
A228/M20 Junction 4 - Eastern Overbridge Widening

To: **Tonbridge & Malling Joint Transportation Board - 13 March 2017**

Main Portfolio Area: **Growth, Environment & Transport**

By: **Roger Wilkin, Director of Highways & Transportation**

Classification: **For Decision**

Ward: **West Malling & Leybourne and Downs & Mereworth**
Division: **Malling North**

Summary: Progress report on M20 Junction 4 overbridge widening scheme and Castle Way right turn ban recommendation

1.0 Introduction

1.1 Members will be aware of the scheme to widen the eastern bridge of M20 Junction 4 (J4) and issues relating to the Castle Way right turn out towards J4 from previous reports and attendance by officers at meetings of this Board - most recently September 2016.

1.2 This report gives a further update on completion of the bridge widening scheme and a discussion on the Castle Way right turn issues leading to a recommendation that the existing temporary ban should be made permanent.

2.0 J4 Bridge Widening

2.1 The scheme, in the sense of the additional lane becoming available for traffic use, was completed at the end of January 2017. The works are substantially complete but at the time of writing there remains some minor signing and safety barrier protection works to be completed.

2.2 The scheme has included 'yellow box' markings that have been a frequent request by users of the junction. The provision of 'yellow boxes' only became a viable possibility following the publication of new traffic sign regulations that give more flexibility in terms of layout. As a consequence smaller yellow boxes have been provided at the main crossover areas.

2.3 At Highways England's request, and at their cost, some resurfacing of the motorway has been carried on all three lanes in both directions through the junction. It was in a poor condition and advantage was taken to undertake the work while still in occupation of the site.

2.4 The surfacing on the western overbridge is also in a poor condition with potholes frequently requiring attention. The intention had been to resurface the bridge as part of the widening contract but the waterproofing layer also needs to be replaced. It would be more sensible to arrange this work as a separate activity when the weather is more suitable in the spring or summer. Further 'yellow boxes' will be provided on that side of the gyratory after the resurfacing when the road markings are redone.

2.5 The bridge widening works have taken over three months longer than originally anticipated. This is regretted by all parties involved in the project who apologise for the added inconvenience this has caused for drivers using the junction. Unfortunately it was only possible to partly recover some of the delays caused by the earlier foundation piling problems. The consequential impacts of reduced daylight and poorer weather further delayed the later construction activities and particularly surfacing works which are particularly weather and temperature dependent.

2.6 As with any new road scheme the operation of the junction and signal timings will be monitored and adjusted as necessary so that the junction can operate as efficiently and safely as possible.

3.0 Castle Way Background

3.1 The right turn out of Castle Way towards J4 was temporarily banned to assist traffic management during the construction of the bridge widening works. The unusual junction layout has been the subject of comment for many years and the opportunity was taken to review the situation to see if the right turn should be permanently banned. Although the J4 works have been completed the temporary ban is being maintained until a formal decision is taken.

Consultation

3.2 A Newsletter was distributed in August 2016 giving a summary of the likely advantages and disadvantages of making the right turn ban permanent with a simple 'tear off' comment strip asking residents if they agreed or disagreed. Responses could also be made by e mail.

3.3 The distribution area was generally an area bounded by Castle Way (including Park Road), the M20, along the rear of Lunsford Lane and the A20. There were indications that some properties in the southern part of the area had not received the Newsletter and a further distribution was undertaken in early September. In total over 1000 Newsletters were distributed.

3.4 Parish Councils, emergency services, bus operators and community organisations and businesses were also consulted. Leybourne Parish Council held a public meeting on 2 September attended by Sarah Hohler, Tom Tugendhat MP and KCC Officer John Farmer.

Consultation Response

3.5 A total of 230 paper and e mail responses were received from the public. 102 (44%) agreed that the right turn lane ban should be made permanent and 128 (56%) disagreed.

3.6 Those in favour of a permanent ban were mainly driven by concerns about the safety of the existing junction but referred to the need for improvements to the operation of Park Road roundabout.

3.7 Those against were mainly concerned about the extra journey time, increased fuel costs, pollution and delays for bus services, commuter bus services and emergency vehicles. They also cited issues with the 'U' turn manoeuvre at Park Road roundabout. Some thought it was only being considered on behalf of Castle Way residents to reduce traffic along Castle Way. Some also thought that safety concerns could be addressed by giving people more time to exit the junction, better road marking, signage and traffic signal cameras.

