A38 Derby Junctions – Issue Specific Hearing

Wed 11th December, 2019

Contribution by Derby Cycling Group

Opening Statement:

Overall Derby Cycling Group has significant objections to the project which have lately become much more apparent as we think in greater detail about how the scheme will be delivered and what its legacy will be:

- It is becoming ever clearer that congestion during the construction phase will be an enormous problem for non-motorised users.
    - The scale of potential traffic influx is identified in the Derby Cycling Group Report "Review of Derby Traffic Flows and Effects of A38 Derby Junctions Scheme" which accompanies this report.
    - There is no plan to enable more local journeys by bike and on foot during the construction phase or how to utilise the congestion to enable more active travel
    - Unmitigated congestion will actually deter cycling and also walking; a congestion mitigation plan is needed but is lacking.

- The scheme has outdated objectives compared against the current climate emergency situation declared by Derby City and Derbyshire County Councils.

- The scheme does not attempt to address traffic reduction or the large proportion of local traffic on this part of the A38, for example by encouraging more active travel:
    - The planned NMU routes could, for example, be implemented without the roads element of the A38 scheme at a fraction of the cost (including "dedicated funds" projects)
    - These would help to mitigate some of the large proportion of local traffic which uses the A38 by enabling more cycling.

We hope that the Planning Inspection team will take into account these alternative views of the scheme in its final report.

However, having made these general objections, Derby Cycling Group wishes, in this hearing, to focus on our earlier representations which have related broadly to:

- The design of facilities (non-motorised user deliverables)
- The continuity of NMU routes during the construction phase
- The mitigation of congestion during the construction phase to enable the number of NMU journeys to grow
- The safety of NMUs from construction traffic

We cover these aspects under the various headings of the Issue Specific Hearing.

I have set out Derby Cycling Group's comments to each of the issues and questions which formed the basis of the Issue Specific Hearing on 11th December 2019. The numbered sections below in green refer to the corresponding reference numbers of the document "The Examining Authority's issues and questions for Issue Specific Hearing 2"

The last section comprises Derby Cycling Group's comments regarding the Traffic Management Plan, as requested by the planning inspector at the hearing.

Transport networks and traffic

1 & 2 Modelling of travel patterns and Impacts on local roads during construction

- Bicycles are vehicles; cyclists are traffic, therefore traffic management must cater for cyclists and all other NMUs as well as motorised travel. This does not appear to be the case; we cannot see evidence that enough modelling of future potential for NMU journeys has been done.
    - We urge a focus on the **journey management** rather than focussing only on motorised vehicle management
    - Aim to increase the amount of NMU traffic
        - During construction
        - In final operation

- Derby Cycling Group has produced a report “Review of Derby Traffic Flow and Effects of A38 Junctions Improvement” which we would like the project to consider alongside other modelling that has been and will be carried out.
- Minimum:
    - Maintain current levels of NMU usage on existing paths and roads
- Ideal (which is not currently planned for):
    - Increase number of local journeys by NMUs :
        - As a better way to travel once the scheme is complete
        - Creating new, dedicated routes
        - To create an alternative to driving through congested area during construction phase
        - Publicising the alternatives to driving
    - Enabling a shift from single occupancy motorised transport to active travel
- Achieve the ideal by providing better quality and continuity of NMU routes; we have made suggestions:
    - Derby Cycling Group Written representation Section 1 / Appendix 1 for long term
    - Derby Cycling Group Written representation Section 5 / Appendix 2 for construction mitigation

3 Stakeholder Engagement
- Our Exemplar of good practice is the Raynesway Park Junction scheme (2011)
    - Hotline / email contact to report NMU route issues
    - Promotion of hotline to stakeholders (DCG, Royal Derby Hospital, University of Derby, Derby City Council, etc).
    - Involve local community groups (eg Darley, Mackworth & Allestree neighbourhood boards)
- Many stakeholders are trying to get engaged but have no voice (eg A38 Behaviour Change group)
- 3a: Yes LHA to approve the TMP

4 Significant Impacts During Construction:
- On local roads cyclists and pedestrians are significantly affected

5 Impacts on Local Roads During Operation:
- A38 cycle routes must connect with the local cycle network – we are concerned that the relevant channels of communication with local authorities are not in place to facilitate this (HE response to our raising of issues with infrastructure adjacent to the project area).
- While we understand that the project has a physical limit, we are concerned that we have seen no evidence of liaison between local authorities and the project team to discuss these connectivity matters at the boundaries. Neither do we have a means to engage as stakeholders in any such conversation.

6. Junction Layouts:
- NMU crossings – controlled crossings must be standard (parallel or signal controlled)
- Design of slip roads should enable controlled crossings (eg single lanes; design to restrict exit speed and give good visibility of traffic & NMUs)
- However uncontrolled crossings over multi-lane exit roads are planned and we have a significant issue with this design.

8. Permanent Stopping Up:
- Stopping up must still allow formal NMU access – this needs to be stated clearly in the Transport Management Plan.

Land Use, Social and Economic Impact

12. Safe Operation of McDonalds and Esso garage:
- Parts a) c) and d) need to be augmented to include a statement that safe, adequate and convenient **NMU crossings of the site accesses and crossing the entrance to Markeaton Park** must be provided as well as the planned crossings over the A52 at this location.

