

Wokingham Borough Council

CALIFORNIA CROSSROADS

Stage 3 Road Safety Audit



OCTOBER 2024 FINAL



Wokingham Borough Council

CALIFORNIA CROSSROADS

Stage 3 Road Safety Audit

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October 2024

Project No: UK-70104511

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Appendix B Location plan of road safety problems



1. INTRODUCTION

1.1. BACKGROUND

- 1.1.1. WSP have been commissioned by Wokingham Borough Council to undertake a Stage 3 Road Safety Audit of the recently constructed highway works at the B3016 / B3430 California Crossroads junction in Finchampstead near Wokingham.
- 1.1.2. The terms of reference of the Road Safety Audit are as described in the Design Manual for Roads and Bridges (DMRB) requirements and advice document GG 119 "Road Safety Audit".
- 1.1.3. The Road Safety Audit Team membership was the following:
 - Neil Nicholson MSoRSA MCIHT WSP (Principal Transport Planner) Road Safety Audit Team Leader
 - Lee Sydenham WSP (Technical Director) Road Safety Audit Team Member
- 1.1.4. All members of the Road Safety Audit Team have the relevant training, skills and experience recommended for Road Safety Audit Team Leader and Road Safety Audit Team Member in accordance with the guidance stated in GG 119. The Road Safety Auditors have examined and reported only on the road safety implications of the recently constructed highway works, and they have not examined or verified the compliance of the design to any other criteria.
- 1.1.5. This Road Safety Audit has been undertaken based on the Road Safety Audit Team's previous experience and knowledge in undertaking Road Safety Audits, Highway Design, Collision Investigation and Road Safety Engineering. No member of the Road Safety Audit Team has had any previous input into the design of the scheme.
- 1.1.6. The Road Safety Audit Team undertook a site visit together on Thursday 10th October 2024 during the hours of daylight (between 2:30pm and 4:30pm) when the weather was fine and the road surface was dry, and during the hours of darkness (between 6:45pm and 7:15pm) when the weather was fine and the road surface was dry.
- 1.1.7. During the daylight site inspection, the traffic volumes on all approaches to the junction were high, although only minor queues (2 or 3 vehicles) periodically were observed. There were significant pedestrian movements at the junction, with pedestrians mostly crossing the carriageway using the new pedestrian crossing facilities. Low numbers of cyclists (less than 10 throughout the entire site visit) were observed travelling through the scheme extents, although 3 cyclists were observed travelling on the footway on the south side of Nine Mile Ride (East).
- 1.1.8. During the darkness site inspection, the traffic volumes on all approaches to the junction were relatively low, and there were low numbers of pedestrians travelling through the scheme extents. No cyclists were observed.
- 1.1.9. The Road Safety Auditors were accompanied by Dean Underdown of Wokingham Borough Council and Tony Griffiths of Thames Valley Police during the daylight site inspection.



- 1.1.10. This Road Safety Audit comprised of a review of the recently constructed highway works, as shown on the design drawings and documents supplied to the Road Safety Audit Team (which are referenced in Appendix A of this report).
- 1.1.11. This Stage 3 Road Safety Audit has been undertaken in accordance with the Road Safety Audit Brief which has been approved by Adam Matthews of Wokingham Borough Council.

1.2. SCHEME DESCRIPTION

- 1.2.1. The highway scheme reviewed by this Stage 3 Road Safety Audit consisted of the following works:
 - Removal of the existing double mini-roundabout junction between Finchampstead Road and Nine Mile Ride.
 - Provision of 'leaf pattern' surfacing on the carriageway at the California Crossroads junction.
 - Provision of 'courtesy crossing' facilities throughout the extents of the scheme (also provided with leaf pattern surfacing) with some of these crossings provided as raised table facilities.
 - Resurfacing of the existing footways throughout the extents of the scheme.
 - Revised layout of the parking area adjacent to the shops on the north-east side of the Finchampstead Road southern approach to the California Crossroads junction.
 - Kerbing amendments at the access into Avery Corner car park.
 - Provision of bollards on the north side of the access road to Avery Corner car park in order to discourage parking or deliveries.
 - Amended traffic signs and road markings.
 - Replacement of several street lighting columns.
- 1.2.2. This Stage 3 Road Safety Audit was undertaken following the instruction that these highway works were substantially complete. During the site visit it was observed that the highway works for this scheme have been mostly completed, with the exception of the following:
 - The proposed map-type advance direction traffic signs had not been installed on both Nine Mile Ride approaches to the junction.
 - The proposed leaf pattern surfacing had not been installed on the raised table pedestrian crossings on all four approaches to the junction.
 - At the location of the parking area for the shops on the south side of the junction, the traffic sign lighting units for the new No Entry traffic signs were not working during the hours of darkness.
- 1.2.3. These elements of the scheme have therefore not been reviewed as part of this Stage 3 Road Safety Audit.

1.3. PREVIOUS ROAD SAFETY AUDITS

- 1.3.1. A Stage 1 Road Safety Audit was completed by WSP in October 2018 (document reference 70040088/RSA1/1/1). A Road Safety Audit Response Report to this previous Road Safety Audit was produced by the design team in March 2019.
- 1.3.2. An addendum to the Stage 1 Road Safety Audit was also completed by WSP in July / August 2020 (document reference 70068199/RSA1/1/1). A Road Safety Audit Response Report to the Stage 1 Road Safety Audit (Addendum) was produced by the design team in January 2021.



1.3.3. A Stage 2 Road Safety Audit was completed by WSP in August 2022 (document reference 70068199/RSA2/1/1). A Road Safety Audit Response Report to the Stage 2 Road Safety Audit was produced by the design team in November 2023.

