



RESPONSE TO THE BERMUDA CONNECTIVITY ROAD SAFETY AUDIT

BBAG BRIEFING NOTE

EMAIL: BERMUDABRIDGEAGP@BTINTERNET.COM | [WWW.FACEBOOK.COM/GROUPS/BERMUDABRIDGEAG](https://www.facebook.com/groups/BERMUDABRIDGEAG) | TWITTER @BERMUDABRIDGEAG

ROAD SAFETY AUDIT

BBAG BRIEFING NOTE

INTRODUCTION

The document is to be read in conjunction with the Warwickshire County Council Road Safety Audit (RSA2199 Bermuda Connectivity). This document raised several important road safety issues with the Bermuda Connection Scheme, many of which are not addressed in the public consultation designs or Cabinet recommendations put to the Warwickshire County Council Cabinet in November 2015.

BACKGROUND

It should be noted that the audit was carried out in June 15 prior to the Public Consultation. It was only made available to the public after a complaint was made to WCC about the lack of visibility to the safety audit within the consultation material after the findings of the audit were all but ignored. What is worrying about the transparency of the project governance is that WCC were willing to try to camouflage the major flaws in this scheme in a story published in the Nuneaton News in which the Cabinet Portfolio Holder for Transport and Highways was quoted as saying:

"Similarly, the road safety audit shows that no issues were raised and the assessment on air quality shows that the impact of the proposed scheme is negligible to slight." Councillor Butlin

<http://www.nuneaton-news.co.uk/Council-defends-reveal-bridge-plan-data/story-27680851-detail/story.html>

The information from the RSA below demonstrates how this statement is incorrect which could have unduly influenced the thoughts of the 28,000 people consulted by WCC and Member of WCC.

As a result of this the Bermuda Bridge Action Group has produced a response to the Road Safety Audit based on the Public Consultation drawings presented to the public during September and October 2015.

DESIGN FLAWS

We have identified many additional safety issues and departures from standard. There are detailed on 100, 200 and 300 series drawings submitted in response to the public consultation and are therefore not considered further within this briefing note:

<http://bermudabridgeactiongroup.co.uk/public-consultation/response-to-warwickshire-county-council-consultation-material/>

However, it is important to note that the Designers did not note any departures from standard!

"3.3 No departures from standards have been notified." (RSA2199 Bermuda Connectivity)

Audit No. RSA 2199

Stage 1 Road Safety Audit

Bermuda Park, Nuneaton

Getting West Nuneaton Moving: Bermuda Connection



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Warwickshire*

1.0 INTRODUCTION

- 1.1 This report results from a Stage 1 Road Safety Audit for a highways connectivity project to link Heath End Road to Griff Roundabout, via Bermuda Bridge. The report was requested by the WCC Transport Planning.
- 1.2 A site inspection was carried out on Tuesday, 09 June 2015, during which the weather was sunny and the road surface was dry.

2.0 AUDIT REFERENCE

- 2.1 The audit was carried out in June 15 by L Williams BSc (Hons), Senior Engineer, Road Safety Unit, Warwickshire County Council . It was checked by J Edwards MIHE Eng Tech, Principal Engineer, Road Safety Unit, Warwickshire County Council.
- 2.2 The audit has been carried out in accordance with Warwickshire County Council's safety audit procedures. These procedures largely follow those recommended in document HD 19/03 – 'Road Safety Audit' of The Highways Agency's Design Manual for Roads and Bridges.
- 2.3 All recommendations and comments relate only to the drawings and documentation supporting the proposed. (listed in Section 3.0 below).
- 2.4 It is a requirement under Section 6 of Quality Procedure 321 'Road Safety Audits' that the Designers of the scheme prepare an appropriate Designers Response to each of the Recommendations raised in the Audit. This should be completed by 24 July 2015 . For any Recommendations that are not being adopted, the Designer should notify the Auditors and discuss these issues to try to achieve a mutually agreed compromise. If agreement between the Designer and Auditors cannot be reached, the Designer should then prepare an Exception report to the Head of Transport for Warwickshire for his agreement and signature. If an Exception report is required a narrative of the exchanges between the Designer and Auditors should be detailed and submitted alongside the Exception report to the Head of Transport and Highways for his information.