14. Footpath diversions at Little Eaton Junction:
- 14c Derwent Valley Cycleway:
    - We understand that the part of the Derwent Valley Cycleway will be built from Haslams Lane to Ford Lane (and possibly beyond) using designated funds. If that is the case, we are delighted that the project will effectively be delivering this new route.
    - We do have an issue with how the Derwent Valley Cycleway will then connect with the Little Eaton roundabout; currently the path is constrained to little more than 1m width between the rail

bridge abutment and vehicle restraint barriers. This is highly substandard (two people can barely walk past each other here, never mind cycle past each other) however we have been told that this will remain unchanged.
    - We have submitted ideas regarding how this can be made into a good quality NMU route (ie the distance between the solid barriers to be at very least 4m wide) and would like that to be taken forward by the project team.
- 14d Toucan Crossing on the A61 at Croft Lane
    - This was discussed in the hearing with the Breadsall Parish Council representatives, who had some reservations regarding its usefulness as an alternative to footpath 3. However, as a cycling route from Breadsall to/from the A61 it is critical and we are very hopeful that this will be delivered as described.
    - We concur with Derbyshire County Council that this crossing is extremely desirable and Derby Cycling Group supports it fully. In our view, any mitigations regarding speed/signal standards etc on the roadway will be good value in terms of getting more people cycling and walking here. Breadsall is an ideal distance for cycling to/from Little Eaton, Meteor Centre shopping, and the new Derwent Valley Cycleway giving easy, safe access into Derby City Centre.

15a. Provision for NMUs during operational phase:

- Section 4 and Appendix1 of DCG Written Representation:
    - Itemises our issues with the current plans
    - Identifies conversation outcomes with the Project Team
    - Identifies the status of each item

- Currently working with HE on these issues and hope to continue to do so; SoCG identifies areas still under discussion. We hope the Planning Inspectors report will require HE to continue dialogue with DCG on these matters.

- Specific notes from Travel Plan (Transport Assessment Report – section 6)
    - 6.2.4 – Uncontrolled crossing on A38 south-facing slip roads @ Kingsway – need to be controlled & single lane slip road
    - Need to describe cycle paths on Kingsway Park Close – access to family focussed business destinations
    - Path leading to Raleigh Street needs to be made more cycle-centric design – simpler route, remaining off-road.
    - 6.2.15: Crossing entrance to McDonalds/Esso and Markeaton Park need controlled crossings, no just A52 (ref section **12** above).
    - Markeaton Park footbridge needs to be wider (not “very similar”). Currently the width is sub-standard and we’d like something aspirational. A minimum of 4m is required (which would be comparable with the planned bridge over the A52 on Brian Clough Way by the Wyvern Centre.
    - **Little Eaton:** There needs to be a description of the design for the retained route between Little Eaton island and Ford Lane alongside A38. This is currently sub-standard design and needs upgrading (ref section **14c** above).

15a. Provision for NMUs during construction phase:

i Continuity of routes: Section 7 of DCG Written Representation

- Existing NMU routes must remain fully open and accessible to all users at all times (as was experienced with the Raynesway Park Junction scheme referenced in **3** above.
    - Cycling
    - Walking
    - Mobility issues
- Any diversions must be:
    - Carefully pre-planned regarding routing and build standards
    - Fully accessible to all users (ie the use of the steps adjacent to the Little Eaton junction, which were utilised when the last junction modifications were made around 2013, is totally un acceptable because it precludes anybody with a mobility issue and also many cyclists who physically cannot carry their bike up or down the steps, even using the cycle ramp which was provided at the time). At-grade diversions must be the standard.
- Aim to maintain NMU usage at or above levels at commencement of the project
- The NMU Route Continuity Plan needs to be signed off by stakeholder groups, of which Derby Cycling Group is one.

ii Safety from Construction Traffic: Section 6 of DCG Written Representation:

- Drivers to be fully trained in cyclist and pedestrian awareness
- Vehicles fully equipped
  - Visual aids (mirrors, cameras, minimising blind spots)
  - Proximity warning – internal and external

- Safe crossings over site access routes/entrances
  - Manned and signalled crossings over site access roads
  - Trixie mirrors at restricted view corners

15b. Assurance from Traffic Management Plan regarding safe & convenient routes during construction phase:

Derby Cycling Group have not seen a plan of intended diversions

- There needs to be one
- The plan needs to be bought off by stakeholders, including Derby Cycling Group.
- Traffic Management Plan Table 2.2 defines rules for access for motorised traffic; a table for NMU routes is also needed.

15c. Opportunities to encourage non-car travel

Construction phase:

- No encouragement for non-car travel is present during construction phase; active travel journeys are most likely to drop during construction because congested roads make cycling feel less safe and more intimidating.
- Congestion will suppress cycling because no cycle infrastructure is being proposed to enable it on the congested streets (Section 5, & Appendix 2 DCG Written Representation)

Operational phase:

- Partial encouragement of non-car travel but better quality is needed in some places and missing links are evident eg (also referenced elsewhere):
  - Uncontrolled crossings over two lanes of traffic on slip roads at the Kingsway junction (15a)
  - Discontinuous cycle routes and the lack of a controlled crossing on the A52 across the entrance to the Macdonalds/Esso garage site (12)
  - A significantly sub-standard route (ridiculously narrow) alongside the A38 between Little Eaton island and Ford Lane where it crosses the rail bridge. (14c)
  - Lack of marked crossings over the Ford Lane exit from the Little Eaton junction and at the Starbucks entrance.
  - A general reluctance to introduce segregation: pedestrian/cycle segregation should be the standard because these routes have the potential to become very well used, and indeed the A61 cycle path already is well used.
- Section 4 & Appendix 1 of Written Representation gives additional ways the scheme can deliver features which will encourage non-car travel.

Other policy & Factual Issues

34. Carbon Footprint/Targets and/or Limits

Maximising potential for new NMU journeys on completed scheme
Maximising potential for new NMU journeys to avoid construction congestion
These include:

- NMU connections to local places
- NMU connections to existing cycle network (concern these are not being facilitated with Local Authorities)
- New feeder routes to A38 cycle routes concern these are not being facilitated with Local Authorities)
- Collaboration with Derby City and Derbyshire County councils – not evident

36. NMU Safety from Construction Traffic:

Section 6 of DCG Written Representation deals with NMU safety.

- We have received no definitive response from project team regarding these requirements
- We would like to see a definitive statement regarding a NMU safety plan with details of how it will be implemented.
- We would like the NMU Safety Plan to be signed off by stakeholders including Derby Cycling Group.

Reference also section **15a ii** above for examples of safety features we would like to see deployed.