3.8 Although mainly articulated by some of those who disagreed, there was a general concern that exiting the area was difficult because of dependence on just the two junctions at Castle Way and A20.

3.9 Leybourne Parish Council support the right turn ban being made permanent but expressed concerns about the operation of Park Road roundabout and concerns about the impacts of the Leybourne Chase development and mentioned suggestions of a possible increase in the size of the primary school.

3.10 Birling Parish Council did not give a formal view but it is understood informally that most councillors are in favour of permanently banning the right turn but with correct phasing of lights at Park Road roundabout and perhaps different road markings.

3.11 West Malling Parish Council indicated support but banning the right turn but felt that it was only a short term solution because of the pressure of increasing traffic.

3.12 The emergency services did not formally respond but in telephone conversations the police and fire services said that they prefer maximum flexibility of movements but having the right turn banned would not be a basis for objection. The Board will be aware that the ambulance service has consent for a satellite holding area at Park Road roundabout and this would be unaffected.

3.13 Nu-Venture are concerned that a permanent ban will add to the journey times of their Kings Hill -Chatham service (no affect for the service in the opposite direction) - 13 services on weekdays, 11 on Saturdays and 5 on Sundays.

3.14 No responses were received from any other local community organisations or businesses.

Traffic

3.15 Traffic surveys were carried out over a full week along Castle Way in March 2015 before the J4 works commenced and the temporary right turn ban implemented and again in June 2015 with the temporary ban in place. Turning counts were also carried out on a single week day in June at the Castle Way junction. Queue lengths were also observed on a single week day in June at both the Castle Way junction approach and on both A228 approaches to Park Road roundabout.

3.16 On the section of Castle Way between Oxley Shaw and Rectory Lane in the direction of J4 the average week day flow was 3010 vehicles per day and that

reduced to 2275 vehicles per day - a reduction of 24%. This reduction increased to about 34% between the A228 junction and Park Road. There was generally little change in flows along Castle Way in the A20 direction because the right turn in from J4 was unchanged although there was a surprising 14 % reduction along the section between Oxley Shaw and Rectory Lane which is hard to explain.

Castle Way northbound towards A228 & J4	March 2016 Average Weekday Flow vehicles per day	June 2016 Average Weekday Flow vehicles per day	% Change
A228 to Park Road	3767	2476	34
Park Road to Oxley Shaw	3658	2482	32
Oxley Shaw to Rectory Lane	3010	2275	24

3.17 The Castle Way signals operate at about 45 cycles per hour and about 5 vehicles are released on each cycle and that is consistent with the observed maximum flows of about 230 vehicles per hour during the 7.00am to 9.00 am morning peak period. The evening peak period is about 35% lower at 150 vehicles per hour. Maximum queue lengths - just as the 'red' turns 'green' in either peak period were 10 vehicles.

3.18 The Park Road roundabout signals are vehicle demand activated and A228 southbound operate at about 45 cycles per hour in the morning peak period - comparable to the Castle Way signals. The A228 north bound signals are also vehicle demand activated and operate on a higher frequency of about 55 cycles per hour in the peak period. Maximum queue lengths - just as 'red' light turns 'green' at Park Roundabout were observed to be 20 vehicles per main lane for either A228 bound direction but only a maximum of 6 vehicles in lane 3 of the A228 southbound direction - the right turn lane. These maximum queue lengths were limited occurrences and general queuing even in peak periods was low but it is recognised that this was a single day 'snapshot' survey.

Safety

3.19 At the overall Castle Way/A228 junction there have been 12 recorded slight injury accidents over a five year plus period from 1 April 2011 until 29 December 2016. The number of incidents has identified the junction as an accident 'cluster' site for investigation. 11 of the accidents have been related to the Castle Way right turn movement - 6 of the accidents have occurred in the A228 free flow crossing area; 3 accidents in the area of the A228 from J4 and 2 accidents in the area of the A228 approach to J4. The remaining accident was related to the A228 J4 turn into Castle Way.

3.20 At Park Road roundabout over the same five year plus period there have been 5 recorded injury accidents; 4 slight and 1 serious. These have been randomly spread around the roundabout with varying causes but mainly loss of control with generally only one vehicle involved.

'Red light' Violations

3.22 Most of the crashes at the junctions are related at least in part to traffic going through a red traffic signal. There is new technology that enables this to be monitored and the opportunity was taken to undertake a short survey in late December 2016/early January 2017. It was not fully representative of normal traffic conditions, being over the Christmas period and with the right turn temporarily

banned but all signals were in operation and hence it was an opportunity to better understand the extent of red light violations.