1.4. DEPARTURES FROM STANDARDS

1.4.1. The Stage 3 Road Safety Audit Brief states that there is a Departure from Clause 3.2 in the DMRB requirements and advice document CD 236 "Surface Course Materials For Construction" regarding the provision of leaf patterned surfacing on the carriageway as a decorative feature, in relation to the skidding resistance of this product. It is understood that a Departure Application has not been formally submitted for this.

1.5. PERSONAL INJURY COLLISION HISTORY

1.5.1. Personal Injury Collision (PIC) data has been obtained from Wokingham Borough Council for the 36 month period between 01/04/2021 and 31/03/2024 (before the scheme was constructed). No PICs occurred within 100m of the California Crossroads junction during this period.



2. REVIEW OF ITEMS RAISED AT THE PREVIOUS STAGE 2 ROAD SAFETY AUDIT

2.1. GENERAL

2.2.

- 2.1.1. The Stage 3 Road Safety Audit Team have reviewed the road safety problems that were raised at the previous Stage 2 Road Safety Audit undertaken for this scheme, as described in Section 1.3 of this report. This section of the report reiterates the problems that were considered to be unresolved at the time of the site visit for this Stage 3 Road Safety Audit.
- 2.1.2. It should be noted that some of the problems / recommendations raised at the previous Stage 2 Road Safety Audit have been rejected by both the Design Team and the Overseeing Organisation, and therefore these problems have not been raised again in this section of the report. The Stage 3 Road Safety Audit Team may believe that these previously raised problems are still relevant, but it has been assumed that the Overseeing Organisation 'Project Sponsor' has made an informed decision to reject these problems / recommendations, with appropriately competent people having given each problem their detailed consideration.

PROBLEMS RAISED AT THE STAGE 1 ROAD SAFETY AUDIT

2.2.1. *PROBLEM* 2

Location: Throughout the extents of the scheme.

<u>Summary:</u> Insufficient skid resistance of patterned surfacing could lead to a road user failing to stop sufficiently and colliding with another road user.

As part of the scheme works it is proposed to apply a 'hollow leaf' pattern on the approaches to the junction, a 'filled leaf' pattern in place of the mini roundabouts, and a 'footprint' pattern on the courtesy crossings. No information has been provided to the Road Safety Audit Team as to the skid resistance of the proposed patterned road surfacing.

The proposed 'leaf' pattern will make up most of the carriageway surface finish and, if the patterned road surface does not have sufficient skid resistance properties, this could lead to a vehicle (in particular a motorcycle or pedal cycle) failing to stop sufficiently when approaching the junction or the pedestrian crossings. This could increase the potential for rear shunt collisions on the junction approaches, as well as vehicles overshooting onto the crossing facilities or into the centre of the junction where they could collide with a pedestrian crossing the carriageway or collide with another vehicle travelling through the junction.

In addition, the proposed surface finish could increase the possibility of a motorcycle or pedal cycle skidding or losing control when carry out turning manoeuvres at the California Crossroads junction.

RECOMMENDATION 2

It is recommended that the patterned surfacing contains appropriate skid resistance properties or replaced with a carriageway surface that does provide the appropriate skid resistance. It is also recommended that the proposed surfacing maintains its skid resistance, as it could wear out faster than a traditional surface finish.

DESIGN TEAM RESPONSE

Accepted – It is proposed that PREMARK© is used for the leaf pattern. This is a preformed thermoplastic road marking and it is often used instead of traditional road marking paint as it lasts 10 times longer. This material meets the public highway skid resistance requirements. Skid resistance values range from 55 to 80(SRT/PTV).

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FURTHER COMMENTS AND RECOMMENDATIONS BY THE STAGE 1 ROAD SAFETY AUDIT TEAM

Drawing number 70068199-01-LA-02-100 (revision P02) indicates that the proposed leaf patterned surfacing will be "DecoMark" thermoplastic, rather than PREMARK as stated in the design team's comments. The skid resistance properties of "DecoMark" thermoplastic are unclear, therefore this problem and recommendation remains relevant.

In addition, if the skid resistance properties are notably different to the carriageway surfacing provided on the side roads, accesses and pedestrian crossing facilities (where the leaf patterned surfacing will not be provided) this may result in differential braking, which could increase the potential for vehicles losing control (particularly when they are undertaking a turning movement).

FURTHER DESIGN TEAM RESPONSE

Accepted- The PSV value of the product selected shall align with the required PSV of the surface course material.

OVERSEEING ORGANISATION COMMENTS

Agreed. Once the product is selected we will make sure it has the same PSV as the road surface.

COMMENTS AND RECOMMENDATIONS BY THE STAGE 2 ROAD SAFETY AUDIT TEAM

The design team's comments are noted, although none of the design drawings or supporting information provided to the Stage 2 Road Safety Audit Team indicate the skid resistance properties of the "DecoMark" leaf patterned markings, or whether they will be in line with the skid resistance properties of the adjacent carriageway surfacing. Therefore, this problem may remain relevant.

DESIGN TEAM RESPONSE

Accepted – It is proposed that the leaf pattern and the adjacent carriageway surfacing will be the same skid resistance. This is captured in the contract specification, which states a PSV of 50 for both the leaf pattern and the surrounding carriageway.

OVERSEEING ORGANISATION RESPONSE

Not provided.

STAGE 3 ROAD SAFETY AUDIT TEAM COMMENTS

The design team have stated that the new carriageway / leaf pattern surfacing in the centre of the junction is provided with a PSV of 50. However, it is unclear whether the Overseeing Organisation have accepted their response to this problem.