There is no evidence of a ~NMU Safety Plan in the TMP (eg Section 5.15 - Exclusion Zones)

- Need to be specific about what the TMP will require the project to do in respect of NMU safety from construction traffic
- Including specific locations

Derby Cycling Group has submitted a separate review of the Traffic Management Plan as kindly offered to all interested parties at the Issue Specific Hearing and that contains more details on this matter.

Draft Development Consent Order

51. Temporary Stopping up

Temporary stopping up of NMU routes – fully accessible diversions must be in place and clearly signposted

54. Public Rights of Way:

We hoped there would be a discussion at the hearing about rights of way and would like more details about what the project team intend to do regarding the continuity of public rights of way during the construction phase..
The TMP needs to be clear and specific about sections a, b, c and d
A Non-Motorised User Route Continuity Plan needs to be written by the project team (ref section **15a i** above)

60. Mitigation Plans:

Derby Cycling Group are aware of certain other organisations who would like to have sight of and input to the mitigation plans for the project, especially to congestion mitigation. Some of these, we know, are having difficulty getting the engagement they would like:

- The A38 Behaviour Change Group (including Royal Derby Hospital, University of Derby, Intu, bus and train operators as well as Derby cycling gRoup and Sustrans)
- Darley ward community groups

Also, from Derby Cycling Group:

- Congestion mitigation (section 5 and Appendix 2 of DCG Written Representations)
  - There is no mitigation plan
  - The mitigation plan must:
    - Enable more cycling and walking during construction phase
    - Provide new infrastructure to enable these new NMU journeys
    - Enable cyclists and pedestrians to by-pass queuing traffic and cross congested roads safely
- Pollution mitigation:
  - How will pollution due to congestion be mitigated?
- Temporary NMU route closure mitigation (ref section **15a i** above):

64. Is there enough detail in the Traffic Management Plan?

The Traffic Management Plan (April 2019) does not deal adequately with NMUs; it is too focussed on main carriageway issues. NMUs are dealt with in some sections, but not in others.

Derby Cycling Group would like the Traffic Management Plan to consistently cover all journeys, not just those made by motorised transport.

Please see below the detailed comments we have made regarding the Transport Management Plan, referenced by the internal document references:

Section Details

Page	Section	Details
1	1.1.2.	Traffic Flows
2	1.3.1.	" establish outline rules for traffic management and temporary roads layout" There also need to be rules for the provision of **non motorised user routes**
7	2.6.2.	Table 2.2 0 Traffic Management Restrictions: The table defines rules for access at specified times (eg daytime, overnight, etc. There

Page	Section	Details
		needs to be another table defining the same for non motorised user routes

10
 	
15
	3.1.2.	Customer satisfaction:
		• There is a focus on “all motorists”
		• It is good to see a section on walkers and cyclists, but there needs to be much greater detail; we need to see:
		  o A plan for diversions and the standards to which they will be built and signposted.
		  o Accessibility for all (eg people with mobility issues as well as able bodied cyclists and pedestrians)
		• Customer satisfaction needs to fouocs on maximising the number of non-motorised user journeys tohelp mitigate congestion.
		
		Customer Satisfaction of Stakeholders:
		• Who is the liaison point of contact between the project team, local authorities and other stakeholders like Derby Cycling Group?
		• Derby Cycling Group would like to keep in touch with the project team on a wide range of issues and concerns, not just about infrastructure details.

		Traffic Mangement Scenarios
17 18	3.2.7.	TM1: • Clarification that the closure of Ford Lane will be to motor vehicles only; can it be confirmed that non-motorised users will continue to have full access the full length of Ford Lane. • We need details of how the non-motorised user routes will be affected during TM1, i.e. those along the A61, B6179 and alongside the A38 over the rail bridge to Ford Lane.
17	3.2.10	TM2: • In our view this will mark the onset of congestion due to the barring of right turns, meaning that drivers will start to seek alternative routes to make those manoeuvres. • The cycle path alongside the eastern side of Queensway and Kingsway needs to be retained at all times; this is a key cycling route between Allestree, Darley and Royal Derby Hospital and could be used by many more people travelling to work at the hospital – cycling to avoid driving through the congested roadworks area. • Details of how the replacement of the “curly bridge” will be facilitated and mitigation of any period when there is no permanent bridge (will there be a temporary structure as was provided when the London Road Rail Bridge was replaced in Derby a few years ago?)
18	3.2.12.	TMS3: • We need details of non motorised routes to be delivered on Kingsway Park Close and of the temporary routes to be used during construction • The Brackensdale and Raleigh Street slip road closures must not impact the cycle access along those routes; details are needed of any temporary routes to be used during construction • Reference is made to signal controlled junctions – these need to include toucan crossings so non motorised users can still cross the junctions in safety. These could be demand-triggered crossings, not necessarily permanently programmed into the signal sequence.
18	3.2.15. 3.2.16. 3.2.17.	TM4: • Are Kingsway non motorised user routes fully operational at the start of this scenario? • Markeaton junction: Details of existing, temporary and new non motorised user route provision during this scenario are needed • Little Eaton: Details of existing, temporary and new non motorised user route provision during this scenario are needed
		Operating Lanes
24	5.2.1/2.	• Do the path widths just apply during the construction phase, because they are severely sub standard for permanent routes. • Pedestrian paths will be 1.8m wide, cycle paths will, surprisingly, be narrower at 1.5m. How wide will shared paths be? • The standards above are minimums – what are the normal standards? • We are interested to know where cycle **lanes** are anticipated? • There should be no restrictions to cycling where cycle paths exist today. The design of

Page	Section	Details

		temporary routes should enable cycling.
		• Will cycling and walking routes be constrained by fencing?
		  ○ On a personal safety grounds it is not advisable to fence people in and we would object to that.
		  ○ If there is a fence on one side, this makes the effective width of a cycle path 0.5m narrower, so a wider path overall needs to be used to compensate for this.

