

M5 Junction 10 Improvements Scheme

M5 Junction 10 Improvement Scheme Road Safety Audit Report TR010063 – APP 9.15

Regulation 5 (2) (q)

Planning Act 2008

Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009

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Gloucestershire
COUNTY COUNCIL

Infrastructure Planning Planning Act 2008

The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009

M5 Junction 10 Improvements Scheme Development Consent Order 202[x]

9.16 Road Safety Audit Report

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SAFETY AUDIT



Scheme Name

M5 Junction 10 Improvement Scheme
Cheltenham

Safety Audit Ref. No. SA212220-1

Report Circulation List

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Date Request Received

4th January 2022

Drawings Supplied

GCCM5J10-ATK-HGN-51_ML-DR-CH-000001-2
GCCM5J10-ATK-HGN-J1_JN-DR-CH-000001
GCCM5J10-ATK-HGN-S2_ML-DR-CH-000001-2
GCCM5J10-ATK-HGN-J2_JN-DR-CH-000001
GCCM5J10-ATK-HGN-L1_ML-DR-CH-000001-2
GCCM5J10-ATK-HGN-J4_JN-DR-CH-000001
GCCM5J10-ATK-HGN-L2_ML-DR-CH-000001-2
GCCM5J10-ATK-HGN-J3_JN-DR-CH-000001
GCCM5J10-ATK-HGN-J1_JN-DR-CH-000002

Additional Information

Road Safety Audit Brief
GG 142 Walking Cycling & Horse riding
assessment
Departures from Standards
Environmental constraints for M5 Jct 10

Audit Stage

Stage 1

Previous Safety Audit number, stage and date

N/A

Audit Team

Chris Thompson	Safety Audit Team Leader	GCC (Highways Development Management)
David Holland	Safety Audit Team Member	Gloucestershire Police (Traffic Management and Road Safety)
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Ton Hummel	Safety Audit Observer	National Highways

Audit Date

12th January 2022

Site Visit Date

12th January 2022

Introduction

The site was visited at 10:00, The weather was sunny and dry, the road surface was dry, the traffic conditions were deemed normal for the time of day.

The Audit Team's comments are based on the information and drawings that were before it on the day of Audit.

The terms of reference of this audit are as described in the "GG119 Road Safety Audit." The auditors have examined and reported only on the road safety implications of the scheme as presented and have not examined or verified the compliance of the designs, or justification for the works, to any other criteria. All issues identified with a "Recommendation" are considered to be of sufficient importance to require action. Other issues may be identified under "Comment" and are included for information or consideration.

Safety Audit Statement: I/we certify that I/we have examined the relevant drawings and the above information documents in respect of road safety. The examination of the proposed works has been carried out with the sole purpose of identifying any features of the design that could be removed or modified in order to improve the safety of the scheme or any adjacent highway affected by it. The issues identified have been noted in this report together with associated safety improvement recommendations."

Audit Team

Lead Safety Auditor

Chris Thompson
Road Safety Auditor

Signed: C Thompson.

Date 16/02/2022....

Safety Audit Team Member

David Holland
Gloucestershire Police Traffic Management and Road Safety - Signed:.....

Date:.....

Scheme Name

M5 Junction 10 Improvement Scheme
Cheltenham

Safety Audit Ref. No. SA212220-1

Report

1.1 Problem 1

Location:

B4634 South bound exit from junction with A4019 Tewkesbury Road Shown on drawing GCCM5J10-ATK-HGN-J4_JN-DR-CH-000001

Summary:

The audit team noted that this is a sage 1 Audit and that all road makings may not have been included but noted that there are no tuck in arrows on the South bound B4634 exit from the Tewkesbury Road as the road reduces from two lanes to one. With no tuck in arrows to warn road users that the two lanes will merge and reduce to a single lane the likelihood of side swipe type of collisions will increase possibly resulting in a damage or slight injury accident.

Frequency / Severity	Frequent	Probable	Occasional	Remote
Fatal Injury	Very High	High	High	Medium
Serious injury	High	High	Medium	Medium
Slight injury	High	Medium	Medium	Low
Damage only	Medium	Medium	Low	Low

Recommendation

The audit team recommend tuck in arrows are added on the B4634 prior to the road reduces from two lanes to a single carriageway when leaving the Tewkesbury road junction for the Stage 2 detailed design audit.