If the Overseeing Organisation does not accept their response to this problem (i.e. the provision of carriageway / leaf pattern surfacing with a PSV of 50), then it is recommended that the surfacing in the centre of the junction is provided with an appropriate PSV, in accordance with the requirements in the DMRB document CD 236 (which should take into account the number of commercial vehicles travelling through the junction per day) or the Overseeing Organisation's local specifications for the skid resistance properties of new carriageway surfacing.

DESIGN TEAM RESPONSE TO STAGE 3 AUDIT TEAM COMMENTS-

All road surfaces and Leaf Markings were specified to have a minimum PSV for 50. WBC to confirm



they accept this PSV on surfacing and lining throughout.

2.2.2. PROBLEM 7

Location: All approaches to California Crossroads.

Summary: Removal of existing high friction surfacing (HFS) on all approaches to the junction.

HFS is currently provided on all approaches to the California Crossroads junction. It has been assumed that the HFS will be removed in order to provide the proposed patterned carriageway surfacing. This could increase the potential for collisions involving vehicles skidding and overshooting onto the pedestrian crossing facilities (where they could collide with a pedestrian crossing the carriageway) or they could overshoot into the centre of the junction and collide with a vehicle travelling through the junction.

RECOMMENDATION 7

It is recommended that the proposed carriageway surfacing is provided with appropriate skid resistance properties for the approaches to a junction and pedestrian crossing facilities.

DESIGN TEAM RESPONSE

Accepted - If it is found that PREMARK© (or similar approved) does not provide as good or better skid resistance compared to HFS then HFS will be provided underneath the PREMARK©

FURTHER COMMENTS AND RECOMMENDATIONS BY THE STAGE 1 ROAD SAFETY AUDIT TEAM

Drawing number 70068199-01-LA-02-100 (revision P02) indicates that the proposed leaf patterned surfacing will be "DecoMark" thermoplastic, rather than PREMARK as stated in the design team's comments. The skid resistance properties of "DecoMark" thermoplastic are unclear, therefore this problem and recommendation remains relevant.

FURTHER DESIGN TEAM RESPONSE

Agreed - The surface course material will have the appropriate skidding resistance and this will be ensured during the detailed design stage of the project.

OVERSEEING ORGANISATION COMMENTS

Accept designer response.

COMMENTS AND RECOMMENDATIONS BY THE STAGE 2 ROAD SAFETY AUDIT TEAM

Although requested, a drawing showing the proposed carriageway surfacing has not been provided to the Stage 2 Road Safety Audit Team. Therefore, it has not been possible to determine whether the new carriageway surfacing on the junction approaches will have appropriate skid resistance properties, or whether the skid resistance properties of the proposed leaf pattern markings will match the skid resistance properties of the proposed carriageway surface, so this problem could remain relevant.

DESIGN TEAM RESPONSE

Accepted – The approaches will have the appropriate PSV. This has been achieved by removing the leaf pattern in these areas, and stating in the contract specification a PSV of 65 for the approaches.



OVERSEEING ORGANISATION RESPONSE

Not provided.

STAGE 3 ROAD SAFETY AUDIT TEAM COMMENTS

The design team have stated that the new carriageway surfacing on all approaches to the junction has a PSV of 65. However, it is unclear whether the Overseeing Organisation have accepted their response to this problem.

If the Overseeing Organisation does not accept their response to this problem (i.e. the provision of carriageway surfacing with a PSV of 65), then it is recommended that the surfacing on each approach to the junction is provided with an appropriate PSV, in accordance with the requirements in the DMRB document CD 236 (which should take into account the number of commercial vehicles using the junction approaches per day) or the Overseeing Organisation's local specifications for the skid resistance properties of new carriageway surfacing.

DESIGN TEAM RESPONSE TO STAGE 3 AUDIT TEAM COMMENTS

Accepted: WBC to confirm if approaches were laid to a suitable PSV as per the design drawings and Audit Recommendations, and confirm designers' response accepted.

2.3. PROBLEMS RAISED AT THE STAGE 2 ROAD SAFETY AUDIT

2.3.1. PROBLEM 4

<u>Location</u>: Pedestrian crossing facility across Nine Mile Ride, adjacent to the Pace petrol station – see Appendix B for location.

Summary: Existing petrol station sign will restrict the visibility from the adjacent crossing point.

On the corner of the junction adjacent to the petrol station, all of the existing traffic signs shown on the photograph below will be removed from this location, although the Pace petrol station sign will be retained. The existing street lighting column will be replaced with a new lighting column that will be installed on the right-hand side of the petrol station sign.

A new pedestrian crossing point will be provided on this corner of the junction. The visibility from the crossing point of vehicles approaching from the south-west on Finchampstead Road will be restricted to approximately 10-12m by the petrol station sign and the new street lighting column.

This could increase the possibility of a pedestrian crossing Nine Mile Ride in this location when a vehicle is turning left from Finchampstead Road onto Nine Mile Ride, leading to a collision.

RECOMMENDATION 4

It is recommended that the designer consults with the petrol station owner to determine whether the petrol station sign can be relocated to a position where it will not restrict the visibility from the proposed crossing points in this location.

If this is not feasible, it is recommended that the pedestrian crossing facility on Nine Mile Ride is not provided in this location, or moved to an appropriate location where adequate visibility of vehicles approaching in all directions can be provided from the crossing points.

DESIGN TEAM RESPONSE

Part Accepted – It is advised that WBC consult the Petrol Station owner, however if the sign cannot be relocated, the crossing should be retained, the visibility splay with the sign retained is 10m, in

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accordance with Manual for Streets this provides a design speed of 10mph. Removing the crossing would jeopardise the philosophy of the scheme.

OVERSEEING ORGANISATION RESPONSE

Agree with Designers response.