		Exclusion Zones
27	5.15.	• The TMP needs to show how cyclists will be protected where site access crosses non motorised user routes, i.e. at the edges of the exclusion zones (eg manned/signalised crossings; trixie mirrors etc). • Protection is needed from vehicles, many large and heavy, entering and leaving the site.
		Segregating / Diverting Pedestrians
30	5.22.	• This section needs to include provision for **cyclists** as well as pedestrians. • The requirements for diversionary cycle route differ from pedestrian paths (eg greater widths and turning radii). • We would like to see all routes that will have cycle paths in the completed scheme, treated as cycle paths from the very beginning of the construction project. This would set the standard of the routes from the outset and would ensure that the appropriate access and diversion standards were employed. • This will also help to encourage more people to cycle through the area to avoid driving, during the construction congestion.
		Network Occupancy
32	6.3.4.	Dialogue between the project and local highway authorities should include planningof non motorised user route diversion as well as diversions for motor traffic. • The planning of diversions needs to be **inclusive**.
		Maintenance
34	6.3.4.	Who performs winter maintenance of cycleways and footways during the construction period? Is it the project or the local highway authority or someone else (or – what is “DIP”?) • This needs to be defined here.
		Road Closures and Diversions
App’x A	Section 3	What is the status of closure / diversion of non motorised user routes? This is not included in section 3.2 of the traffic management plan. The closure/diversion of main carriageway is covered by the traffic management scenarios in Section 3.2, but the non-motorised user routes also need to be protected.

Review of Derby Traffic Flows and Effects of A38 Junctions Improvements

Author: K Timmis

Rev: A

Date: December 2019

Contents

Introduction

This report reviews the traffic flow on and across the A38 around Derby and investigates the potential effect that the planned construction work may have on traffic in and around Derby. Highways England plan major improvements to the road junctions at; Little Eaton, Markeaton and Kingsway, with work commencing in March 2021 and being completed by September 2024. During this period the construction work on the three islands will restrict traffic capacity, with potentially single lane working and speed restrictions.

Data

The traffic flow data has been obtained from the Department for Transport Road Traffic Statistics website. Vehicle counts are collated for strategic sites on most major roads that are summarised on the website, the data includes; average annual daily flow, average annual daily flow by direction and raw data counts. The raw data provides a detailed breakdown for different categories of vehicles for each hour during the day, between the hours of 07.00 and 18.00. Many of the sites are subject to annual count, with some having automated counter systems, while others are estimated with periodic manual counts. Further information about the road traffic statistics can be found at the following; https://roadtraffic.dft.gov.uk/about. The data is counted at different dates throughout the year which introduces inconsistencies into any use of the data.

Traffic flow data has been obtained from the website for traffic flowing along the A38 from south of the Ripley junction to north of the junction with the A50 near Findern and for every major road that joins the A38 between those two points. The traffic flow data has been summarised in Appendix A, daily average traffic flow by direction. The traffic flow on the A38 around Derby varies between junctions and counts from three locations; at Abbey Hill, Mickleover and Heatherton Village have been recorded and summarised in Table 1, Traffic Flow along A38 around Derby. This illustrates how traffic flow varies along the A38, with a

Location	Direction	Traffic Flow
A38 - Ripley	North	25666
	South	25600
A38 - Abbey Hill	North	25350
	South	26003
A38 - Mickleover	North	33345
	South	31442
A38 - Heatherton Village	North	26435
	South	22450
A38 - Findern	north	31286
	South	29675

Table 1 Traffic Flow along A38 around Derby

significant flows of traffic leaving and joining at junctions such as the A516 to Etwall, between the Mickleover and Heatherton Village counting locations.

Analysis

The A38 between Ripley and the A50 junction has been considered as a system with vehicles entering and leaving from each end and at each major road junctions between the defined end points. The average traffic flow, by direction, for each entry point has been collated from the 2018 counts, as shown in Appendix A. This data has been analysed to evaluate the probability of traffic movements between all of the junctions, this then allows the traffic flows between each of the junction to be predicted, for explanation see Appendix B.

The data shows there are about 170,000 vehicle movements along or across the A38 on average each day. Results of the analysis are summarised in Table 2, Predicted Vehicle Flows. There is a moderate flow of vehicles travelling through on the A38 but this is not the majority of traffic using the road. A similar level of traffic is joining the A38 from the west of the city to travel south and north. However, the volumes of traffic coming from the city to travel north and particularly south is significantly greater, about 22,000 travelling north and 45,000 south.

About 24,000 vehicles cross the A38 indirectly, travelling between junctions before continuing their journeys either west or into Derby. Only a relatively small number of vehicle cross the A38 directly, either in or out of the city. A large number of journey start from within the city, east of the A38, to travel around the A38 to then return into the city, about 19,000 vehicles.

Traffic Routes on A38	Predicted Vehicle Flow
Through traffic	12754
Traffic - west of city to / from north	11985
Traffic - west of city to / from south	12203
Traffic - city to / from north	21978
Traffic - city to / from south	44563
Traffic - crossing A38 direct	2448
Traffic - crossing A38 indirect	23480
Traffic - from city along A38 & return to city	18671
Traffic - from west along A38 & return west	4341

Table 2 Predicted Vehicle Flows

A simplistic assessment of the traffic flows along or across the A38 around Derby, using the data in Appendix A, this shows there are approximately 155,000 vehicles entering or leaving Derby from the A38 while there are approximately 170,000 vehicle travelling up or down the A38 or joining or leaving from the countryside. This is a general view of the traffic flows and indicates there are large volumes of traffic travelling in and out of the city. The traffic flow along the A38 varies around Derby, see Table 1, which indicates that traffic is entering and leaving the A38 at various junctions. The analysis may not be detailed but it indicates the sorts of flows that occur daily. Although the average daily flows indicate general volumes of traffic only detailed hourly flows will give an indication of whether congestion can be expected on any of the routes.

