

Mr James Palmer

232 High Street, Guildford,
Surrey GU1 3JF

tel: 01483 531300

email: info@motion-uk.co.uk

Email Only

www.motion-uk.co.uk

Our ref . fadorn/JNR

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Dear James,

Proposed Mini-Roundabout, junction of A3026 and Court Lane

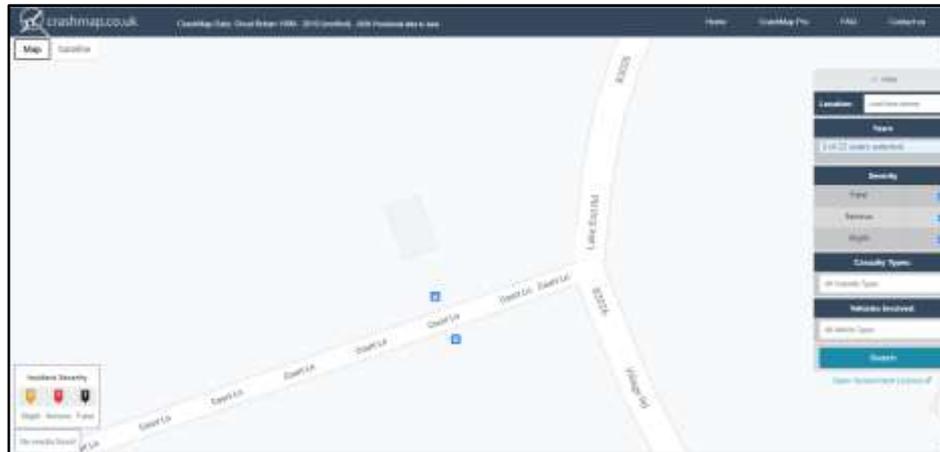
I refer to our conversation and subsequent correspondence regarding proposals to replace the existing priority arrangement at the junction of A3026 / Court Lane with a mini-roundabout. The current arrangement gives priority to the Court Lane – A3026 North movement with the A3026 South forming the minor arm. I understand that until recently, the priority movement was A3026 North – A3026 South with Court Lane forming the minor arm. A right turn lane was provided on the A3026 for traffic turning right from the A3026 North into Court Lane.

By way of background, I am a Chartered Transport Planner, being a Chartered Member of the Institute of Logistics and Transport (CMILT) and a Member of the Institution of Highways and Transportation (MIHT). I have an Honours Degree in Civil Engineering. I am the Thames Valley Regional Director of Motion Limited a consultancy that specialises in transport planning, traffic engineering and highway design.

I have worked in the field of traffic engineering and transportation planning for 30 years. I currently manage a team of transport consultants that is almost exclusively engaged in assessing access, traffic, parking, road safety and sustainability matters relating to new development and the redevelopment of previously developed land. In any one year I am responsible for providing highway design, road safety and transport impact advice to over 40 new development and redevelopment projects. These are primarily located in the Southeast of England, London and the East of England.

As a starting point, in accordance with the Government's planning practice guidance, I have reviewed the last three years' road collision data prior to the change in priority at the junction (this is the years 2017, 2018 and 2019). The extract below from the Crashmap database shows that there were no recorded collisions at the junction during this three-year period.

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This suggests to me that historic arrangement with the priority movement being the A3026 North – A3026 South with Court Lane forming the minor arm combined with a right turn lane provided on the A3026 for traffic turning right from the A3026 North into Court Lane, was safe and suitable for the volume, type and pattern of vehicle movements at the junction.

Turning to the proposed mini-roundabout, the main guidance of relevance to designing the junction comprises:

- ▶ Design Manual for Roads and Bridges (DMRB), Volume CD116;
- ▶ Manual for Streets 2 (MfS2); and
- ▶ Mini-Roundabout Good Practice Guide.

Considering first CD116, Section 5 provides guidance on the engineering design of mini-roundabouts. It is noteworthy that the design guidance does not envisage 85th percentile approach speeds greater than 35mph. Indeed there is no guidance in the document for designing mini-roundabouts for roads on which the 85th percentile approach speeds of traffic exceed 35mph.

Moving to MfS2, Section 9.7 deals with designing mini-roundabouts. Paragraph 9.7.5 states that:

'Mini-roundabouts cannot easily achieve good entry deflection and so are only suitable in locations where approach speeds are 30mph or below.'

It clear from the above guidance that mini-roundabouts are not a suitable form of junction at locations where approach speeds are expected to be in excess of 30-35mph.