STAGE 3 ROAD SAFETY AUDIT TEAM COMMENTS

As shown on the following photograph, it was observed that the petrol station fuel price totem restricts the visibility from the new pedestrian crossing point on the south side of the western Nine Mile Ride junction approach (i.e. obstructing the visibility of vehicles that are about to turn left from Finchampstead Road onto Nine Mile Ride).

Therefore, it is still recommended that the local highway authority consults with the petrol station owner to determine whether the petrol station sign can be relocated to a position where it will not restrict the visibility from the adjacent pedestrian crossing point (if this has not been done already).

It is noted that the Design Team / Overseeing Organisation have stated that the pedestrian crossing facility will remain in place, even if the petrol station sign cannot be moved.



DESIGN TEAM RESPONSE TO STAGE 3 AUDIT TEAM COMMENTS

Accepted: It is thought the totem on site now is not the one present when the visibility splay was measured. Please can WBC confirm a conversation was had with the petrol station owner and confirm its location, so we can assess if the splays are different to our original assessment. WSP to advise once the location is confirmed.

2.3.2. PROBLEM 5

<u>Location</u>: Pedestrian crossing facility across Finchampstead Road, adjacent to the petrol station – see Appendix B for location.



<u>Summary</u>: Petrol tanker deliveries at the adjacent petrol station will restrict the visibility from the new pedestrian crossing facility.

It was observed during the site visit that a petrol tanker making a delivery at the Pace petrol station stops at the location shown on the photograph below. A stationary petrol tanker in this location will significantly restrict the visibility of vehicles approaching from the south-west on Finchampstead Road from the proposed pedestrian crossing point on the north-west side of Finchampstead Road (on the south-western corner of the California Crossroads junction).

This could increase the possibility of a pedestrian crossing Finchampstead Road in this location when a vehicle is approaching from the south-west, leading to a collision.



RECOMMENDATION 5

It is recommended that the designer consults with the petrol station owner to determine whether petrol tankers can stop at the garage in an alternative location where the tanker will not obstruct the visibility sightline from the proposed pedestrian crossing point.

If this is not feasible, it is recommended that the pedestrian crossing facility on Finchampstead Road is not provided in this location, or moved to an appropriate location where adequate visibility of vehicles approaching in all directions can be provided from the crossing points.

DESIGN TEAM RESPONSE

Part Accepted – It is advised WBC to consult the petrol station owner to see if petrol tankers can stop further back from the crossing. However, the crossing should not be removed as this would jeopardise the philosophy of the scheme.



OVERSEEING ORGANISATION RESPONSE

Agree with Designers response.

STAGE 3 ROAD SAFETY AUDIT TEAM COMMENTS

The Stage 3 Road Safety Audit Team did not observe any petrol tankers parked adjacent to the petrol station during the site visit. It is unclear whether the local highway authority consulted with the petrol station owner regarding whether the tankers could stop further away from the adjacent pedestrian crossing facility. Therefore, this problem could remain relevant.

DESIGN TEAM RESPONSE TO STAGE 3 AUDIT TEAM COMMENTS

Accepted: WBC to confirm that they have discussed this with the petrol station. WSP advise that the petrol station owner be provided with signage to be used for when the petrol tanker is parked, to facilitate temporarily closing the footway.

2.3.3. PROBLEM 7

<u>Locations</u>: Various – see Appendix B for locations.

<u>Summary</u>: Proposed bollards could be inconspicuous to pedestrians and other road users, particularly during the hours of darkness.

Various stainless steel 'Wolverhampton' and 'Bespoke Design' bollards will be provided at the following locations throughout the extents of the scheme:

- 'Wolverhampton' bollards to be provided on the east side of Finchampstead Road, adjacent to Xenuk Tandoori restaurant and Finchampstead Day Nursery & Pre-School;
- 'Bespoke Design' bollards to be provided on the north-east side of the Avery Corner car park access road;
- 'Wolverhampton' bollards to be provided on the north-west side of the centre of the California Crossroads junction, at the back of the footway adjacent to the Red Oak Stores car park.

These stainless steel bollards could be inconspicuous to pedestrians, particularly visually impaired pedestrians, when walking along the footways. This could be a particular problem during the hours of darkness. This could lead to a pedestrian tripping over one of these bollards.

In addition, the 'Bespoke Design' bollards will be provided on the Avery Corner car park access road, directly adjacent to where vehicles will be travelling along the road. If they are not clearly visible to road users, this could lead to a vehicle colliding with the bollards.

RECOMMENDATION 7

It is recommended that all of the proposed stainless steel 'Wolverhampton' and 'Bespoke Design' bollards are provided with appropriate reflective bands to make them clearly visible to road users during the hours of darkness.

DESIGN TEAM RESPONSE

Part Accepted – Most bollards are set back from the carriageway, but a reflective strip will be added to those on the road leading to Avery Corner car park so these can be seen in hours of darkness.

OVERSEEING ORGANISATION RESPONSE

WSP



Agree with Designers response.

STAGE 3 ROAD SAFETY AUDIT TEAM COMMENTS

On the access road between Avery Corner car park and Finchampstead Road, it was observed during the site visit that the new bollards that have been installed on the north-east side of the road have not been provided with reflective bands or strips. In addition, the new bollard located adjacent to the car park entry was observed to have been struck by a vehicle since it has been installed. Therefore, this problem remains relevant.

DESIGN TEAM RESPONSE TO STAGE 3 AUDIT TEAM COMMENTS

Accepted: The construction issue drawings did show a reflective band on the bollards. Bollards are to be updated to include the reflective banding as per drawing number 8199-SD-001 C02

2.3.4. PROBLEM 15

<u>Location</u>: Nine Mile Ride eastbound approach to the junction – see Appendix B for location.