3.0 ITEMS EXAMINED IN THE AUDIT

3.1 Drawings:

- Drawings number – 513052-ATK-BCP-DR-105-02
– 513052-ATK-BCP-DR- 110-01
– 513052-ATK-BCP-DR- 110-05
– 513052-ATK-BCP-DR- 120-01
– 513052-ATK-BCP-DR- 125-01
– 513052-ATK-BCP-DR-130-01
– 513052-ATK-BCP-DR-130-02
– 513052-ATK-BCP-DR- 130-03

3.2 Documentation:

E-mail dated 5^h June 2015, confirming request for a Stage 1 Audit, and design brief with details of the proposals.

Previous Stage 1 feasibility Audit: RSA2198

3.3 No departures from standards have been notified.

4.0 SITE DESCRIPTION

4.1 The audit covers a proposed connection route heading from Griff roundabout on the A444 along St Georges way. This is currently a dead end, where there once was access to a bridge heading over the A444. It is intended to reconnect and upgrade this bridge. The route then continues through a residential area heading along Bermuda Road and finally connecting to Heath End Road. This terminates into a busy residential area with already very high traffic volumes and evidence of long queues at peak times.

4.2 The purpose of this connection route is to provide additional access for a new railway station in Bermuda Park which is currently under construction.

4.3 There are proposals to upgrade some of the existing junctions along Heath End Road including the Bermuda Road and Tenlons Road intersections.

4.4 There are existing cycleway facilities along St Georges Way, which are planned to be linked with a shared route heading partly along Bermuda Road.

4.5 St Georges Way, Bermuda Road, The Bridleway, Heath End Road and all other roads are subject to a 30mph speed limit by virtue of street lighting.

5.0 ITEMS ARISING FROM THE AUDIT

5.1 PROBLEM

Location – Bermuda Road/ The Bridleway

Summary – Increased traffic through a heavily residential area could lead to increased conflicts with pedestrians and vehicles at side roads

With sending potentially high volumes of traffic from the train station through the residential areas along Bermuda Road, this could increase the risk of conflicts. This includes for both pedestrians and vehicles, where collisions from residents emerging from the multitude of side roads could occur.

Recommendation

Ensure that all junctions are signed accordingly and consider improvements for visibility.

Designers Response

Agreed. The junction layout has now been revised to provide a minimum 90m forward and junction visibility as per the requirements of DMRB. Refer to the following drawings for details:

5131052-ATK-BCP-DR-110-01_F

5131052-ATK-BCP-DR-120-02_A

5131052-ATK-BCP-DR-120-03_A

Appropriate signage will be proposed at the detailed design stage.

Date:

Approved:

Auditors Comments

BBAG Response

We agree fully with the auditors comments. What is very important to note is that the Auditor's comments and recommendation refers to the whole of Bermuda Road & The Bridleway (i.e. the full Bermuda Connection route through residential areas) yet the Designers response is specific to the junction at the point where Bermuda Road & The Bridleway meet and does not consider the remainder of the route. The requirements of the Design Manual for Roads and Bridges (DMRB) have not been met throughout the route. In fact the mandatory elements of DMRB Volume 6 Section 2, Part 6 TD 42/95, Geometric Design of Major / Minor Priority Junctions have not been adhered to. This results in sub-standard visibility and safety issues throughout the residential areas subjected to the significant

increase in traffic. As well as side road junctions there are many driveway that emerge into the route too.

The BBAG mark-up of the Bermuda Connection drawings highlight that there are visibility issues inherent in using this route. Significant land take and compulsory purchase of land is required to address these issues. BBAG drawings BBAG/DWG/201 to 208 use the same Atkins drawings as the Road Safety Audit as their basis and show how visibility is not achieved at many junctions throughout the new route and how it poses a significant safety risk.

Despite the Designers only considering the junction of The Bridleway and Bermuda Road, the scheme layout presented at the public consultation does not actually provide the recommended 90m forward visibility stated in the response with trees and private land blocking the visibility splay (see drawing BBAG/DWG/205/A). The 90m cannot be achieved without realigning the route. In addition Atkins have used visibility values from the DMRB which should only be used in exceptional circumstances. The relaxations (departures from standard) that are a few steps below the acceptable standards should not be applied at every existing junction as this decision relate to road safety of all users of the link

When such a significant change in the volume and composition of the traffic is considered and the work results in the creation of a new link through a heavily residential area then the road should be upgraded to an appropriate standard or a conclusion reached that a route just isn't appropriate for its intended future use. To make matters worse the traffic flow figures used by WCC at the public consultation and those used to assess the impacts of the scheme don't even include the committed development or the cumulative impact of new housing so in reality the impact of the scheme will be far greater than currently being considered by WCC.

