

Bristol Road / Wellington Road - Technical Report

Peter Howarth – May 2017

Existing Situation

Wellington Road joins Bristol Road with a priority 'T' junction onto a dual carriageway section of Bristol Road. The permitted manoeuvres are left into and left out of Bristol Road off and on the Northbound carriageway. The footways on both sides of Bristol Road are unsegregated shared Use for pedestrians and cyclists. There is a two-stage signal controlled Toucan crossing across Bristol Road just to the south of the junction. There are two dropped kerb access points to the South of the crossing which access the shops forecourt / car park.

Proposed Cycle Scheme

The Bristol Road cycleway will run from the city centre to Selly Oak. From the city centre it runs on the East side of Bristol Street, across Belgrave Interchange and along Bristol Road. It is proposed to switch to the west side at the location of the existing Toucan crossing where there is the available width to be able to install the track down towards Priory Road. This will be achieved through a slight realignment of the crossing including separating out the pedestrian and cycling provision to run side by side rather than shared. Changes are proposed at the Priory Crossroads to install controlled facilities for cyclists and pedestrians. This requires the right turn to be banned from Bristol Road into Priory Road.

Other Considerations

The proposed cycleway runs in front of two access points for the shop car park on the corner of Wellington Road and Bristol Road. A traffic count undertaken on a weekday in March 2017 found that 230 vehicles turned right into the shop car park from Bristol Road southbound and then turned around and immediately exited the shop car park to proceed along Bristol Road northbound and up Wellington Road or back towards the city centre. There were also 41 vehicles performing the illegal 'U' turn at the same location, but staying on the highway. This amounts to $(230 \times 2) = 460$ unnecessary vehicle movements crossing the cycle-track.

Wellington Road is ~9m wide and almost 1km in length with a very straight geometry. These geometric aspects make it a road capable of taking large volumes of traffic if required.

Road Safety

The five year accident statistics for this short section of road include 13 recorded incidents, three of which were serious. Of the recorded incidents, two were caused by illegal 'U' turns and one by a right turn into the shop car park.

Option 1 would have theoretically prevented five of these incidents, as the right turn to the shops and U turn would be physically blocked off.

Option 2 would have theoretically prevented two of these incidents, which were caused by three lanes merging to two.

Comments from a Road Safety Auditor were as follows:

Option 1:

- Increases in right turners as a result of the banned right turn at Priory Crossroads could lead to queueing back onto the mainline carriageway
- The proximity of the crossing to the junction means that right turning motorists may use the protection of the crossing – when on red signal – to perform their manoeuvre. However, this may also lead to misjudgements of oncoming vehicles (i.e. is a vehicle slowing for the crossing, or other reasons).

Option 2:

- The existing situation remains, which as evidenced in the collision data currently requires mitigation
- The introduction of a 'high quality', segregated cycle facility through this section will lead to an additional level of conflict across the dropped kerb access. Failure to provide protection may leave cyclists exposed, particularly given the tight accesses requiring sharp manoeuvres.

Traffic Re-routing / Modelling

Predicting what the demand to turn right at Wellington Road would be as a consequence of banning the right turn at Priory Road is very difficult as there are a number of factors to consider:

1. What are the origins and destinations of the vehicles that currently turn right into Priory Road? What other factors have affected their route choice? Would they still find themselves on Bristol Road or in the knowledge that this manoeuvre is no longer permitted, change their overall route further afield (e.g. Pershore Road or Hagley Road)?
2. What is the effect of a significantly improved right turn from Bristol Street to Lee Bank Middleway at Belgrave Interchange? i.e. would vehicles like to turn earlier, but do not because the delay is significant so opt to travel along Bristol Road and then right at Priory Road? A journey time survey at the end of March showed that the right turn at Belgrave Interchange during the AM peak hour took 18 minutes to perform. If the scheme is implemented and Wellington Road right turn was not opened up would traffic still migrate to Wellington Road via the improved right turn at Belgrave Interchange and Spring Road?
3. What is the suppressed demand to turn right at Wellington Road? A traffic turn count survey in March counted 223 vehicles in one day either performing an illegal 'U' turn or turning into the shop car park and then coming back out to head up Wellington Road. 41 of these movements took place during the PM peak hour alone
4. Would this additional route choice encourage further traffic to rat-run that currently does not need to access the Edgbaston area?