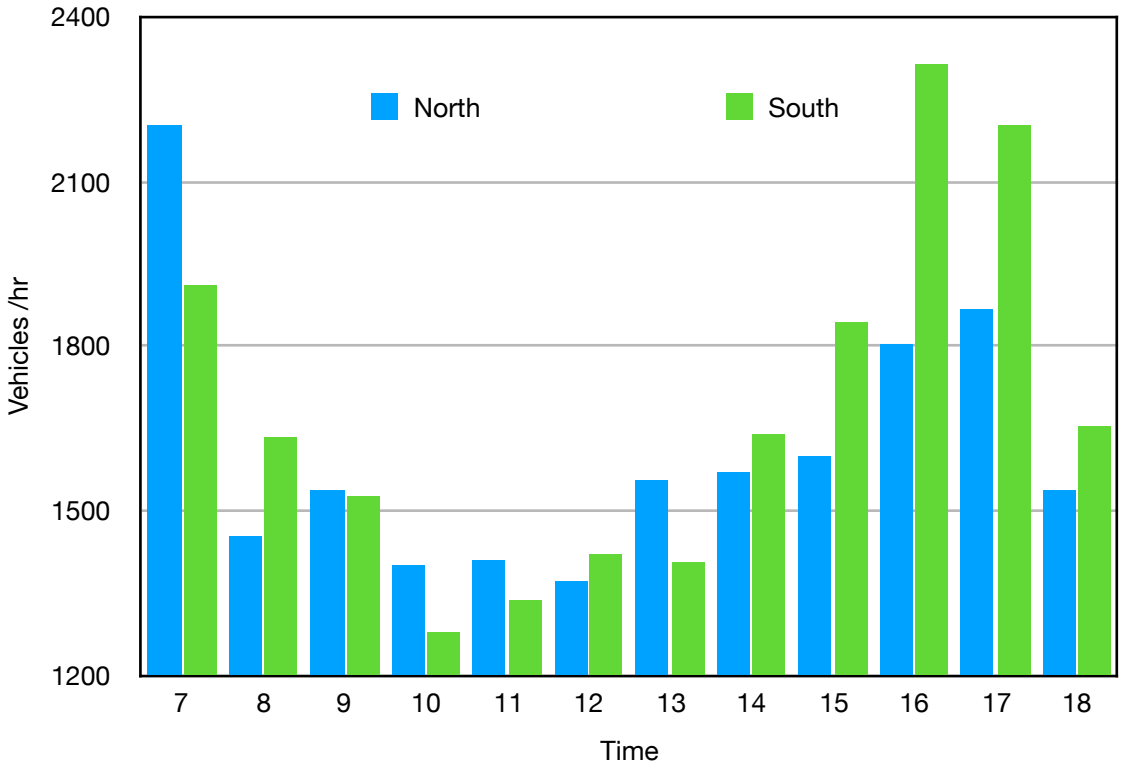

Fig. 1 Traffic Flow - Queensway

Discussion

The average traffic flow data is assumed to be a realistic representation of traffic at each location, there is no indication of whether there have been holdups or other incidents that could affect the local traffic volumes. Traffic flows are not counted every year so intermediate years are estimated, which can cause irregularities in the year on year counts. A number of the daily average traffic flow data sets used in this analysis have been estimated but where the raw data has been referenced, peak flow figures, these are all manually counted.

The data analysis has used the daily average vehicle counts by direction for the basis of the predicted traffic flows on or across the A38 around Derby. These predicted flows can only be used as a guide since the original data is typical average flows during the day, making no adjustment for the day of the week or other traffic related issue in the proximity of the count location. However, the average daily flows only provides an indication of vehicle travelling throughout the day, to appreciate the peak flows the raw data is used to give an indication of what can be experienced throughout the day with the hourly counts. Typically there will be peaks in the morning and afternoon traffic flows as indicated in Figure 1, Traffic Flows - Queensway, the section of A38 between Markeaton island and Duffield Road, where the peaks are clearly seen in the morning and afternoon. A difference can be seen in the direction of flow, more traffic flowing north in the morning while during the afternoon the greater flow is south bound.

Once the road works commence there will be extensive periods when the roadway is reduced to a single carriageway and its capacity will be significantly affected. To evaluate the traffic flows on a single lane the recommended two second gap between vehicles travelling at 40 mph (65 kph) gave a flow of 1600 vehicles / hour. As traffic never flows smoothly it was considered that flow rate would probably be about 1400 vehicles / hour, which coincides with maximum traffic flows indicated in through roadworks in ‘Safety at

Street Works and Road Works' 2013. Figure 2 illustrates the traffic flows along the Abbey Hill section of the A38 and the 1400 vehicle single lane traffic flows has been

