible. Some improvements would have been experienced once the works on the A59/A1237 complete in June 2014. This is particularly relevant for the Clifton Green junction.
18. Travel time for motorists in the Water End area increased in particular during the late afternoon (school run) by 5 or 6 minutes on average. The travel times observed in the new year (Jan and Feb 2014) were similar to before the new year (Oct and Nov 2013) although the travel times recorded in Jan and Feb 2013 were significantly higher than before the new year – some of this seems likely to be due to the comparison with traffic levels during the poor weather conditions at the start of 2013.
19. Foss Islands Road saw average increases in journey times of between 4 and 5 minutes at the start of the trial. With additional delay being picked up at Walmgate Bar and Layerthorpe Bridge. After the new year flows on Foss Island Road returned to near pre-trial levels and the travel times returned to near to pre trial levels. Some of this change is likely to be due to drivers that previously used Lendal Bridge changing their destinations in the city - for instance where they park. Drivers also seem to avoid using Foss Islands Road. This would suggest that traffic patterns were still subject to change at the end of the trial period.
20. Generally between 1600 hours and 1700 hours saw the greatest impact as traffic levels increased on the network and drivers avoided arriving at the bridge ahead of 1700 hours. Data from the ITS evaluation of the bridge count data suggests that some drivers avoided the bridge even during the unrestricted period.
21. Bridge count data is collected annually for one day each year on all six bridges in York. Key findings from this data show that flows reduced on Lendal bridge (as expected) and also on Ouse bridge both during and outside the restricted hours, whilst the other bridges all experienced increased flows above background growth. This suggests that vehicles avoid Lendal Bridge even

during the un-restricted period and that rerouting behaviour occurred across the network.

22. Whilst the traffic data is unable to demonstrate modal shift has occurred the survey data has captured behaviour changes (see consultation below)

Public Transport

23. Bus travel times improved for routes using Lendal Bridge with the greatest savings observed on Clarence Street and Gillygate. In the early afternoon buses were regularly picking up 10 minutes of delay on this approach pre-trial this reduced to typically less than 1 minute during the trial.
24. Buses were not significantly affected elsewhere on the network as a result of displaced traffic (as evidenced by the P&R data in the ITS report).
25. Bus reliability (the percentage of buses running on time) improved: network wide by 7.5% and for services 1,2,5 and 6 by between 5.5% and 11.5%. Data from First Bus for intermediary timing points. Service 6 shows the biggest improvement with over 95% of services running to time during the trial.
26. Park & Ride journey times have been monitored as part of the trial (see annex B) primarily as a proxy for general traffic travel times ahead of receiving the Trafficmaster data. The overall headline figure to take from the timings is that the trial closure did not appear to have resulted in any significant increase in travel times on radial routes into and out of the city, with Grimston Bar and Monks Cross the only routes to have been affected (with small increases).
27. First Bus announced in December 2013 that patronage on its services had increased by an average of 7% and up to 10% on some routes as a result of improved reliability resulting from the Lendal Bridge trial as well as price reductions and network alterations. Park & Ride patronage also rose slightly during the trial by 1.4%
28. Annual bus user surveys are undertaken in November which provides some comparison data pre and during the trial. 79% of users are now satisfied with reliability, an increase of 27% whilst

87% are satisfied with the speed of their service, an increase of 21%.

29. The total number of people using York station either to enter/exit or interchange has continued to show year on year increases since 2004/2005.