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I have contacted the design team at Buckinghamshire council (BC) responsible for designing the mini-roundabout regarding speeds at the junction. BC has been unable to provide me with the data.

However you kindly provided me with details of the Dorney Parish Council (DPC) meeting of 9th March 2021 at which the mini-roundabout was discussed. Reading through the reports presented to the meeting it is clear that the DPC is concerned regarding the high speeds of traffic travelling through Dorney notwithstanding the 30mph speed limit. The DPC produces evidence that shows that 85th percentile speeds have been recorded at 38mph.

I note that the posted speed limit on Court Lane at the location of the proposed mini-roundabout is 30mph. However the actual posted approach speed is 40mph because the 30mph restriction only comes in to force approximately 25m from the entry to the proposed mini-roundabout, and hence few, if any, motorists will be influenced by it.

Based on the above, my conclusion is that, in accordance with DMRB and MfS2 design guidance, a mini-roundabout is an entirely inappropriate form of junction to be provided at this location.

Notwithstanding the above, I have contacted BC, who have designed the mini-roundabout, in order to understand if there was any analysis undertaken (whether qualitative or quantitative) by a professionally qualified and suitably experienced civil or highway engineer to explain why BC would be proposing a mini-roundabout at a location which is contrary to the guidance in DMRB and MfS2. It was confirmed to me by BC that they were *'not aware that any options appraisal was undertaken or necessary.'*

In my expert opinion, it is a serious concern that the design team at BC has produced a design without studying and taking into account the approach speeds of the traffic in the location or even considering the options for this junction. More broadly, I am very surprised by the lack of any evidence for any survey work and on-site analysis carried out by BC to inform the design whether in connection with traffic speed or other environmental factors. I return to this point below but it is worth mentioning in opening that, the design process is lacking in a number of significant regards and does not adhere to best practice based on my experience.

I additionally asked for several other pieces of information that I consider to be critical in forming an opinion on the suitability of a mini-roundabout at this location in principle and the subsequent design of it. I have summarised these in the table below alongside the purpose of the information and the response I have received to date from BC.

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Motion Data Request	Purpose of Data	Buckinghamshire Council Response
Confirmation of the committee and committee date authorising expenditure on the junction works.	To understand the decision making process for arriving at a mini-roundabout solution.	<i>I was commissioned to undertake the design of a mini-roundabout by the Beeches Community Board. I understand that the decision to commence this project was made by the parish council and that the project was supported by the Community Board. You may therefore wish to contact the parish council or Community Board.</i>
All and any analysis undertaken (whether qualitative or quantitative) by a professionally qualified and suitably experienced civil or highway engineer to identify a mini-roundabout as the preferred form of junction together with the analysis undertaken.	To be satisfied that a suitably qualified engineer had undertaken due process to arrive at a recommendation for the most suitable form of junction at this location.	<i>I am not aware that any options appraisal was undertaken or necessary. I understand residents almost overwhelmingly desire a mini-roundabout at this location.</i>
Traffic flows at the junction.	The safe operation of mini-roundabouts is directly linked to the balance of traffic flows arriving on each approach.	No data provided.
85th percentile approach speeds on each arm of the junction.	As I have set out above, knowing the approach speeds is critical to the safe design of a mini-roundabout.	No data provided.
All and any analysis undertaken on road traffic collisions at the junction including severity and probable causation factors.	Changing the form of junction could result in a greater or lower risk of road collisions. It is important therefore to have considered this to avoid a potential increase in road collisions.	<i>I do not believe that this junction is considered a priority for the council's road safety team. The council make improvements and changes to the public highway for lots of reasons all the time, particularly where residents support and request such changes. Not all changes are as a result of existing collision data.</i>

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Motion Data Request	Purpose of Data	Buckinghamshire Council Response
<p>The dimensions of the design vehicle for the junction design.</p>	<p>To ensure that vehicles can turn safely without the risk of collision with on-coming traffic.</p>	<p>Swept path analysis provided. I make just three comments as follows:</p> <ol style="list-style-type: none"> 1) The analysis refers to DB32 design vehicles. DB32 was withdrawn as a design guide in 2007. 2) No swept paths have been undertaken of a vehicle towing a trailer. Given that Court Lane serves Dorney Lake and associated rowing facilities one might expect this type of vehicle combination to be fairly common at this location. 3) The swept path undertaken shows that large vehicles are unable to turn without encroaching into the lane of on-coming traffic (see extract below)  <p>The mini-roundabout would therefore seem to be inadequate to cope with the design vehicles considered notwithstanding that further, current design vehicles should be considered.</p>
<p>The Walking, Cycling and Horse-Riding assessment undertaken.</p>	<p>To ensure that the requirements of all users have been taken into consideration.</p>	<p><i>I am not aware of any such assessment.</i></p>