'Low Cost' appears to be the mantra for the project rather than the safety of all road users. The conclusion that should be being reached is that a brand new relief road has to be built as the proposed route is unsuitable and too constrained to be used as a relief road for a strategic road (the A444). The lack of adequate visibility in a residential area and the high volume of traffic result in a scheme that should be scrapped on road safety grounds on this issue alone.

Similar visibility safety issues are present at many other junctions including:

- Tenlons Road / Shillingstone Avenue
- Bermuda Road / Radley Drive
- Bermuda Road / Shillingstone Drive
- Bermuda Road / Hazell Way
- Bermuda Road / Bermuda Phoenix Centre Car Park
- Bermuda Road / Harefield Road
- Bermuda Road / The Bridleway / Bermuda Village
- The Bridleway / Templar Drive / New Link
- St Georges Way / Univar Entrance
- St Georges Way / Buckingham Close
- St Georges Way / Burlington Road

5.2 PROBLEM

Location – Proposed junction with Templar Drive, The Bridleway and new link road section to the bridge

Summary – Complex junction with two converging roads could confuse drivers to who has the right of way and increase the risk of collisions.

With this proposed design, with having two roads (Templar Drive/ The Bridleway) converging into the new bridge link road, this could lead to conflicts. For drivers approaching this junction from either side road, there is no clear indication to who has the right of way. There is also an access road and turning point which branches off for property number 2 along the Bridleway which could cause further conflicts.

Recommendation

An alternative junction layout should be considered or give way lines introduced to allow one of the side roads priority over the other.

Designers Response	
Junction give way marking is proposed where The Bridleway meets the proposed link road to the bridge in order to allow priority to those on the main route. The area within the housing development is a local residential street where a low speed is expected due to the geometry of the roads, narrow carriageway and on-street parking. The volume of traffic is also deemed low, and motorists are expected to give way to each other. In addition, no existing junction marking has been applied at Knights Road and Templar Drive at present.	
Date:	Approved:
Auditors Comments	

BBAG Response

We agree that the junction layout is confusing and should be altered. We have already raised a similar precedent to the project team which is on Lutterworth Road in Nuneaton at the junction with Leyland Road. This had a similar layout to that proposed in the Bermuda Connection and was the location of a high number of road traffic accidents and had to eventually be remodelled by WCC.

The response from the Designers simply does not address the problem identified. It appears to condoning that because traffic is deemed to be of a low volume it is acceptable to provide a new

junction that is confusing and could lead to accidents. It is also unacceptable to use the basis of the current layout as justification for not having a give way line in the new layout when the addition of a main road junction adds a lot of complexity and conflict to drivers. There is currently no main road junction at Knights Road & Templar Drive (it's a residential estate road) so the lack of any junction markings is not wholly surprising but should not be used as the basis for not defining priorities at the new junction.

5.3 PROBLEM

Location – Proposed junction with Templar Drive, The Bridleway and new link road section to the bridge

Summary – Visibility restricted for persons pulling out of side road could lead to collisions

At this location for persons pulling out from The Bridleway/ Templar Drive, visibility is restricted to the right. This is due to the proposed curvature of the new bridge link road. Drivers will have to look over their shoulder behind them to see approaching vehicles to the right. This could result in them not seeing them and collisions occurring.

Recommendation

The junction should be relocated further away from the bend on the link road, such as Joining the Bridleway near Knights Road. Alternatively the curvature of the link road should be modified to improve visibility.

Designers Response	
<p>The close vicinity of the junction to the bridge and existing site constraints do not allow the junction to be moved further to the east.</p> <p>The proposed splitter island is nearly 7m, almost 1.5 times the length of an average car. This should be sufficient to lead the motorists to arrive perpendicularly at the give-way line. At this point, the junction visibility has been assessed which shows a minimum of 90m visibility to the right. Refer to: 5131052-ATK-BCP-DR-120-03_A.</p> <p>The layout will be re-assessed at the detailed design stage with a view to re-align the south side kerb in The Bridleway to allow for a wider right turning movement. Tracking analysis will also be carried out at this stage.</p>	
Date:	Approved:
Auditors Comments	

BBAG Response

What isn't discussed is that the junction does not have adequate visibility to the east due to the vertical curvature of the bridge with the junction not visible to drivers cover over the top of the bridge due to the 'humped back' nature of the bridge an approach ramps. The response does not acknowledge that larger vehicles need access particularly rigid refuse trucks and delivery trucks.