Cycling and Walking

43. The ITS report indicates that between 2012 & 2013 there was an increase in pedestrian traffic across Lendal Bridge of approximately 38% during the closure period and 22% during the peaks, meaning that Lendal Bridge carried almost one third extra pedestrian traffic over the full 12 hour surveyed day. These results may have affected by the opening of the new council offices at West Offices but are difficult to quantify exactly. Ouse Bridge also experiences a modest increase in pedestrian volumes, with the greatest increase occurring during the peaks.
30. This suggests that the closure attracted more pedestrians to use Lendal Bridge, but that reduced traffic volumes when the bridge was un-restricted also achieves that to some extent.
31. In relation to the cycle data ITS also reports a total increase in river crossings by bike of approximately 15% in 2013. The largest increases in cycle crossings, of approximately 23%, occur across Lendal and Ouse Bridges during the 10:30-17:00 period. Ouse Bridge also experiences an increase of approximately 20% during the peak periods, but for Lendal Bridge this is only 9%, suggesting a big difference in the attractiveness of the bridge to cyclists, dependent on whether it is open to all traffic.

Speed and Accident data

32. An informal 20mph speed limit during trial hours was communicated to the bus and taxi companies (who should have been the main users of the bridge during the day). It would appear that speeds on the bridge increased slightly during the trial, although northbound site at Museum Gardens shows a larger increase, perhaps as vehicles accelerate towards/through the signals. The location of the monitoring equipment could be masking some of the increase as they are positioned towards

each end of the bridge. Alternatively recorded speeds may have increased only slightly as a result of traffic having to slow down to allow pedestrians to cross. Where they do not need to facilitate pedestrians crossing it is possible that higher speeds are occurring because of the reduced traffic. It is noteworthy that mean speeds during the daytime are generally lower than the morning peak mean and approximately the same as the evening peak. See annex C for speed data details.

33. It should be noted that there were no signs on the bridge indicating a 20mph speed limit and the number of vehicles crossing the bridge that should not have been using it could have been adversely affecting the speeds in comparison to the buses and taxis companies who were encouraged to travel at 20mph.

34. Accident data has been compared between September - December 2012 and the same period in 2013. Accident data for January and February 2014 is not yet available. Comparing figures for the restricted period only, 1030 hours to 1700 hours, the total number of reported casualties has declined slightly city wide (89 to 81), those occurring on Lendal Bridge down 4 pre trial to 2 during the trial and those on the Inner Ring Road (where traffic has been displaced to) also declined (24 down to 14). Larger reductions outside of the restricted hours have also been observed. Attribution of the reduction in casualty rates to the bridge trial is difficult but there is no evidence that the trial made the roads less safe. Further detail is provided in annex D.

Air Quality

35. Data from the city centre Air Quality Management Area (diffusion tubes and real-time monitors) has been reviewed for the period September to December, over five years (starting Sept 2009). See Annex E

36. Air quality across the city improved during the trial period. It is difficult to attribute improvements in air quality to the Lendal Bridge restriction; however there has been a general downward trend (improvement) in monitored levels of nitrogen dioxide across the city, between 2012 and 2013. This is thought to be due to falling background concentrations between 2012 and 2013 (a consequence of local weather conditions). These changes are not, however, considered significant, and fall within the variation seen

in monitoring results over the last 5 years rather than being related to the Lendal Bridge traffic restriction trial.

37. What is clear is that where traffic was displaced on the network and traffic levels increased e.g. Water End, there has not been deterioration in air quality.
38. There was an improvement in air quality near Lendal Bridge (outside Museum Gardens, the closest monitor to the bridge) Levels of nitrogen dioxide monitored over the period September to December 2013 are, on average, 20% lower than levels monitored in corresponding periods in 2009, 2010, 2011 and 2012. However, it should be noted that the trend seen at this location over the last five years is typical of monitoring seen at other locations in the city centre.