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Motion Data Request	Purpose of Data	Buckinghamshire Council Response
<p>All and any analysis undertaken in relation to Air Quality and Noise impacts.</p>	<p>Introduction of a mini-roundabout will lead to an increase in vehicle acceleration and deceleration with resultant change in noise and air quality impacts.</p>	<p><i>I note your assertion. I believe there will be reduced waiting times at such a proposed junction, and it is generally widely accepted that there will be reduced speeds and more steady speeds at locations where there are mini-roundabouts. I therefore do not feel that an analysis of air quality and noise is necessary. If anything with fewer idling vehicles and reduced traffic speeds, there may be a slight, if negligible improvement. I also suggest that the nearby M4 motorway, with soon to have 8 live traffic lanes, some 700metres from the junction is likely to have far more influence over noise and air quality levels.</i></p> <p>From the above I note that (a) the answer is that no assessment has been made; and (b) the statement regarding steady speeds is factually incorrect: please refer to Mini-Roundabout Good Practice Guide.</p>
<p>In this context all and any analysis undertaken in relation to ecological impacts.</p>	<p>Introduction of street lighting in a previously unlit, semi-rural environment will have an impact on ecology.</p>	<p><i>The proposal is for an improvement in the lighting for road safety reasons only.</i></p> <p>I assume this means that no assessment has been undertaken.</p>
<p>Finished levels of the junction.</p>	<p>To ensure adverse camber is avoided which would be a safety hazard. This is a very common phenomenon that needs to be designed out when a priority junction is altered to a mini-roundabout.</p>	<p><i>Levels remain largely as current with the exception of a domed white circle.</i></p>

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Motion Data Request	Purpose of Data	Buckinghamshire Council Response
Drainage design.	To ensure that water flow does not result in a potential safety hazard. This can be a problem that needs to be designed out when a priority junction is altered to a mini-roundabout.	<i>As per above there are no changes to the drainage proposed.</i>
Road Safety Audit Brief	To understand the information provided to the auditors.	Not provided
Road Safety Audit	To understand any problems raised by the auditors and any caveats to their terms of reference.	Not provided
The name and contact details of the engineer responsible for approving the design.	To confirm who the Principal Designer is as set out under the Construction (Design and Management) Regulations 2015	Not provided

As you can see from the above list, BC provided an alarmingly little amount of the information that I would have considered standard to consider when designing a mini-roundabout. Perhaps most troubling is the response regarding the process of determining the suitability of a mini-roundabout at this location which, based on the responses provided, seems to have been based solely on the request from the parish Council with no engineering input. Nonetheless, the responsibility for safety at the mini-roundabout will remain, not with public opinion, but with the Principal Designer in accordance with the CDM Regulations (2015) whoever that may be.

Finally, I note the concerns raised by DPC regarding traffic speeds. However the Mini-Roundabout Good Practice Guide is clear that the use of mini-roundabouts as speed reducing measures should be part of an area wide traffic management scheme which includes regular traffic management features. It does not recommend that they be used in isolation as a speed reducing measure (compare this guidance with BC's

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statement above). If speeding traffic is the DPC's main driver for supporting the provision of a mini-roundabout at this location, then I would advise that, in accordance with the Mini-Roundabout Good Practice Guide, it is unlikely to achieve their aims. In fact having regard to the DMRB and MfS2 guidance, it has the potential to result in a worsening of road safety. There are many other tried and tested measures that can be implemented to manage traffic speeds and I would advise that DPC investigates and promotes these. I would be happy to provide comment and advice on these if needed.

In summary, having sought clarification from BC regarding the rationale for the mini-roundabout and having regard to the concerns of the DPC, my conclusion remains that in accordance with DMRB and MfS2 design guidance, a mini-roundabout is an entirely inappropriate form of junction to be provided at this location due to the approach speeds of traffic. This is not surprising because the decision and the design appears to have been reached without proper diligence, consideration or analysis and in the absence of study and data. In my expert opinion the proposed mini-roundabout should not go ahead as things stand.

I trust the above sets out my views clearly but please let me know if you require any clarification or further information

Yours sincerely

A handwritten signature in black ink, appearing to read 'J Russell'.

JOHN RUSSELL BENG, CMILT, MIHT
Regional Director
E jrussell@motion.co.uk