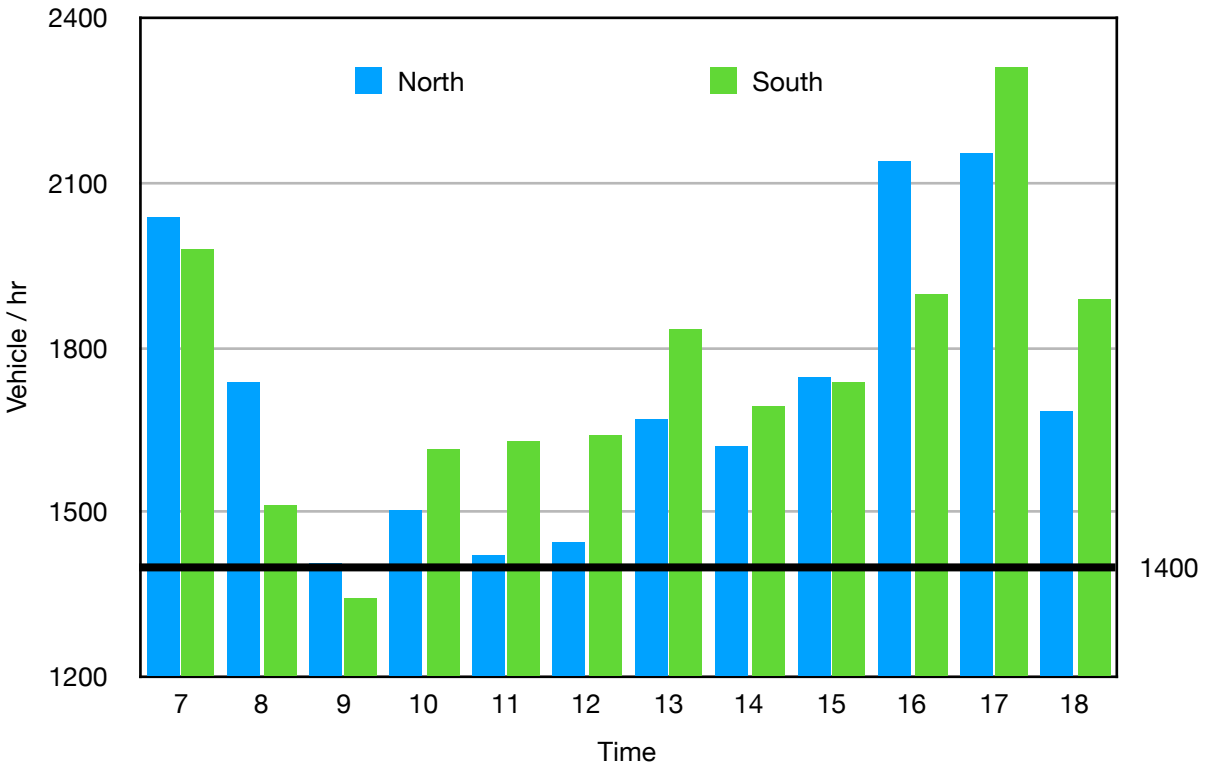

Fig. 2. Traffic Flow - Abbey Hill

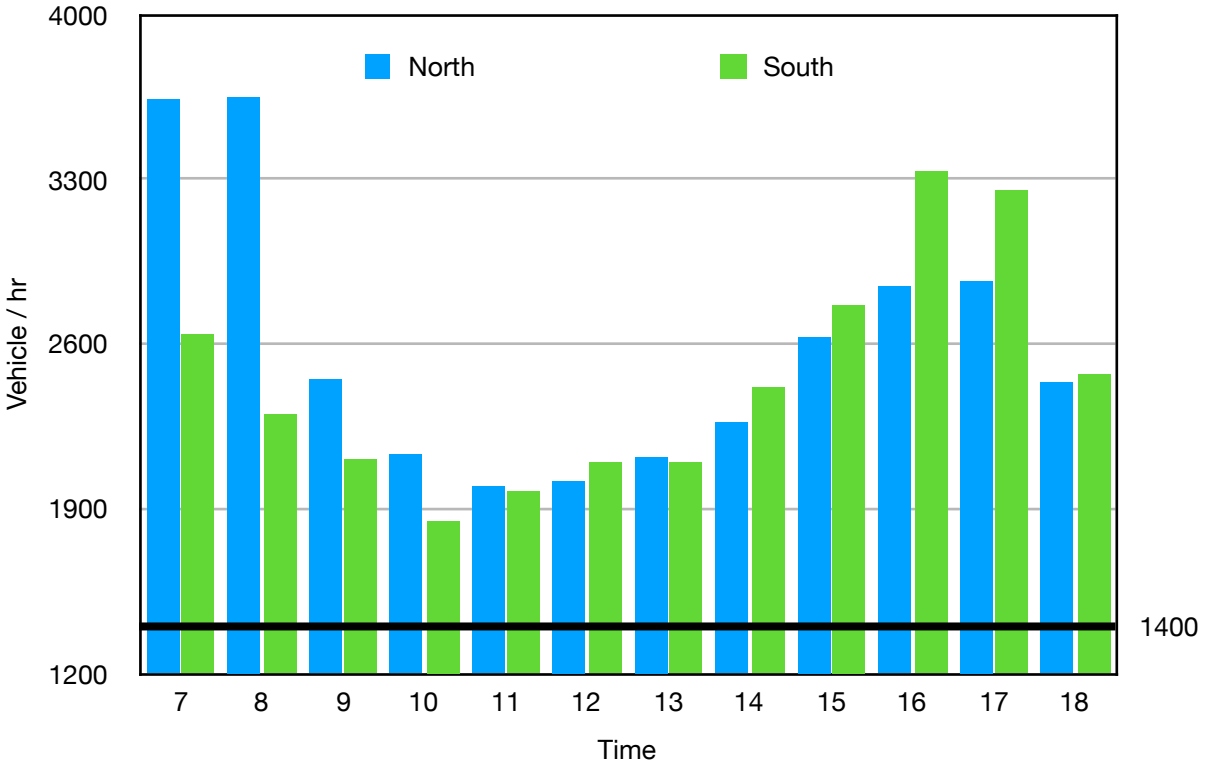

Fig. 3 Traffic Flow - Mickleover

superimposed. The chart indicates that the traffic flows exceed the 1400 vehicles / hour

flow during most of the working day, thus any single lane working will inevitably cause substantial congestion. Similarly, Fig. 3 shows the traffic flows along the A38 at Mickleover, south of the Kingsway junction, where the the 1400 vehicles / hour are exceeded throughout the day. Clearly, the planned roadworks on the A38 will cause considerable delays to journeys.

A consequence of traffic congestion, increased journey time, additional costs and inconvenience, can influence peoples behaviour, drivers may change their route or time they travel to avoid the worst of the congestion. Where there is not adequate capacity on alternative routes then people may make significant changes to their routines; choose alternative modes of travel, alternative destinations, change the frequency of their journey, making more efficient use of journeys made, car sharing or no longer making journeys, hence, potentially reducing demand[1].

The immediate reaction to the congestion will be to find alternative routes. This will inevitably mean additional traffic finding its way onto the cities streets. The following considers the possible routes that drivers may decide to take:

Rykneld Road; originally the main route to Derby from Birmingham, a Roman road known as Ryknild Street. This is a direct route through Littleover to Burton Road, areas which are already busy and congested at peak times, including where children are finding their way to and from school.