Data Conclusions

39. The data demonstrates that overall the traffic network responded well to the restriction. The traffic count data collected shows that the flows during September 2013 to February 2014 are broadly the same as for the same period 2012/13 and that more widely across the city the impact of the restriction was generally limited. Bus patronage increased by 7% and Park and Ride patronage was up by 1.4% throughout the trial compared to 2012. Footfall data continues to show lower levels than previous years (mirroring what is happening in the economy generally) but has shown increases on the previous year from November through to February and the accommodation survey suggests an increase in overnight stays. These indicators suggest that people did not avoid York during the trial period and that York remained very much open for business, although the impact of the economic downturn is still being felt.
40. Nationally traffic flows have increased and it might be expected that there would have been a slight increase in delay on the network as a whole. Journey times on some key routes improved whilst others increased, as expected.
41. There is some evidence of diversion to other crossing points and rerouting behaviour across the network. Traffic count data suggests that wider impacts of the Lendal Bridge trial on traffic levels across the city are generally very limited. It is recognised that there were locations on the network that were problematic,

notably Water End and potential mitigation measures would have been available should completion of the A59/A1237 roadworks not have reduced the delay.

42. The 85th percentile journey time is a good indicator of what drivers experience day to day. Results varied by route but across the day increases in 85th percentile journey times were generally modest, however peak times, particularly 5:00-6:00pm did see more significant journey time increases on some routes.
43. The public transport data suggests that some significant bus journey savings and reliability improvements were demonstrated however opportunities to amend bus timetables to capitalise on these benefits could not be undertaken unless the trial was made permanent.
44. Average traffic speeds on the bridge increased although remained at or under 20mph. Accidents reduced across the city and whilst this cannot be attributed to the trial, neither has there been any increase in accidents on corridors to which the traffic was displaced.
45. Air quality improved overall across the city and did not deteriorate in locations to which the traffic has been displaced.
46. The evidence from the data suggested that the trial delivered against most of the trial objectives. However, the data must be considered in conjunction with the consultation responses and these are set out below.

Consultation

47. A number of consultation events for residents and businesses took place ahead of the trial. During the trial a feedback survey was made available for residents and visitors both online and in hard copy (at libraries and West Offices) and an online survey was provided for business. Feedback was also possible via a Lendal bridge email address. A summary and conclusion of the consultation results is provided below. The details of the results are provided in Annex F.

Email Responses

48. In relation to the email responses, just under 1400 were received. The total number of emails received has been recorded, however

the majority of people have raised more than one comment or query. The key themes arising from the comments made have been identified and summarised below. It is noted that not all comments received fit into the below categories (some are comments/observations, neither negative nor positive, or suggestions). The percentages therefore do not add up to 100%.

49. It is noted that during the trial, the majority of email correspondence received relate to drivers receiving Penalty Charge Notices (PCNs). Drivers that have received a PCN may generally feel negative towards the PCN, rather than the restriction itself. On this basis a separate analysis of opinion has been undertaken that excludes PCN related emails.

Key Themes	Month 1	Months 2 & 3	Months 4 - 6	TOTAL Months 1-6
Total email comments received (excluding PCN related emails)	153	148	242	543
Scheme Enquiries	58 (38%)	28 (19%)	38 (16%)	124 (23%)
Vehicle Exemption Requests	13 (9%)	8 (5%)	5 (2%)	26 (5%)
General support for scheme	19 (12%)	12 (8%)	48 (20%)	79 (15%)
Generally against the scheme	32 (21%)	38 (26%)	109 (45%)	179 (33%)
Concern regarding traffic congestion	14 (9%)	32 (22%)	74 (31%)	120 (22%)

50. 15% of emails received (excluding those from drivers who had received a PCN) were from people generally in support of the restriction. The key themes from these emails were that there was less traffic in the Lendal Bridge area creating a more pleasant environment. People commented that they have experienced bus service improvements and a safer, more pleasant environment for cycling. Despite supporting the restriction there were a number of comments raised regarding its implementation, specifically with regards to the information and signing for drivers. 33% of emails received (excluding those from drivers who had received a PCN) were from people generally against the restriction. The sentiments of drivers who had

received a PCN were echoed in emails from drivers who hadn't received a PCN but do not support the restriction

51. 60% of all emails received relate to drivers receiving PCNs. Of these, a high proportion wrote in to make an appeal or ask for a refund on the penalty paid. The key themes from drivers receiving PCNs are that the signing of the restriction is inadequate and often drivers were following their SatNavs which directed them over the bridge. A high number of those receiving PCNs stated that they were visitors to York and were unlikely to return as a result of the PCN.