It should be noted that the alignment has not been realigned as recommended. This leaves visibility issues at the two tie in points of the new link road. You can see from BBAG/DWG/205/A that cars parking in the service lane of the current section of The Bridleway will significantly obscure visibility to the left. Therefore the 90m DMRB requirement is not met by the proposed design. Simply realigning the curve into the road at the detailed design stage will not solve the storage or visibility issues. The visibility constraints to the east and west are such that the conclusion should be that it is unsafe to link The Bridleway to Bermuda Bridge. The proposed design is below standards & could lead to significant accidents, particularly with vehicles coming flying over the bridge from an industrial estate environment straight into a residential area.

5.4 PROBLEM

Location –The Bridleway proposed access road leading to property No. 2

Summary – The turning head layout is spread out, meaning vehicles having to reverse for a long distance, increasing the risk of collisions with vehicles turning into the side road

For this proposed layout for vehicles travelling along this access, they are presented with a dead end with no easy way to turn back around. Although there is an intended turning provision, this is a long distance away, meaning vehicles will have to reverse back for some way, and could be a difficult manoeuvre. If other vehicles happen to be turning into the access at the same time, collisions could occur.

Recommendation

The road layout should be modified to allow for vehicles to be able to turn back around easily.

Designers Response	
Agreed. The length of the proposed service road has now been reduced to ease the turn back. Refer to: 5131052-ATK-BCP-DR-110-01_F.	
Date:	Approved:
Auditors Comments	

BBAG Response

The above confirms that rather than address an issue & provide better turning provision for residents by modifying the new link to provide a turning head at the end the solution is to just remove the provision all together. These houses are mews properties that currently rely on on-street parking on The Bridleway. This is another example of WCC putting cost before the needs of residents who are already suffering terribly from the implementation of this new relief road.

5.5 PROBLEM

Location –The Bridleway junction with Bermuda Road (Bermuda Village)

Summary – Visibility restricted by foliage and trees for vehicles exiting Bermuda Road could lead to collisions

With the new proposed layout there are plans to change the priority of this give way junction from Bermuda Road to the Bridleway. Vehicles turning onto the Bridleway from Bermuda Way could have restricted visibility due to existing foliage and trees. This could lead to collisions from vehicles pulling out into oncoming traffic.

Recommendation

Foliage and trees should be trimmed back to increase visibility.

Designers Response	
Agreed. This will be considered as part of the detailed design.	
Date:	Approved:
Auditors Comments	

BBAG Response

The Design Manual for Roads & Bridges requires 90 metres of visibility is required (a standard acknowledge by the Designers elsewhere in their response to the Road Safety Audit). Trees & shrubs will grow back obscuring the visibility once more further reducing visibility below what is required. What isn't noted is that the visibility splay also goes through private land (see drawing BBAG/205/A). The trees & shrubs that obscure visibility are within private land and are not necessarily overhanging the highway maintainable at public expense. As the junction is on a desire line from Bermuda Village to the Town Centre / hospital it is likely to be a crossing point for large number of pedestrians from Bermuda Village rather than using the new pedestrian refuge which is some considerable distance away from the desire line (the removal of the footway on the southern side of the bridge will add to the number of people crossing at this location too).

5.6 PROBLEM

Location –Bermuda Road access to Harefield Lane shared cycleway

Summary – Proposed refuge crossing point and cycleway do not tie in with the existing route, meaning cyclists may use the footpath and collide with pedestrians.

With proposals for a new crossing point and shared cycleway, this does not tie into the existing one from Harefield Lane. Cyclists may emerge from this lane and use the crossing point to access the new shared route on the opposite side of the road. To do this they are likely to cut across the non-shared space footpath, where they may collide with pedestrians who may not be expecting them to be using the footpath.

Recommendation

The footpath on the south side of the refuge should be changed to shared space to join up the existing cycle route.

Designers Response	
Agreed. This will be considered as part of the detailed design.	
Date:	Approved:
Auditors Comments	

BBAG Response

This confirms that WCC brought a scheme with known safety issues to the public consultation. If the scheme proceeds to detailed design there is no redress for the community if they fail to re-assess this at the detail design stage & go ahead with the current design. This is yet another example of WCC putting cost before the needs of residents.

However the issue cannot be satisfactorily resolved. The minimum desirable width according to WCC's own standard details is 4m. The current footway is 2.3m wide which is well below this and the minimum acceptable width for a shared footway (Local Transport Note 2/08, Cycle Infrastructure). The current design and provision for non-motorised road users is simply inadequate.