Summary: Proposed map-type advance direction sign could present an obstruction on the footway.

A new map-type advance traffic sign will be provided on the footway on the Nine Mile Ride eastbound approach to the junction. The sign posts could present an obstruction on the footway, which could lead to a pedestrian / wheelchair user travelling too close to the carriageway to pass around the posts and be struck by a passing vehicle.

RECOMMENDATION 15

It is recommended that the sign posts are installed so that pedestrians and wheelchair users can pass around them without travelling too close to the carriageway.

DESIGN TEAM RESPONSE

Accepted. To reduce risk of obstruction, the sign will be amended to cantilever post with a single post at the back of the footway.

OVERSEEING ORGANISATION RESPONSE

Agree with Designers response.

STAGE 3 ROAD SAFETY AUDIT TEAM COMMENTS

The new map-type advance direction traffic sign on the Nine Mile Ride eastbound approach had not been installed at the time of the site visit. Therefore, the positioning of this sign (and its sign posts) has not been inspected by the Stage 3 Road Safety Audit Team.

DESIGN TEAM RESPONSE TO STAGE 3 AUDIT TEAM COMMENTS

Accepted: Please can WBC confirm the date for installation of the, map-type advance direction traffic sign on the Nine Mile Ride eastbound approach, and ensure this has been undertaken before the stage four audit.

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2.3.5. PROBLEM 20

<u>Location</u>: Finchampstead Road northbound approach to the junction – see Appendix B for location.

<u>Summary</u>: Proposed "New Road Layout Ahead" traffic sign could obstruct the visibility of the adjacent map-type advance direction sign or the existing 'School' advance warning traffic sign.

The proposed "New Road Layout Ahead" traffic sign on the Finchampstead Road northbound approach to the junction will be installed in close proximity to the proposed map-type advance direction sign as well as the existing 'School 20 when lights show' advance warning traffic sign.

This could lead to road users approaching the California Crossroads junction not being fully aware of the junction layout downstream (which could result in conflicts with other road users at the junction) or not being aware of the hazard of school children crossing Finchampstead Road ahead (which could increase the possibility of vehicle colliding with a child running into the carriageway without caution).

RECOMMENDATION 20

It is recommended that the proposed "New Road Layout Ahead" traffic sign is installed at a location where it will not restrict the visibility of other traffic signs.

DESIGN TEAM RESPONSE

Accepted. ADS sign visibility added to drawing and temporary "New Road Layout Ahead" sign located beyond visibility splay.

OVERSEEING ORGANISATION RESPONSE

Agree with Designers response.

STAGE 3 ROAD SAFETY AUDIT TEAM COMMENTS

It was observed during the site visit that the "New Road Layout Ahead" traffic sign on this approach to the junction was partially restricting the visibility of the adjacent map-type advance direction sign. Therefore, this problem remains relevant.

DESIGN TEAM RESPONSE TO STAGE 3 AUDIT TEAM COMMENTS

Accepted: Temporary sign to be moved to a more appropriate location, as shown below.





2.3.6. PROBLEM 21

Location: Avery Corner car park access – see Appendix B for location.

<u>Summary</u>: Visually impaired pedestrians walking from the car park could be confused by the proposed road layout and walk into the path of vehicles travelling towards the car park access.

As shown on the following photograph, an existing uncontrolled pedestrian crossing facility with dropped kerbs and tactile paving is currently provided across the private access on the east side of the car park access.

The existing tactile paving directs visually impaired pedestrians from the car park footway onto the existing footway on the north-east side of the access road from Finchampstead Road (this footway is being removed as part of the scheme works). It is unclear whether the tactile paving on both sides of the private access is being removed from the Site Clearance drawing.

In the proposed layout, visually impaired pedestrians walking from the car park footway could mistakenly walk straight ahead onto the access road carriageway (as the northern end of this footway will be flush with the carriageway surface) and potentially into the path of a vehicle travelling towards the car park – see example below. This could lead to a visually impaired pedestrian being struck by a vehicle on the carriageway.





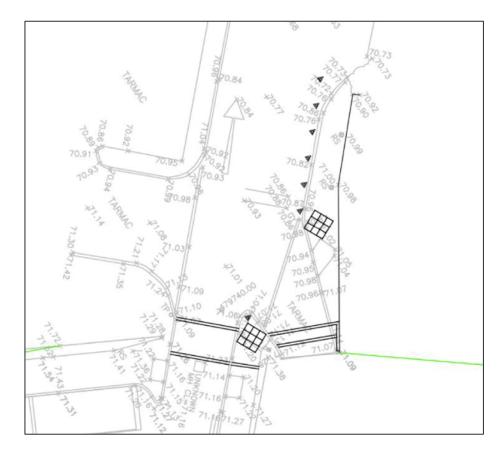
RECOMMENDATION 21

It is recommended that an appropriate feature is provided in this location, such as tactile paving, in order to direct visually impaired pedestrians from the car park footway towards the north-east side of the access road, so that they will walk behind the proposed bollards rather than into the path of an oncoming vehicle.

DESIGN TEAM RESPONSE

Accepted. Design has been updated to include a bollard to aid visually impaired pedestrians to keep right as they travel north as well as tactile paving to direct them across the residential access. The shared surfacing will be extended onto part of the footway in the car park to ensure appropriate contrast between the tactile paving and the surface paving treatment. Alignment shown below:





OVERSEEING ORGANISATION RESPONSE

Agree with Designers response.

STAGE 3 ROAD SAFETY AUDIT TEAM COMMENTS

As shown on the following photograph, no tactile paving has been installed in this location in order to direct visually impaired pedestrians between the existing footway and the north-east side of the access road, as suggested by the Design Team in response to this problem. Therefore, this problem remains relevant.