A50 east; some traffic may utilise the A50 to avoid the roadworks, which could access destination on the southern side of Derby. If heading to the north then continuing to take the A6 and A52 around the city, but then joining the A61, Alfreton road, onto the A38 at the Little Eaton junction.

A50 west; a circuitous route to Hilton then on the A516 to Mickleover and along the B2020, Uttoxeter road, to the Derby Royal Hospital junction.

A61 Alfreton Road; although this accessed from the Little Eaton junction there will be pressure to leave at this junction to access Derby. This road is already congested at peak times so additional traffic will compound problems in this area.

A38 Coxbench / Kilburn junction; not an obvious route, it winds through narrow country roads from Coxbench to Smalley Cross and then onto the A608, Main Road, through Morley and Oakwood to join the A61 at the Hampshire Road roundabout.

M1 and A50; there will be a small number of drivers for whom the easiest route would be driving south on the M1 and then across on the A50 to rejoin the A38 at the Toyota junction. Comparing these journeys; at present journey times are generally comparable at peak times although the later, M1 and A50, is about 10 miles longer.

West of A38; the major roads to the west tend to radiate from Derby, following the courses of river valleys, with only minor roads between, so finding an alternative to the A38 is unlikely to be practical.

Crossing the A38 directly and indirectly; although there is only a small number of drivers crossing directly over the A38 there are about 24,000 who cross indirectly, join the A38 and travel along then cross either into or out of the city at another junction. Many of these drivers will limit their delays by crossing directly and use the city streets to avoid the roadworks.

[1] Disappearing traffic? The story so far, S Cairns, S Atkiins, P Goodwin, Municipal Engineer. 2002

Travel on A38 around Derby; Those drivers who start their journeys east of the A38 with destinations also east of the A38 but use it for convenience may decide to find their way across the city through the streets. Potentially about 19,000 vehicles could be changing their routes to drive across the city on already congested streets.

Many of the roads and streets in Derby are already busy, particularly at peak times, hence additional traffic will make the congestion worse. Some of the major roads in the city are at maximum capacity with severe congestion daily, which is made even worse when traffic is diverted, due to roadworks or collisions, from other major roads such as the M1 or A38. An example of a road at capacity during peak periods is the A61, Sir Frank Whittle Road, which is congested every day during peak hours, as high volumes of traffic negotiate three traffic islands before reaching the dual carriageway, to join the A38 at the Little Eaton island. The traffic flow, by direction, along the single carriageway section are shown in

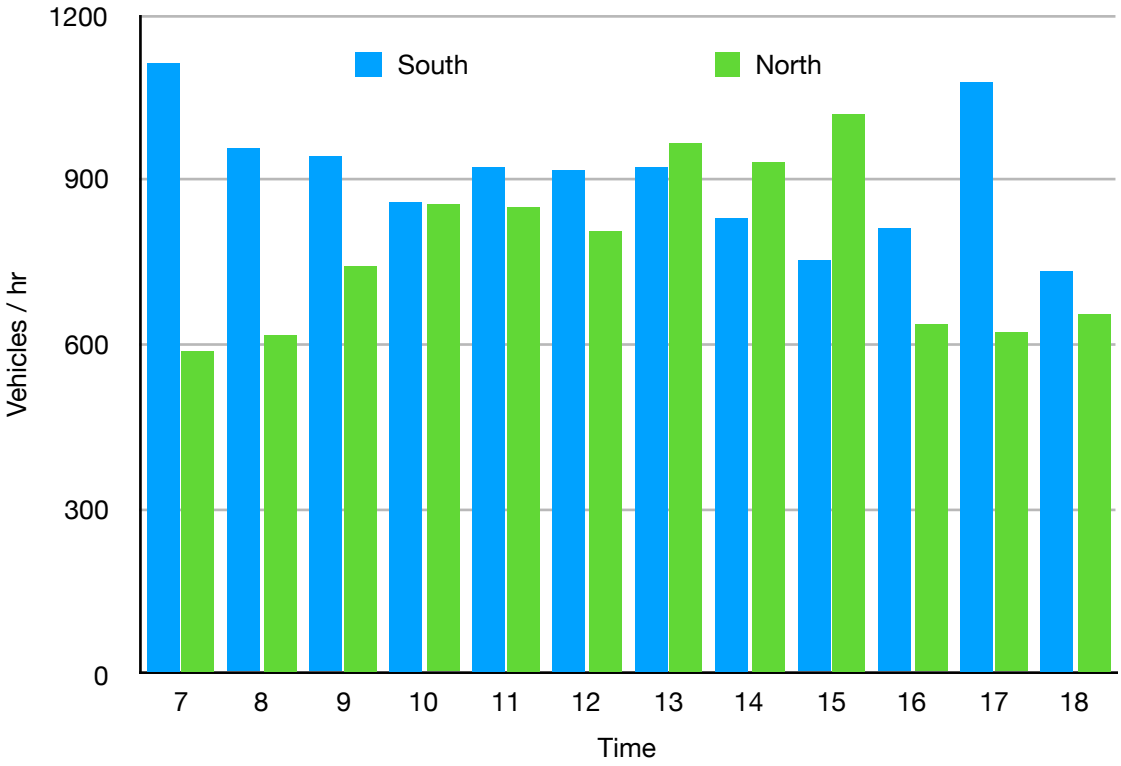

Fig. 4. Traffic Flow - A61 Aldi (2016 count data)

Fig. 4, Traffic Flow - A61 Aldi (this count data was collected in 2016 so may not be representative of current traffic flows).