5.7 PROBLEM

Location –Bermuda Road opposite Hazell Way

Summary – Termination point for cycle route leads cyclist into road at junction and onto wrong side of the road (if heading north) which could lead to collisions.

For cyclists travelling north, the cycle route terminates at a point opposite Hazell Way. They will also be on the wrong side of the road, where they must cut over to the other side. At this point with vehicles turning out of the side road, they may not see the cyclists merging back onto the carriageway and collide with them. There could also be the issue of cyclists having to cut across traffic flow to allow them back onto the left hand lane of the carriageway.

Recommendation

The merge point should be located away from any side road junctions. There should also be a crossing point to allow them safe access the left hand lane of the carriageway.

Designers Response	
Agreed. The proposed shared route has now been extended to link in to the footpath leading to Ensors Pool. A refuge has also been provided to allow for a safe crossing point. Refer to: 5131052-ATK-BCP-DR-125-01_D	
Date:	Approved:
Auditors Comments	

BBAG Response

Despite the change noted above the crossing point is still not the ideal arrangement particularly as it is uncontrolled crossing. There is no warning to motorists of cyclists entering the carriageway. Bringing cyclists back onto the carriageway at an acute angle with the refuge narrowing down the road width between the kerb and refuge to only 3m (not wide enough for a motorise vehicle to safely pass a cyclist) could be dangerous and lead to accidents from the confusion / surprise. The cycling provision provided as part of the Bermuda Connection is unsuitable compared to the existing conditions.

5.8 PROBLEM

Location –Bermuda Road junction with Tenlons Road

Summary – Close Proximity of mini roundabout with junction of Heath End Road could result in queues backing up on to it. This could result in shunt collisions with vehicles on the main road

With the proposed mini roundabout for Tenlons Road, this will give priority for potentially large vehicles to pull out onto Bermuda Road. Given its close proximity to the Heath End Road junction, vehicles turning into Bermuda Road may have to wait and queue while a large vehicle is making this manoeuvre. This could cause the traffic to stack up into Heath End Road. With a green light situation approaching vehicles may not be expecting stationary traffic and slow down sufficiently, resulting in a shunt type collision.

Recommendation

The mini roundabout should be replaced with a give way junction and 'Keep clear' markings. Ensuring traffic on Bermuda way is given the priority and doesn't queue back up into the signalised junction.

Designers Response

The mini-roundabout has been proposed to provide a balanced priority to those motorists using Tenlons Road to access Bermuda Road in order to avoid the Heath Road End / Bermuda Road junction. This route will be signed as not suitable for bypassing HGVs (see drawing 5131052-ATK-BCP-DR-130-02_F).

With this, only a limited number of the HGVs accessing the properties on Tenlons road are expected to carry out such a manoeuvre. The risk is therefore deemed to be low.

In addition, the junction modelling has demonstrated that queues on the Bermuda Road arm on the proposed Heath End road junction are not likely to extend back into the mini-roundabout, and queues on the mini-roundabout are not likely to extend back into the Heath End Road junction.

Date:

Approved:

Auditors Comments

BBAG Response

No housing or future traffic growth has been modelled by WCC meaning that the junction will be saturated immediately upon opening. HGV's also regularly access Tenlons Road to access the various businesses in the industrial area and we agree that Tenlons Road is unsuitable for HGV access, however, Bermuda Road is equally unsuitable. At the moment HGVs have to mount footways to access

these streets or swing completely into the wrong side of the road something that will still be essential under the proposed designs. This is proved by Atkins own swept path drawings which show numerous clashes between passing vehicles, adjacent lanes and overhanding of the footway even at pedestrian crossing points of both of the above named junctions. We also agree that queues are likely to extend back and block the junction. There are errors that have been highlighted to WCC within the traffic modelling which will reduce the capacity of the junction and result in longer queues than the current modelling suggests.

According to the DfT's Mini-Roundabouts Good Practice Guidance "Mini-roundabouts may be introduced at junctions that experience problems with safety or side road delay". The junction of Tenlons Road and Bermuda Road currently has no recorded personal injury accidents (checked November 2015 on crashmap.co.uk) and suffers from no delays. With the mini-roundabout installed in isolation there is a significant concern that vehicles will ride over the mini roundabout without giving way to traffic from the right resulting in road traffic accidents at a junction which currently has no accidents.