DESIGN TEAM RESPONSE TO STAGE 3 AUDIT TEAM COMMENTS

Accepted: WBC to ensure tactile paving is added as per construction drawings number 8199-LA-001 C04



3. ITEMS RAISED AT THIS STAGE 3 ROAD SAFETY AUDIT

3.1. GENERAL

3.1.1. No specific road safety problems identified.

3.2. WALKING, CYCLING AND HORSE RIDING

3.2.1. PROBLEM 1

<u>Location</u>: Parking area for the shops on the south side of the California Crossroads junction – see Appendix B for location.

<u>Summary</u>: Removal of the footway could increase the possibility of conflicts between pedestrians and vehicles in the parking area.

In the previous road layout in this location, there was a footway provided adjacent to the row of shops on the south side of the California Crossroads junction. This footway has been removed as part of the scheme. It was observed during the site visit that several pedestrians were walking through the centre of this area in locations where vehicles will be turning into or out of the echelon parking bays (as shown on the photograph below).

Anecdotal comments from some members of the public suggested that the new layout has increased the possibility of conflicts between vehicles and pedestrians walking through the parking area.



RECOMMENDATION 1

It is recommended that appropriate 'virtual footway' road markings are provided at the back of the parking area (directly adjacent to the shops) in order to encourage pedestrians to travel through this area away from the locations where vehicles will be turning into or out of the parking bays.



DESIGN TEAM RESPONSE TO STAGE 3 AUDIT TEAM COMMENTS

Recommendation Rejected: The design layout conforms with the guidelines within Manual for Streets, which states that shared use spaces are likely to work well

- In short lengths or where they form cul-de-sacs
- Where motor vehicle traffic is below 1—vehicles per hour, and
- Where parking is controlled or takes place is designated areas

WBC are considering commissioning WSP to film the operation of the crossings over a couple of days to assess their performance. WBC to confirm if this commission should be extended to assess the operation of this area.

PROBLEM 2

<u>Location</u>: South-western corner of the California Crossroads junction – see Appendix B for location.

<u>Summary</u>: Petrol station signage could present an obstruction on the footway as well as further restricting the visibility to / from the adjacent pedestrian crossing points.

As shown on the following photograph, there is a temporary petrol station sign and a 'coffee cup' feature positioned on the new footway on the south-western corner of the junction. During the site visit, it was observed that the adjacent petrol station fuel price totem restricts the visibility to / from the adjacent pedestrian crossing points (see Problem 4 in Section 2.3 of this report), and the temporary sign and 'coffee cup' feature could further restrict the inter-visibility at the crossing points.

This could increase the possibility of a driver not clearly seeing a pedestrian waiting at one of the adjacent crossing points (particularly a child pedestrian or a wheelchair user), which could increase the possibility of a pedestrian crossing the carriageway when a vehicle is turning onto Nine Mile Ride (West) or Finchampstead Road (South), possibly leading to a collision.

In addition, the temporary sign and 'coffee cup' feature could present an obstruction on the footway which could increase the possibility of a pedestrian tripping over one of these features (particularly a visually impaired pedestrian).





RECOMMENDATION 2

It is recommended that the temporary sign and 'coffee cup' feature are removed or relocated to an alternative appropriate location where they will not obstruct any footways or visibility sight lines.

DESIGN TEAM RESPONSE TO STAGE 3 AUDIT TEAM COMMENTS

Accepted: WBC to discuss with the fuel station owner to remove or relocate the temporary sign and coffee cup feature to increase visibility at the pedestrian crossing point.

3.2.2. PROBLEM 3

<u>Locations</u>: South-western and north-eastern corners of the California Crossroads junction – see Appendix B for locations.

<u>Summary</u>: Vehicles observed overrunning the footways when turning left onto Nine Mile Ride (West) and Nine Mile Ride (East).

It was observed during the site visit that occasionally vehicles were overrunning the footways on the south-western and north-eastern corners of the junction, when undertaking the left-turn movements onto Nine Mile Ride (West) and Nine Mile Ride (East). This could increase the possibility of a vehicle colliding with a pedestrian on the footway.

RECOMMENDATION 3

It is recommended that this problem is specifically monitored during the initial months after opening to ascertain how regularly vehicles overrun the footways in these locations. This could be undertaken by utilising the CCTV equipment at the junction. If it is concluded that vehicles are periodically overrunning these footways, it is recommended that appropriate mitigation measures are installed (such as the provision of reflective bollards on the footway, adjacent to the kerbline).

It is also recommended that a Stage 4 monitoring Road Safety Audit is completed for this scheme (when 12 months of personal injury collision data becomes available) in order to review how the new junction layout is operating in relation to this issue.

DESIGN TEAM RESPONSE TO STAGE 3 AUDIT TEAM COMMENTS

Accepted: WBC are considering commissioning WSP to film the operation of the crossings over a couple of days to assess their performance. WBC to confirm if this commission should be extended to assess the operation of this area.

3.2.3. PROBLEM 4

<u>Locations</u>: Various new 'courtesy crossing' facilities – see Appendix B for locations.

<u>Summary</u>: Possibility of a pedestrian crossing the carriageway when a vehicle has stopped on one approach to the crossing facility, and then being struck by another vehicle travelling in the opposite direction.

Various new pedestrian crossing facilities have been provided throughout the extents of the scheme with road markings (similar to dashed 'give way' markings) provided on the carriageway either side of each crossing. During the site visit, it was observed that most vehicles stopped to give way to waiting pedestrians at these 'courtesy crossing' layouts, although some motorists did not stop when a pedestrian was waiting to cross the road.