On line surveys

Resident/visitor

52. Feedback responses were collected 2,741 responses with a strong focus on York residents and car/van users. Analysis has identified a 10% mode shift away from car/van towards cycling and walking.
53. The car users taking part in this feedback survey have been strongly affected by the bridge restriction, with large numbers re-routing, resulting in longer journey times (91%) and travel distances (87%). They are strongly against the closure and do not agree that it is helping to attain the trial objectives, particularly, the creation of a more attractive and thriving city centre. Non car/van users are much more supportive of the Lendal Bridge closure, particularly cyclists, but still feel that improvements in the Lendal Bridge area have created some problems (more traffic, a less safe environment and higher levels of pollution) elsewhere in York.
54. Key comments from residents relating to the trial identified congestion elsewhere in the city, increases in journey times, impact on the city of tourists being 'fined' and concerns about the signage.

Business

55. 326 responses were collected to the on-line survey. Asked about the impact on their business 5% reported it was positive or very positive but 77% reported that it was negative or very negative. Responses to any 'changes in revenue' revealed that the number of business experiencing a negative change compared to the

previous year rose from 20% before the trial to 50% during the trial. It is recognised that 35% of the respondents attributed the down turn to factors other than the bridge e.g. parking costs, economic climate. There was also an increase in the number of business reporting a decrease in the number of customers/transactions. The footfall, parking and P&R data do not suggest that there have been fewer visitors to the City; but they may be spending less when they are here.

56. Difficulties receiving deliveries was also highlighted as a particular problem, with almost a third a respondents (51) advising that deliveries were arriving later than pre-trial.

ITS Pedestrian surveys

57. Two street surveys were conducted in an effort to assess the experience of people in York city centre both before the Lendal Bridge trial restriction and during the restriction. The first survey took place between 15 August and 20 August, the week before the Lendal Bridge trial began and the second survey took place between 28 October and 1 November, during the trial. The key findings are presented here.
58. For visitors to York, access by non-car modes is the dominant form of access. Only 27% of tourists accessed the city centre by car (as either a driver or passenger) before the trial closure and this was even lower, 20%, for leisure purposes. The single most important reason for visiting York is the pleasant nature of its environment, with nearly 97% of people stating this was important to them and which going forward reflects the importance of being able to maintain and improve that within the city centre. Non-car based visitors to York see the improvement of the pedestrian environment and increase in bus speeds as more important to the strength of the city centre than improving car speeds.
59. One of the concerns from the scheme was that it would create a lot of additional diversion and traffic problems. This survey found no discernable changes in the perceptions of the overall journey experience to York for tourist and leisure travellers. The closure should have had a beneficial effect on off-peak bus reliability for those routes using the bridge. However, there is no statistically significant difference in reported satisfaction with bus journey times, which may reflect the fact that bus timetables have not yet

been adapted to allow the companies to run different service patterns to take advantage of this apparent improvement.

Consultation Conclusions

60. The majority of negative consultation responses were from car drivers, who experienced more negative impact than other users. Cyclists were generally supportive with pedestrians providing a mixed response. Visitors to the City reported that the pleasant environment was the main reason for visiting (97%) and non car based visitors considered improvements to the pedestrian environment more important than improving vehicle speeds.
61. Even removing the 60% responses in relation to PCNs (which generally complained about receipt of the PCN rather than the restriction) consultation responses were predominantly negative. In particular the business responses identified negative economic impacts. However it is considered that not all of the negative impact was, or can be attributed to the bridge restriction.
62. It is noteworthy that the resident on-line survey managed to capture the 10% mode shift taking place as a result of the restriction being in place.