Traffic flows on some of the key routes in Derby are shown in Table 3, Traffic Flow on key Derby streets. As already highlighted Rykneld Road was the main access from Birmingham and would appear to be a logical route to avoid congestion on the A38. Although Rykneld Roads has modest traffic flows they belie the congestion seen daily during the morning and afternoon school runs, additional traffic could pose a serious hazard to all road users. Also, the traffic continues through Littleover centre to either join; Manor Road, Warwick Avenue or Burton Road. The large volume of traffic that flows east on Warwick Avenue soon encounters single carriage roads, from Kenilworth Avenue

Location	Direction	Traffic Flow
Rykneld Rd	north	4137
	south	4202
Burton road	East	7067
	West	6771
Manor Road	North	15770
	South	15301
Warwick Avenue	East	14954
	West	14331
Harvey road	East	9842
	West	9949
A61 Aldi	North	10696
	South	12486
A52 Ashbourne Rd	North	9024
	South	9462
Raynesway	North	29669
	South	26269
A52	East	27932
	West	23776
Uttoxeter New road (hospital)	East	17254
	West	23147
A514 Alvaston (Chellaston rd)	North	7385
	South	7681

Table 3. Traffic flow on key Derby streets

through to Harvey Road, where high density housing is in close proximity to the road. Extra traffic on this road will increase congestion and pollution for the local community.

Traffic trying to circumvent potential city centre congestion by using the A52 and Raynesway will be joining already busy dual carriageways, where about 30,000 vehicles a travel in each direction: equivalent to the volumes on the southern part of the A38 at Findern. An alternative routes via the A514 through Allenton and Chellaston to the A50, a moderately busy road which passes through busy suburbs with large schools accessed directly from the road and junior schools very close by.

It is clear that additional traffic on the cities roads will exacerbate peak congestions. Many of the potential routes have direct access to schools, already congested during the morning and afternoon school rush, so increasing hazards for the communities. These city streets are frequently intersected by other streets; at junctions, traffic lights and roundabouts, slowing down traffic and increasing the congestion and pollution.

Predicting how many drivers will take to the city streets, once the roadworks commence, is not possible but there will be a considerable increase as drivers seek the best route for their journey. Many of those drivers taking to the city streets will be guided by their SatNav's; taking to urban streets, along 'rat runs', on narrow car lined streets, to avoid the more congested streets. Unfortunately, this increases traffic where it can least be accommodated and pose additional dangers to pedestrians who struggle around cars parked on pavement, children playing in the streets and cyclist already vying for space with aggressive drivers.

There will be some people who will forego their cars to use other modes transport, public transport, cycling, walking or a combination of those modes to make their daily journeys. The number making such change will depend on the extent of the congestion they face on their regular journeys and the encouragement they are give to make such a change. The take-up will also depend on the support provided in finding safe and convenient routes. When considering cycling; training, equipment and infrastructure must be considered: cycling journeys within the city will certainly be quicker than driving the equivalent journey.

An insidious aspect of more traffic on the cities streets is the increase in air pollution. Not just more vehicles but standing in jams for longer, continually producing exhaust fumes as they wait to move. This will mainly affect those areas which already suffer the ill effects of congestion. Not only are those living in the areas of congestion who suffer the consequences of air pollution but those sitting for longer in their vehicles are also exposed to the ill effects of vehicle fumes.

Another less desirable feature of increased congestion will be additional delays to public transport, the majority of bus routes use the cities arterial roads which is where most of the additional traffic will be funnelled. The lack of dedicated bus lanes means that buses will stand longer in the congestion, resulting in longer journey times for their passengers. A consequence of delays to public transport could be a reluctance of drivers to use buses, rather than their cars, if the journey takes longer than it would have taken by car.

Conclusion

Analysis of the average traffic flow data has provided an insight into the journeys that are being made along and across the A38, as it passes Derby. It is surprising that there are comparatively few through journey, along the A38 passing Derby. The majority of journeys are accessing or exiting the A38 around Derby, to travel north or south but also access other parts of the city or to cross the A38 at a convenient junction. The A38 is an integral part of Derby's road network, used by drivers to avoid the congested streets.

The planned roadworks on the A38 will cause considerable congestion for an extended period of time. With limited capacity the traffic will find alternative routes to avoid the congestion which will inevitably mean substantial increase in the volume of vehicles using the cities streets, particularly key routes feeding the A38. Many of these routes are already congested at peak times so additional traffic will see the situations becoming intolerable in some locations.

The consequences to the city will be increased pollution due to the increased traffic on the Derby's streets, diverted from the A38. The adoption of alternative transport modes could alleviate a small amount of congestion but this needs to be effective; public transport must operate timely and efficiently, while cycling and walking needs to be encouraged as alternative for short journeys.

Appendix A - Daily Average Traffic Flow by Direction

Location	Direction	Average Vehicle Count
A38 Ripley	North	25666
	South	25600
Kilburn	North	3599
	South	5433
	South	2051
	North	2149
A61 Alfreton Rd - city	North	19836
	South	21103
A6 Duffield Rd	North	8700
	South	6890
A6 Duffield Rd - city	North	6782
	South	6525
Kedleston Rd	north	2664
	south	2554
Kedleston Rd - city	North	7116
	South	6728
A52 Ashbourne Rd	North	9024
	South	9462
A52 Ashbourne Rd - city	north	9613
	south	8542
Kingsway - city	north	7930
	south	11085
A516 hospital	west	23374
	east	17440
A516 Etwall	west	8072
	east	8466
Rykneld Rd	north	4137
	south	4202
A38 Findern	north	31286
	South	29675

Appendix B - Analysis

The road traffic statistic provides data of; average annual daily flow, average annual daily flow by direction and raw data counts. The average annual daily flow by direction data has been used to predict the direction of traffic flows. The A38 around Derby has been modelled as system with traffic flows from north and south along the A38 and from the roads feeding either side of the A38, from the city and countryside. Probabilities were calculated for traffic from each junction and entering each of the allowable junctions, not all junction accept traffic from all directions. These probabilities were then multiplied by the traffic flow to calculate the potential flow between each of the junction and the data used to populate a spreadsheet. To evaluate possible flows, along the A38, directly across the A38 or indirectly across the A38, the individual traffic flows through the respective junction have been summed.

This analysis is based on the available data from the road traffic statistics which takes no account of the individual journeys. This methodology factors the flows in accordance with the traffic flows through each feeder road, which may not be representative of the actual traffic flows but without detailed knowledge of each journey being made a better predictions of traffic flows are not practical.