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Due to the ambiguity of priorities at these crossings, potentially a pedestrian could see a vehicle stopping as it approaches from the right and then start walking across the carriageway. However, the pedestrian may not look to the left to check whether any other vehicles approaching in the opposite direction have also stopped to let them cross the carriageway. Therefore, this could result in the pedestrian being struck by a vehicle approaching from the left.

This could be a particular problem at the new 'courtesy crossing' facilities with no pedestrian refuge islands in the centre of the carriageway, where pedestrians can cross the carriageway in two movements by waiting on the island.

RECOMMENDATION 4

It is recommended that appropriate "Look Both Ways" road markings are provided on the carriageway or on the footways adjacent to the crossing points, at the new 'courtesy crossing' facilities without any pedestrian refuge islands in the centre of the carriageway.

DESIGN TEAM RESPONSE TO STAGE 3 AUDIT TEAM COMMENTS

Recomndation Rejected: We can assess the available space for the markings, however, it could give the false impression that drivers have priority over pedestrians.

It is advised the crossings are monitored further, to understand if pedestrians are looking in both directions and the level of courtesy drivers are providing.

3.3. TRAFFIC SIGNS, ROAD MARKINGS AND STREET LIGHTING

3.3.1. PROBLEM 5

<u>Location</u>: New layout of the California Crossroads junction – see Appendix B for location.

Summary: New junction layout could be confusing to road users.

The proposed scheme has replaced the previous double mini-roundabout junction layout, and replaced it with an unconventional junction layout where it may not be completely clear to road users who has priority when travelling through the junction.

However, map-type advance direction traffic signs have been installed (or are planned to be installed) on each approach, which shows that the junction has a double-roundabout layout. It was observed during the site visit that motorists were generally using the junctions like mini-roundabout layouts (i.e. they were giving way to the right when entering the junction from one of the approaches).

However, due to the unusual layout, occasionally some road users (particularly those travelling through the junction for the first time) could be confused regarding how to negotiate the junction layout. Typically this would result in a driver entering the junction in a cautious manner, however this could also increase the possibility of a motorist entering one of the junctions and not giving way to another vehicle approaching from the right (which may lead to a collision) or a road user could be concentrating on how to negotiate the junction and then failing to give way to a pedestrian crossing the carriageway using one of the new 'courtesy crossing' layouts.

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RECOMMENDATION 5

It is recommended that appropriate mini-roundabout central island road markings to TSRGD diagram 1003.4 (with the circular central island marking and the arrow markings) are provided in the centre of the two individual junctions at California Crossroads. This could reduce driver confusion, provide a more conventional junction layout, and encourage road users to give way to the right at the 'roundabout' entries.

Recommendation Rejected: The auditors have noted, "During the site visit, it was observed that motorists were generally using the junctions like mini-roundabouts (i.e., they were giving way to the right when entering the junction from one of the approaches)," which suggests that the junction is operating as intended. Adding a roundel might detract from the current scheme approach.

However, it is recommended to further monitor the operation of the junction to determine if there is consistent adherence to the auditors' observations. If it is found that further clarity at the junction could be beneficial, a roundel feature could be created.

To create a roundel feature, we could overlay some of the coloured leaves with white ones of the same size at the centre. This would also make the junction more consistent with the signing. We can also overlay the tracking to determine the appropriate size. Please let us know if you would like to proceed with further assessment of this alternative option.

3.3.2. PROBLEM 6

<u>Location</u>: Parking area for the shops on the south side of the California Crossroads junction – see Appendix B for location.

<u>Summary</u>: Vehicles driving through the parking area the wrong way could come into conflict with other vehicles and pedestrians.

The layout for the parking area at the shops on the south side of California Crossroads has been changed, with the provision of 'No Entry', "In" and "Out" traffic signs to highlight to drivers that they



should travel southbound through this area (whereas previously you could only travel northbound through the parking area).

During the site visit, several vehicles were observed to be entering this area from the Avery Corner car park access road, contravening the 'No Entry' traffic signs, and travelling the wrong way through the parking area and sometimes resulting in the road user driving into a parking space and then having to reverse into the shared space area when they leave. This could increase the possibility of a conflict with another vehicle travelling through this area in the correct direction, or it could increase the potential for a conflict with a pedestrian walking through this area when a vehicle is reversing out of a parking space (see also Problem 1).

RECOMMENDATION 6

It is recommended that the new 'No Entry', "In" and "Out" traffic signs at both ends of the parking area are supplemented with appropriate arrow road markings to further highlight the correct direction that road users should be travelling through this area.

DESIGN TEAM RESPONSE TO STAGE 3 AUDIT TEAM RECOMMENDATION

Agreed – Arrow Road markings to be supplemented at the 'No Entry', 'In' and 'Out' traffic signs to highlight the new one way traffic layout.

3.3.3. PROBLEM 7

<u>Locations</u>: Nine Mile Ride (West) / Nine Mile Ride (East) / Finchampstead Road (North) approaches to the junction – see Appendix B for locations.

Summary: Adjacent vegetation restricts the visibility of the "New Road Layout Ahead" traffic signs.

It was observed during the site visit that adjacent vegetation was restricting the forward visibility of the "New Road Layout Ahead" traffic signs on the Nine Mile Ride (West), Nine Mile Ride (East) and Finchampstead Road (North) approaches to the junction. This could reduce road users' awareness that the junction layout ahead has been changed, which could increase the possibility of a vehicle approaching the junction at an inappropriate speed and entering the junction without giving way to other vehicles (resulting in a collision).

RECOMMENDATION 7

It is recommended that the vegetation located adjacent to the "New Road Layout Ahead" traffic signs is cut back appropriately so that these signs are clearly visible to road users.