1.2 Problem 2

Location:

Central pedestrian refuges located at several junctions in various locations. Junctions include:-

- A4019 Jct with the B4634 and the new junction to Developers site Access B on plan GCCM5J10-ATK-HGN-J4_JN-DR-CH-000001.
- A4019 Jct with Developers site access A shown on plan GCCM5J10-ATK-HGN-L1_ML-DR-CH-000002
- A4019 Jct with The Green and Moat Lane, shown on plan GCCM5J10-ATK-HGN-L1_ML-DR-CH-000001
- A4019 Jct with West Cheltenham Link Road and new Road to the North, shown on plan GCCM5J10-ATK-HGN-J2_JN-DR-CH-000001
- B4634 Jct with West Cheltenham Link Road, shown on plan GCCM5J10-ATK-HGN-J3_JN-DR-CH-000001

Summary:

The audit team raised a concern regarding the width of the pedestrian/cycle refuges located at the junctions listed above. The width of the refuges was not shown on the plans and a concern was raised regarding the width available to house a cyclist waiting to complete their crossing. If the pedestrian refuges located at the junctions above are not wide enough to safely house a cyclist, they could be clipped by vehicles travelling through the junction possible resulting in a slight injury accident.

Frequency / Severity	Frequent	Probable	Occasional	Remote
Fatal Injury	Very High	High	High	Medium
Serious injury	High	High	Medium	Medium
Slight injury	High	Medium	Medium	Low
Damage only	Medium	Medium	Low	Low

Recommendation

The audit team recommend that the width of all pedestrian refuges located at junctions that have cycle facilities either side should be wide enough to safely house a cyclist waiting to complete the crossing.

1.3 Problem 3

Location:

Bus stop located on the A4019 next to the service road and junction with Sandpipers Drive, shown on plan GCCM5J10-ATK-HGN-L1_ML-DR-CH-000002

Summary:

The audit team noted that no provision had been made for pedestrians to access the bus stop, there is currently no dropped kerb crossing point across the service road to access the bus stop which could prove to be a barrier for mobility cart users. The 2m wide parking strip also show no gaps which would mean pedestrians would have to cross between parked vehicles when crossing the service road which will make them much less obvious to road users travelling along the service road which lead to a pedestrian stepping out into the path of a vehicle travelling along the service road which could result in a slight / Serious injury accident.

Frequency / Severity	Frequent	Probable	Occasional	Remote
Fatal Injury	Very High	High	High	Medium
Serious injury	High	High	Medium	Medium
Slight injury	High	Medium	Medium	Low
Damage only	Medium	Medium	Low	Low

Recommendation

The audit team recommend that a couple of parking spaces are removed and replaced with build out to enable pedestrians to stand proud of the parking when waiting to cross the road as this will give them much better visibility to road users travelling along the service road. The build out should have a dropped kerb crossing point with tactile paving to ensue visually impaired pedestrians are able to identify the crossing point to the bus stop.

1.4 Problem 4

Location:

Homecroft Drive junction with the service roads that run adjacent with the A4019, shown on plan GCCM5J10-ATK-HGN-L1_ML-DR-CH-000002

Summary:

The audit team noted that the junction on Homecroft Drive with the service road is located very close to the junction with the A4019 and large vehicles may overrun the corner of the island splitting the service road from the A4019 which could result in damage if this occurs regularly, the service road does not have any turning heads at the end of them to allow a large vehicle to turn around which could result in large vehicles reversing back out onto Homecroft Drive which could result in a slight injury accident.

Frequency / Severity	Frequent	Probable	Occasional	Remote
Fatal Injury	Very High	High	High	Medium
Serious injury	High	High	Medium	Medium
Slight injury	High	Medium	Medium	Low
Damage only	Medium	Medium	Low	Low

Recommendation

The audit team recommend that swept path drawings are provided, to ensure large vehicles will not overrun the island that splits the service road from the A4019, when turning into or out of the service road. Turning heads at the end of the service roads should also be considered to ensure large vehicle do not have to reverse out of the service road onto Homecroft Drive

1.5 Problem 5

Location:

Gap in central reservation on the A4019 to enable vehicles from the Fire Station to turn right out of the fire station, shown on plan GCCM5J10-ATK-HGN-L1_ML-DR-CH-000002

Summary:

The audit team noted that this is a stage 1 Audit and details of signage have not been provided, but would like to ensure vehicles travelling East along the A419 towards Cheltenham do not attempt to turn right through the gap to access the Fire Station. The gap in the central reservation is intended to allow Fire service vehicles to turn right out of the station and not for vehicles to access the station by turning right from the A4019. If vehicles stop on the A419 and attempt to turn right into the station there is a high potential of rear end shunt type of collisions as vehicles in lane two travelling towards Cheltenham would not expect to find a stationary vehicle in their path, which could result in a slight / Serious injury accident.