It can be seen on BBAG drawing BBAG/DWG/201 that residential gardens, walls and hedgerows mean that the required visibility of DMRB (TD 54/07 Design of Mini-Roundabouts clause 6.17 is not achieved). Of more concern is that visibility isn't even achieved to the uncontrolled pedestrian crossing with visibility down to a few metres of vehicles turning right from Bermuda Road into Tenlons Road and limited visibility of small children for those turning left into Tenlons Road from Bermuda Road. This crossing is on the main walking route from Bermuda Road to Glendale, Croft and Middlemarch Schools plus the Nuneaton Academy.

Both the speed and path of a vehicle through a mini-roundabout are important factors in accident causation. The layout should be designed so that the approaching drivers are aware of the circulatory nature of the junction ahead. Drivers need to be ready to stop if necessary on the approach so it is essential for entry (and circulatory) speed to be managed by careful design. However, there is nothing in the Bermuda Connection design to slow down drivers, in fact the very opposite is true through the prohibition of on-street parking. A lateral shift to create deflection has been provided to the mini roundabout but the junction is too constrained and this results in a positioning to the central island in a location that even a car will not circulate around the island. Cars are encouraged to take a line around the wrong side of the island. There are a number of driveways that emerge into the middle of the mini roundabout and it will be very confusing for drivers to be able to stop in the middle of the roundabout and then reverse onto their drive. A mini roundabout cannot be considered a good traffic management feature when used in isolation with the location just too constrained to meet all the requirements of a safe mini-roundabout design and is likely to lead to people being killed or serious injured.

5.9 PROBLEM

Location –Bermuda Road approach to Heath End Road

Summary – Tight geometry of this road on approach to Heath End Road and its junction, could lead to large vehicle crossing the centre line and colliding with oncoming vehicles

There is a tight curvature on this road for the approach to Heath End Road and at the junction for vehicles turning into it. For larger vehicles they may have to cross the centre line and collide with oncoming vehicles.

Recommendation

Vehicle tracking should be checked and amendments made to the layout if there is a risk of conflicts.

Designers Response	
Tracking analyses have been carried out and the stop lines on all the arm have been moved back accordingly. See: 5131052-ATK-BCP-DR-130-04_B	
Date:	Approved:
Auditors Comments	

B BAG Response

Moving the stop lines back has reduced the capacity of the junction. There appears to have been a failure by WCC to remodel the junction to test if this new layout will work in conjunction with the rest of the new proposed road layout. The required intergreens in the traffic modelling supplied and other geometrical input data can be measured from the scaled plans provided as supporting information to the public consultation on the 14th September which confirms that the modelling undertaken previously, no longer matches the consultation drawings and current design. For example the smaller junction radii measure from the drawings compared to the modelling have an impact of reducing the saturation flow of the traffic lanes as traffic has to slow down more to turn around the tighter corners. This reduced the volume of traffic that can proceed through the junction in a given hour. There are also a number of other anomalies in the lane input data that again can be compared to the consultation plans

What is more concerning is the amended design still does not accommodate the swept path of long vehicles with the autotrack envelopes still showing vehicles crossing the centreline, rear trailers swinging into adjacent traffic lanes and overhanging footway too (some at pedestrian crossing points!). This is demonstrated on the B BAG mark-up of the Atkins drawings showing all the issues identified, see B BAG Drawings 301 (WCCC-930-213 Swept Path Mark-up) and B BAG Drawing 302 (WCCC-930-214 Swept Path Mark-up). Atkins even admit that Tenlons Road is unsuitable but the Bermuda Road

access has similar issues with swept paths clashing and vehicles overhanging footway which risks pedestrians or street furniture being hit.

5.10 PROBLEM

Location –Heath End Road junction with Bermuda Road and junction with The Raywoods

Summary – Low storage capacity for queuing vehicles, given very close proximity between the two signalised junctions could lead to shunt type accidents.

With a new signalised junction to be installed for Bermuda Road / Heath End Road this is in very close proximity to an existing signalised junction for The Raywoods. As a result there is very little storage capacity (approximately two/ three vehicles) to queue between the two junctions, including the right hand turn lanes and this could easily get gridlocked. With a green light situation, approaching vehicles may not be expecting stationary traffic and slow down sufficiently, resulting in shunt type collisions.

Recommendation

The two signalised junctions should be synchronised to minimise queuing between them or a new layout should be considered.