3.23 The observed data is as follows:

Direction	Crossing Amber	Crossing Red	Crossing Red +Amber
Castle Way	1005 (5.50%)	431 (2.36%)	627 (3.43%)
A228 Free flow Slip	2230 (3.94%)	351 (0.62%)	1269 (2.24%)
A228 from J4	652 (1.50%)	114 (0.26%)	180 (0.41%)
J4 turn into Castle Way	49 (0.37%)	130 (0.99%)	1140 (8.65%)

3.24 The highest proportion of violations is for Castle Way traffic. It is uncertain whether drivers are taking the view that they are better able to see potential conflicting traffic and that the left turn is a lower risk manoeuvre and whether this proportion would be as high with the right turn in operation.

3.25 The A228 free flow slip violations are also significant and this may be driver intent but also related to the expectation that a free flow slip would not have signal control.

Park Road Roundabout Operation

3.26 Park Road roundabout has traffic signals on both A228 approaches and the corresponding sections of the circulating area. They are vehicle activated but both sets are not linked. If it happens that the A228 entry from J4 is 'green' and the opposite facing circulating signals are 'red' then 'U' turning traffic and indeed traffic for Leybourne Chase has very limited storage area available around the circulating area. By observation this full conflict of cycles only occurs occasionally but this is an understandable concern expressed by some respondents if the Castle Way right turn is permanently banned.

3.27 It is practicable to link the two sets of signals so that when the A228 from J4 is 'green' the opposing circulating area can also be 'green' thereby avoiding the risk of excessive storage on the circulating area. There is already a BT connection to the A228 north bound signals and this can be easily extended to link to the other set of signals and for control from the Traffic Management Centre at Aylesford. The signals could be actively controlled during morning and evening peak periods but then revert to vehicle activation during the rest of the day.

3.28 Minor changes would be desirable to the destination lane markings.

Physical Works Required

3.29 If the right turn was permanently banned the following works would be required.

- i. The current two lane approach on Castle Way would be reduced to one lane. This would either be achieved by ghost hatching redundant carriageway or physical works to provide a new kerb line, the redundant carriageway punctured and the area top soiled and grass seeded.
- ii. The Castle Way junction splitter island would be amended to physically direct traffic to the left to demonstrate that only that movement is possible.
- iii. Amendments to Castle Way lane markings and signage as necessary.

- iv. The two central reserve crossings - between the A228 free flow slip and the A228 exit from J4 and the A228 approach to J4 would be physically closed with kerbing, redundant carriageway punctured and top soiled and grass seeded; and amendments to safety fencing and removal of any redundant signage.
- v. The traffic signals on the A228 approach to J4 that are currently there to allow the right turn out of Castle Way would be removed together with the small island that separates lanes 1 and 2.
- vi. The road marking on the A228 approach to J4 would be amended. Lanes 1 and 2 would be made slightly wider to utilise the space freed up by the removal of the small island.
- vii. The traffic signal controller would be moved to Castle Way - currently near to the A228 signals but an inappropriate location if those signals are removed.
- viii. Park Road roundabout traffic signals linked and phasing co-ordinated during peak period; and amendments to destination lane markings.

4.0 Financial

4.1 The M20J4 scheme has been delivered within the allocated Local Growth Funding and S106 contributions received. A contingency budget provision of up to £100,000 has been allocated for the works necessary should the decision be made to permanently ban the right turn.

5.0 Legal implications

5.1 This decision on whether to reinstate the right turn or carry out works to permanently ban the right turn will be taken, subject to the views of this Board, by the Cabinet Member for Environment & Transport and hence there are no legal implications for the Board.

6.0 Conclusions

6.1 The layout of the Castle Way junction is unusual and has attracted comment since its opening as part of Leybourne Bypass in 2006. The widening of the eastern overbridge and temporary closure of the right turn has allowed this issue to be reviewed.

6.2 In the paragraphs that follow a commentary is provided on the aspects to be considered.

6.3 Fortunately there have been no serious injury accidents but the slight injury accident record for the junction is significant and well above the threshold for a 'cluster' site and has already been identified for investigation. Most of these accidents are related to the right turn movement and many are related to red light violations.