Frequency / Severity	Frequent	Probable	Occasional	Remote
Fatal Injury	Very High	High	High	Medium
Serious injury	High	High	Medium	Medium
Slight injury	High	Medium	Medium	Low
Damage only	Medium	Medium	Low	Low

Recommendation

The audit team recommend that no right turn or No Entry signage is installed on the A4019 at the gap in the central reservation opposite the Fire Station.

1.6 Problem 6

Location:

Close proximity of signal stop lines to the Homecroft Drive A4019 junction with the service roads located either side of Homecroft Drive. Shown on plan GCCM5J10-ATK-HGN-L1_ML-DR-CH-000002

Summary:

The audit team thought that the stop line for Homecroft Drive and the A4019 signals is located very close to service roads that run adjacent with the A4019. A concern was raised regarding visibility of the signal heads, and if the traffic sensors would pick up vehicles waiting to pull out of the side roads. A vehicle turning right out of the Eastern service road may not be able to clear the entry lane if other vehicles are waiting to exit Homecroft Drive, which could block entry into Homecroft Drive for vehicles leaving the A4019. The audit team also questioned if the signal heads were easily seen from both service roads as a slight injury accident could occur if a vehicle exits the side road into the path of a vehicle entering Homecroft Drive.

Frequency / Severity	Frequent	Probable	Occasional	Remote
Fatal Injury	Very High	High	High	Medium
Serious injury	High	High	Medium	Medium
Slight injury	High	Medium	Medium	Low
Damage only	Medium	Medium	Low	Low

Recommendation

The audit team recommend that that signal heads locate at the stop line on Homecroft Drive, should be clearly visible from both service roads located either side of the stop line on Homecroft Drive.

1.7 Problem 7

Location:

Close proximity of signal stop lines on The Green to the service road located either side of the junction. Shown on plan GCCM5J10-ATK-HGN-L1_ML-DR-CH-000001

Summary:

The audit team noted that The Green has service road located very close to the stop line with the A4019. The close proximity of the stop line and access to the service roads may make it difficult for users of the side roads to see the signal heads and if it is safe to proceed. Vehicle exiting the Western service road may not be picked up by the sensors of the signals and this could lead to the pulling out across the junction into the path of a vehicle entering The Green which could result in a slight injury accident.

Frequency / Severity	Frequent	Probable	Occasional	Remote
Fatal Injury	Very High	High	High	Medium
Serious injury	High	High	Medium	Medium
Slight injury	High	Medium	Medium	Low
Damage only	Medium	Medium	Low	Low

Recommendation

The audit team recommend that the signal heads at the stop line on the Green should be easily visible from either of the side roads. Sensors may also be required on the Western service road to help ensure it does not pull out when the traffic light are on red as they may not be able to complete the manoeuvre and could block vehicles entering The Green.

1.8 Problem 8

Location:

The Green Junction with the A4109, Shown on plan GCCM5J10-ATK-HGN-L1_ML-DR-CH-000001

Summary:

The audit team noted that the segregated cycle and footway facility runs adjacent to the A4109 and it passes the signalised junction for The Green, but it was not clear from the drawings if a push button crossing facility would be installed, to aid cyclists and pedestrians crossing the side road. If pedestrians or cyclists cross at the wrong time they could be hit by a vehicle entering The Green from the A4109 which could result in a slight / Serious injury accident.

Frequency / Severity	Frequent	Probable	Occasional	Remote
Fatal Injury	Very High	High	High	Medium
Serious injury	High	High	Medium	Medium
Slight injury	High	Medium	Medium	Low
Damage only	Medium	Medium	Low	Low

Recommendation

The audit team recommend that a push button controlled crossing should be installed to aid pedestrians and cyclists to cross The Green.

1.9 Problem 9

Location:

Shared use path of only 3m wide located West of junction with The Green, Shown on plan GCCM5J10-ATK-HGN-L1_ML-DR-CH-000001

Summary:

The audit team noted segregated cycle / footpath finishes and changes to a 3m wide shared surface, close to where an old section of road has been restricted. The reduction in width and change of segregated facility to shared use may not be obvious to visually impaired pedestrians and may increase the potential of them being clipped or hit by a passing cyclist which could result in a slight injury accident.