Designers Response	
Agreed. The two proposed signalised junctions have been synchronised and the traffic modelling suggests that there would be no queuing issues at these junctions. Additional measures should be included in the controller specifications / MOVA datasets at the detailed design stage to ensure that this synchronisation will occur.	
Date:	Approved:
Auditors Comments	

BBAG Response

The auditors have pointed out that the new proposed traffic light junction at Heath End Road/Bermuda Road/The Raywoods will not work as the right hand turn lane could get 'easily gridlocked'. The traffic modelling errors and omissions noted earlier within this response also need to be considered in that the capacity of the junction is lower than that modelled by WCC and the that the traffic flows are likely to be much higher due to traffic growth and cumulative development (new housing that is reliant on this link road). WCC have not been able to provide any evidence that the new signalised junctions cannot accommodate the future year traffic flows or the committed development. The geometry of the junction in the consultation plans does not match that in the traffic modelling undertaken for the scheme. It is likely that the junction will become gridlocked based on a review of the evidence presented by WCC and the significant sums required for the Bermuda Connection should not be invested in a scheme that does not solve the traffic problems along Heath End Road

It can be seen from the proposed layouts that the right turn lanes can only accommodate two right turning vehicles. The HGV swept paths show that a single HGV cannot safely enter these lanes without encroaching on other lanes and the lane is of insufficient length to store such a vehicle. All of the above issues can be seen on drawings BBAG/DWG/301/A based upon the revised Atkins design.

In addition to the above issues the junctions have a mix of controlled and uncontrolled crossings. There are also driveways emerging into the middle of new signal controlled junctions. The proposed junction is not compliant with DMRB (TD 50/04 The Geometric Layout of Signal Controlled Junctions & Signalised Roundabouts). This junction is unsafe for motorists, pedestrians & residents and will have capacity issues from the outset.

5.11 PROBLEM

Location –Hare and Hounds public house car park

Summary – Vehicles potentially cutting across full height kerb to take short cut to access junction, with the risk of vehicles turning at the junction colliding with them.

Although it has been stated on the drawing that a full height kerb will be installed for the public house car park. There is no indication of an alternative route for patrons to exit the car park. Drivers may still decide to take a short cut regardless of the full height kerb onto Heath End Road junction. At this location other vehicles may be turning and collide with the vehicle exiting the car park, who will be unaware of the status of the signals.

Recommendation

Bollards or railing should be installed to stop persons accessing Heath End Road from the pub car park and alternative route onto Hare and Hound Lane should be sought.

Designers Response

Agreed. It is proposed that the main entry/exit will be via Hare and Hounds Lane as marked on drawing 5131052-ATK-BCP-DR-130-01_E

The capital cost estimates at this preliminary stage take account of a low height wall (similar to existing between the pub car park and Hare and hounds Lane) along the south side of the car park preventing direct access to/from Heath End Road. This hasn't been specifically mentioned on the preliminary design drawing but will be included on detailed design drawings.

Date:

Approved:

Auditors Comments

BBAG Response

Hare & Hounds lane is a small single track road that cannot accommodate a lot of traffic, with poor visibility from Heath End Road. The car park at the pub is heavily used. Moving the entrance to the pub car park will lead to issues on Hare & Hounds Lane with possible collisions between vehicles turning into Hare & Hounds pub and vehicles using Hare & Hounds Lane masked by a blind corner created by the pub building itself. Also moving the pub car park entrance will result in a very tight turn to exit which will require the driver to drive on the wrong side of the carriageway. There is also a significant height difference between Hare & Hounds Lane & the pub car park with the car park being level & steps at the far end descending to the pub entrance. In addition to this the loss of land from the car park for realigning the road and could ultimately make the public house an unviable business if patrons cannot find sufficient parking.

The pub car park is not the only issue at this junction as there are private driveways and an industrial complex of small business units adjacent to the pub car park which rely on regular heavy goods vehicle deliveries (one of the businesses deals with construction supplies). These accesses would emerge without control into the middle of a controlled signalised junction. The current signalisation plans do not provide a safe design for all road users.

5.12 PROBLEM

Location –Heath End Road junction with Arbury Road and Greenmoor Road

Summary – Increased volume of traffic could cause additional conflicts at these two linking junctions to Heath End Road

For the two junctions which link to the ends of Heath End Road (Arbury Road at the west, Greenmoor Road at the east) there has been no consideration for these two mini roundabouts to be upgraded for the additional volume of traffic which could pass through them. In their current state, both have a history of accidents and with additional traffic flow could increase the level of potential collisions occurring at these.

Recommendation

Consideration should be given to upgrading these junctions to allow for the greater volume of traffic.