6.4 Some additional signing on the A228 approaches and particularly the free flow slip approach might help reinforce the presence of the signals but there is already a

plethora of signing in this area. Castle Way traffic is predominantly local and lack of understanding of the junction layout is not a reason that could be advanced for red light violations. It may be that the only solution is for it to be considered by the Camera Safety Partnership as a possible candidate site for the installation of 'red light' enforcement cameras. However, this would seem to be an implicit acceptance of a problem.

6.5 Directing right turning traffic to turn left and 'U' turn at Park Road roundabout has three potential implications that were raised in consultation responses as follows:

- i. **The lack of adequate storage around the circulating area for 'U' turning traffic when held on red by the traffic signals.** This can be resolved by linking the signals so that the circulating area is released at the same time as the A228 from J4 is released so that no significant traffic is required to be held on the circulating area during peak periods. The signal phasings can revert to the current independent vehicle activation during off peak periods.
- ii. **The safety concern for Castle Way traffic having to merge and move across to the outside lane to carry out the 'U' turn manoeuvre.** The distance between Castle Way/A228 merge and the start of the right turn lane on the approach to Park Road roundabout is about 200m. A longer distance would be preferred but the current situation is considered acceptable. The area operates under a 50mph speed limit. The number of vehicles being released from Castle Way on each cycle of the signals is low. In terms of merging, the A228 free flow slip traffic is held while the Castle Way traffic is being released and the A228 link from J4 is not continuous as it is released in phases by the J4 signals.
- iii. **The increased travel cost and journey time delay for traffic going to J4 and having to make the 'U' turn movement.** The extra journey distance is about 0.6 miles. One such journey undertaken every day for a year would equate to about 5 gallons of fuel. By observation the extra journey time in peak periods is about 2 to 3 mins. The extra distance, merge and 'U' turn movement has, of course, potential safety risks. These are valid concerns but they should not be overstated for the reasons given above and must be seen in the context of the potential saving in accidents occurring at the current right turn movement based on the crash data over the last 5 years and the economic value identified by government for accident prevention.

6.6 The general adequacy of Park Road roundabout has also been raised as an issue. However, at about 80m in diameter, it is of significant size. When the Leybourne Chase development came forward for planning approval the roundabout was judged as being capable of dealing with the development traffic. While making the right turn ban permanent will take extra traffic around the roundabout the volume of extra traffic is low in terms of overall traffic passing through the junction and observations carried out in June 2016 show that queuing at the signals is relatively low. The peak periods for Leybourne Chase and Castle Way traffic on the A228 approach to Park Road roundabout are different in that the busiest time for Castle Way traffic is in the morning and for Leybourne Chase it will be the evening as residents return home.

6.7 The reduction in traffic flow along Castle Way heading towards the junction is not considered to be a justification for permanently banning the right turn. The reduction is presumed to be mainly traffic that previously elected to use Castle Way in preference to using the A228 to reach J4 and the M20. Removing this traffic is clearly a benefit to residents living along Castle Way but flows along Castle Way are not high even with the right turn in place.

6.8 The public consultation response was relatively closely balanced with 44% in favour of the right turn ban being made permanent and 56% disagreeing.

6.9 Responses from other consultees was limited. Nu-Venture who run a school day service between the Medway Towns and Kings Hill were concerned about the effect on their timetable of the longer journey time if the right turn was banned. The police and fire service prefer the flexibility provided by having Castle Way available as an alternative route to the M20 and A228 (north) but did not regard a permanent closure as the basis for an objection.

6.10 Leybourne Parish Council support the right turn being made permanent as do the responses from the neighbouring parish councils of Birling and West Malling.

6.11 The decision on whether to permanently ban the right turn is not clear cut and that is probably a reflection of the debate that started when the junction was created as part of the Bypass scheme in 2006 and that has resurfaced at various times in the years since. However, on the basis of the safety benefits and that the issues of signal phasing and storage at Park Round roundabout can be resolved it is the view that the balance of argument is in favour of the current temporary right turn ban being made permanent.

7.0 Recommendations

7.1 I Recommend that:

- i. this Board supports the proposal to publish the necessary Traffic Regulation Orders and carry out works to permanently ban the right turn movement out of Castle Way including associated works at Park Road roundabout,
- ii. this Board recommends this course of action to the Cabinet Member for Environment & Transport,
- iii. the local community are advised

Future Meeting if applicable: As necessary but none planned at present	Date:
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Reporting to:	Tim Read - Head of Transportation Service

Appendices

None	
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