Frequency / Severity	Frequent	Probable	Occasional	Remote
Fatal Injury	Very High	High	High	Medium
Serious injury	High	High	Medium	Medium
Slight injury	High	Medium	Medium	Low
Damage only	Medium	Medium	Low	Low

Recommendation

The audit team recommend that a continuous segregated cycle / footpath may be able to be constructed, if the route was slightly diverted so it joins part of what used to be the old road, there appears to be plenty of room available just North of the proposed 3m shared use facility.

1.10 Problem 10

Location:

Road marking on the A4019 South bound approach to the M5 roundabout, shown on drawing GCCM5J10-ATK-HGN-J1_JN-DR-CH-000001.

Summary:

The audit team noted that the road markings in lane one approaching the roundabout indicate that road users can turn left to access the Motorway or go straight on the A419 towards Cheltenham. The audit team raised a concern that these road markings could be misleading as lane two can also turn left to access the M5. There is potential of side swipe type of collisions may occur if a road user in lane one attempts to travel straight on and a road user in lane two attempts to turn left to access the Northbound M5 which could result in a slight / Serious injury accident.

Frequency / Severity	Frequent	Probable	Occasional	Remote
Fatal Injury	Very High	High	High	Medium
Serious injury	High	High	Medium	Medium
Slight injury	High	Medium	Medium	Low
Damage only	Medium	Medium	Low	Low

Recommendation

The audit team recommend that the road marking on the A4019 south bound approach to the M5 Roundabout should be changed to a left turn only, and road users wanting to travel over the roundabout towards Cheltenham should use lane two .

1.11 Problem 11

Location:

Stop line for the crossing facility across the M5 entry slip lane, shown on drawing GCCm5j10-ATK-HGN-J1_JN-DR-CH-000001

Summary:

The audit team discussed the location of the stop line for the signalised crossing across the North bound slip road onto the M5, and agreed that the location of the crossing is on a desire line. But commented that road users stopping for the signals are likely to back up and queue onto the Roundabout, and this could result in rear end shunt type of collisions which could result in a slight or damage type of collision.

Frequency / Severity	Frequent	Probable	Occasional	Remote
Fatal Injury	Very High	High	High	Medium
Serious injury	High	High	Medium	Medium
Slight injury	High	Medium	Medium	Low
Damage only	Medium	Medium	Low	Low

Recommendation

The audit team struggled to suggest a recommendation that would completely remove the possibility of rear end shunt type of collisions due to traffic backing up onto the roundabout, but thought that sensors on the crossing could be used to keep the red time of the signals down to a minimum.

1.12 Problem 12

Location:

West Cheltenham Link Road shown on drawings GCCM5J10-ATK-HGN-J2_JN-DR-CH-000001 and GCCM5J10-ATK-HGN-J3_JN-DR-CH-000001

Summary:

The audit team discussed the new link road and commented on how rural and straight the road was and that this could create problems with vehicles driving at inappropriate speeds. If speeding does occur on the straight rural link road, the severity of the collision is likely to increase from slight to serious.

Frequency / Severity	Frequent	Probable	Occasional	Remote
Fatal Injury	Very High	High	High	Medium
Serious injury	High	High	Medium	Medium
Slight injury	High	Medium	Medium	Low
Damage only	Medium	Medium	Low	Low

Recommendation

The audit team were unaware of what the speed limit is proposed to be on the new link road that links the B4634 and the A4109, but there does not appear to be any measures to ensure that vehicle speeds are kept to an acceptable level. The audit team would be interested to know what the proposed speed limit for the new road is and what measures are being undertaken to try and ensure the majority of road users comply with the speed limit.

Comments:-

- The audit team appreciate that this is a stage 1 Road Safety Audit and that further details will be included and reviewed at the Stage 2 Detailed design audit. The Audit team would recommend that the details listed below should be included when the Stage 2 Road Safety Audit is requested:-
 - Details of High friction surfacing on the approaches to the crossing facilities.
 - Details of signage for road users
 - Details of road marking on the Entry slip roads to the M5
 - Details of tactile paving at controlled and uncontrolled crossing points
- The audit team noted that the junctions on the A4019 to Developer site Access A and B are shown as three lanes exiting onto the A4019 but only one lane to enter the junction and questioned if predicted traffic flows were behind the decision to have a 3 lane exit and only a single lane to enter the developer accesses.
- There is currently a bus stop located on the West bound carriageway of the A4109 just West of the Withybridge Lane junction but it is not shown on the plan GCCM5J10-ATK-HGN-J2_JN-DR-CH-000001, Is this bus stop being retained/removed or moved else where?

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