Designers Response	
These junctions are outside the scope of this study.	
Date:	Approved:
Auditors Comments	

BBAG Comment

This item is interesting as the version of the Stage 1 Road Safety Audit which has been uploaded to the Bermuda Connection Public Consultation has a different response to the one above. The response above is honest in that the issue has simply not been considered as it is outside the scope of the study. The amended version deemed fit for public consumption is somewhat different as shown below:

“The Nuneaton and Bedworth Borough Wide Area S-Paramics Traffic Model results indicate that there are predicted to be relatively insignificant changes to total traffic flows at the two junctions identified in the RSA. The model predicts that in the 2018 future year, the proposed Bermuda connection will result in slight increases to traffic flows on some approaches to the junctions, along with some slight decreases in traffic flows on some approaches. The impact on the two junctions will be assessed should the scheme progress to the detailed design stage.”

The public consultation material specifically excludes Heath End Road as one of the roads that will benefit as there is actually an increase in traffic using Heath End Road as a result of the scheme. The modelling undertaken by Atkins shows that in the AM peak there is a 43% increase in traffic along Heath End Road between Croft Road and Tenlons Road. This cannot be considered a ‘slight increase’ in traffic, this is a significant increase.

The scheme does result in a significant increase in traffic particularly at the Croft Road junction. The costs of upgrading these junctions needs to be factored into the Bermuda Connection Scheme as it will reduce the business case for undertaking the project. Reducing flows on one arm will increasing them on another can have a profound effect on the operation of a 3 arm mini roundabout. Considering these junctions separately could result in the creation a safety issue that remains unresolved as there is no budget to mitigate the impacts of the project. The upgrade to these junctions should be being considered now at the public consultation stage.

6.0 GENERAL COMMENTS

6.1 COMMENT

Location –Bermuda Road/ The Bridleway whole extents of route

Summary – Double yellow lines across the entire route could increase vehicle speeds and increase the chance of collisions occurring.

There was evidence of numerous parked vehicles along this route which acted as a natural traffic calming feature. With parking restrictions put in place, this could increase vehicle speeds along the route and increase the risk of speed related collisions occurring. There is also the possibility that residents may park down the side roads and near the mouths of the many junctions along Bermuda Road without any other provision to park.

Recommendation

Traffic calming / speed reducing measures should be installed along the route and consideration to additional residents parking considered.

Designers Response	
Comment noted. Traffic calming / speed reduction measures will be considered as part of the detailed design and in conjunction with the client’s requirements.	
Date:	Approved:
Auditors Comments	

BBAG Comment

This is a very important point to make and it is clear that the auditors are confirming it should be installed along the whole of the route (within residential areas) if the project proceeds. What are the Client Requirements that are preventing the implementation of this clear recommendation? This change should have been made to the Public Consultation plans and is a mitigation the local community has always insisted on if the scheme is forced through against the wishes of the public (see public consultation results which give a big ‘thumbs down’ to the project)

None of the option / mitigations included within the cabinet report include this mitigation and hence no cost to deliver this element. The above is confirmation that WCC are fully aware that this scheme should be implementing traffic calming. Rather than alleviating traffic issues in the wider area, the scheme is actually going to create more & will increase vehicle speed and significantly increase the likelihood and severity of road traffic accidents. A JMP study into the project noted:

“Construction of the development, as well as opening it to the traffic will produce air and noise pollution and increase roads accidents and congestion around the site. The development will also affect residents of Nuneaton due to increase of pollutants related to traffic emission”

It is simply unacceptable for WCC to be recommending the scheme progresses to detailed design with no funding or option to provide traffic calming when this is arguably the single biggest safety issues raised with the audit.

7.0 AUDIT TEAM STATEMENT

7.1 We certify that we have examined the drawings and documents listed in Section 3.0 of this report. The examination has been carried out with the sole purpose of identifying any features that could be removed or modified that would improve the safety of the scheme. The problems identified have been notified in this report together with a recommendation, which should be studied for implementation. No one on the Audit Team Membership was linked to the scheme design.

AUDIT TEAM LEADER

Name: Lee Williams BSc (Hons) Signed:
Position: Senior Engineer Date: 12/06/2015
Organisation: Warwickshire County Council
Address: Communities, PO Box 43, Warwick, CV34 4SX

AUDIT TEAM MEMBER

Name: Jo Edwards (Mrs) MIHE Eng Tech Signed:
Position: Principal Engineer Date: 12/06/2015
Organisation: Warwickshire County Council
Address: Communities, PO Box 43, Warwick, CV34 4SX