Points 1 and 2 are likely to reduce the number of vehicles within an estimation and points 3 and 4 are likely to increase the number within an estimation.

Data has been extracted from BCC's city centre strategic traffic model and the results of this suggest that of the traffic that turns right at Priory Crossroads, just over half in the AM and just under half in PM, has a destination around Priory School with the remaining having a destination around Harborne / QE Hospital. A calculated assumption would therefore be that ~40 of the 77 vehicles that turn right in the AM peak hour and ~30 of the 67 vehicles that turn right in the PM peak hour would use Wellington Road instead (because their destination is around the top of the road) and the rest would route elsewhere.

The existing number from survey that currently 'turn right' at Wellington Road in the AM peak hour is 23 vehicles and in the PM peak hour is 41 vehicles.

The improved right turn at Belgrave Interchange is likely to reduce the 'demand' to turn right at Wellington Road, but the fact that there would be a new route choice for other vehicles is likely to increase usage. Both of these are difficult to quantify but are likely to be small numbers so it is assumed that one and the other 'net off'.

A calculated assumption for the number of vehicles that would turn right at Wellington Road and the proportional impact of increase in traffic on the road is given in the table below:

Period	New right turners	Existing 'illegal' right turners	Total	Existing vehicles on Wellington Rd
08-09 hrs	40	23	63	420
17-18 hrs	30	41	71	328

Pros and Cons

The table below highlights the Pros and Cons of introducing the right turn

<u>PROS</u>	<u>CONS</u>
Creates a more permeable network with wider route choice	Could encourage rat-running from alternate routes
Reduces vehicle mileage and congestion leading to improved air quality	Queue length could block back into A38 2 nd lane
Safely accommodates an existing demanded (and illegally used) manoeuvre	
Will reduce vehicular accidents associated with the U-turn through the car park	
Removes safety issue of conflict between cyclists and vehicles across the dropped kerb access to the shops.	
Reduces the number of times vehicles cross over the proposed cycleway by around 460 per day	

Conclusion

Traffic Demand – There is a significant suppressed demand for this movement as evidenced by the high number of illegal and dangerous manoeuvres that currently take place. This is likely to be because the destination for those vehicles is local to the area. It is anticipated that as a consequence of banning the right turn at Bristol Road / Priory Road, there may be an increase in traffic on Wellington Road. The geometric aspects of Wellington Road would easily cater for this increase. It is recommended that traffic calming be introduced if considered necessary after a period of monitoring.

Road Safety – Introducing an appropriately designed right turn facility that is designed to current highway standards will reduce the likelihood of accidents. Three out of the 13 accidents at this location over the last five years may have been prevented if this facility was implemented. It will also reduce the number of times a vehicle crosses over the proposed cycleway by around 460 times per day. The comments from the road safety audit should be taken into account during the

detailed design process and deal with the potential scenario of the right turn lane having enough stacking capacity.

Health and Environment – Increasing permeability and network route choice is likely to reduce the number of vehicles queueing or idling on Bristol Road. This will reduce the amount of CO and Nx pollutants which are detrimental to the environment and public health.

The technical considerations of the two options conclude that Option 1 – Introduce the right turn, is the better option.

Appendix A – Public Consultation

As part of the public consultation questionnaire, a specific question was asked about Wellington Road “There is currently no right turn for cars and general traffic from the A38 Bristol Road into Wellington Road. One of the options proposed would open up this right turn. Which option do you prefer?”. The responses were as follows:

<u>Option</u>	<u>Responses</u>	<u>%</u>
Option 1 - right turn from A38 into Wellington Road is introduced	307	32%
Option 2 - no right turn from A38 into Wellington Road	298	31%
Don't know/no opinion	325	34%
Not Answered	18	2%
Grand Total	948	100%

Of the respondents, 57 gave an address on Wellington Road and all 57 chose Option 2, to not introduce the right turn.

Plotting the responses geographically suggests that the residents directly affected by the option are all against (shown as green triangles), whereas the respondents in favour of introducing the right turn (shown as orange circles) are more scattered.