DESIGN TEAM RESPONSE TO STAGE 3 AUDIT TEAM COMMENTS

Accepted: Vegetation to be trimmed back and recorded in the management plan and risk register.

3.3.4. PROBLEM 8

<u>Locations</u>: Nine Mile Ride (East) and Finchampstead Road (North) approaches to the junction – see Appendix B for locations.

<u>Summary</u>: Lack of any road markings adjacent to the pedestrian refuge islands could increase the possibility of a vehicle colliding with the island.

On the Nine Mile Ride (East) and Finchampstead Road (North) approaches to the junction, 'courtesy crossing' facilities have been provided with pedestrian refuge islands in the centre of the crossings, as shown on the photograph below. No road markings have been provided in the centre of the

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carriageway to highlight the presence of the islands to road users, which may increase the potential of a road user mistakenly travelling too close to an island and colliding into it.



RECOMMENDATION 8

It is recommended that appropriate hatched road markings, with a short length of longitudinal warning line road markings, are provided directly adjacent the refuge islands in these locations.

DESIGN TEAM RESPONSE TO STAGE 3 AUDIT TEAM COMMENTS

Rejected: The addition of hatched road markings from the refuge island could detract from the scheme approach. Traffic sign 610 should suffice.

3.3.5. PROBLEM 9

<u>Location</u>: Nine Mile Ride approximately 70m to the west of California Crossroads – see Appendix B for location.

Summary: Dark area next to the new raised table crossing facility.

As shown on the following photograph, it was observed during the darkness site inspection that vegetation located adjacent to a new street lighting column was creating a dark area next to the new raised table crossing facility, located on Nine Mile Ride to the west of California Crossroads. This could increase the possibility of a road user's eyes not adjusting adequately to the change in illumination, which may lead to them not clearly seeing a pedestrian about to cross the carriageway at the 'courtesy crossing' facility (possibly resulting in a collision).

In addition, if a pedestrian chooses to cross the road away from the location of the crossing facility (i.e. in the dark area of the carriageway), a motorist may not clearly see the pedestrian crossing the road ahead, leading to a collision.





RECOMMENDATION 9

It is recommended that the vegetation located adjacent to the street lighting column is cut back appropriately (with an allowance for seasonal growth) in order to provide adequate illumination of the carriageway in this location.

DESIGN TEAM RESPONSE TO STAGE 3 AUDIT TEAM COMMENTS

Accepted: Vegetation to be trimmed back and recorded in the management plan and risk register.

3.4. JUNCTIONS

3.4.1. No specific road safety problems identified.

3.5. LOCAL ALIGNMENT

3.5.1. No specific road safety problems identified.



4. ROAD SAFETY AUDIT TEAM STATEMENT

4.1.1. We certify that this Stage 3 Road Safety Audit has been carried out in accordance with GG 119.

ROAD SAFETY AUDIT TEAM LEADER:

Neil Nicholson MCIHT MSoRSA Principal Transport Planner

WSP

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Tel: (01392) 267582

Signed:

Date: 18th October 2024

N. Nichtson

ROAD SAFETY AUDIT TEAM MEMBER:

Lee Sydenham Technical Director WSP

Longbrook House New North Road Exeter

Exeter Devon EX4 4GL Signed:

Date: 18th October 2024

OTHERS INVOLVED:

Dean Underdown, Wokingham Borough Council Tony Griffiths, Thames Valley Police

Appendix A

LIST OF DOCUMENTS AND DRAWINGS CONSIDERED DURING THIS ROAD SAFETY AUDIT





LIST OF DOCUMENTS AND DRAWINGS CONSIDERED DURING THIS ROAD SAFETY AUDIT

REPORTS / DOCUMENTS

Title	Report Number	Date
Stage 3 Road Safety Audit Brief	N/A	24/09/2024
California Crossroads - Stage 2 Road Safety Audit	70068199/RSA2/1/1	22/03/2023
California Crossroads - Stage 2 Road Safety Audit (with Designer's Response)	N/A	29/11/2023
California Crossroads - Walking, Cycling and Horse Riding Assessment	088-WCHAR001	05/06/2018
California Crossroads - Walking, Cycling and Horse Riding Review	088-WCHARR	04/01/2019
Submission for a Departure from Standard	N/A	28/01/2022

DRAWINGS

Drawing Title	Drawing Number	Revision
General Arrangement – Visibility Splay	8199-GA-002	C03
General Arrangement – Proposed Dimensions	8199-GA-004	C03
Vehicle Tracking: Articulated Vehicle	8199-ATR-001	C02
Vehicle Tracking: Articulated Vehicle Movements Into Car Park	8199-ATR-002	C02
Vehicle Tracking: Tracking Car Movements Into Parking Spaces	8199-ATR-003	C02
Vehicle Tracking: Tracking Car Into Disabled Parking Space	8199-ATR-004	C02
Vehicle Tracking: Refuse Vehicle Into Avery Corner	8199-ATR-005	C03
Vehicle Tracking: Articulated Vehicle Into Avery Corner	8199-ATR-006	C03
Vehicle Tracking - Rigid Vehicle	8199-ATR-007	C02
Existing Catchment Plan	8199-DR-100	C02
Proposed Drainage Layout	8199-DR-102	C03
Proposed Drainage Plan and Long Section	8199-DR-103	C03
Proposed Catchment Plan	8199-DR-104	C03
Existing Contours	8199-RP-001	C02
Proposed Contours	8199-RP-002	C03
Kerbing Plan	8199-RP-003	C03
Proposed Long Sections	8199-RP-004	C03
Proposed Cross Sections, Sheet 1 of 5	8199-RP-005	C02
Proposed Cross Sections, Sheet 2 of 5	8199-RP-006	C02

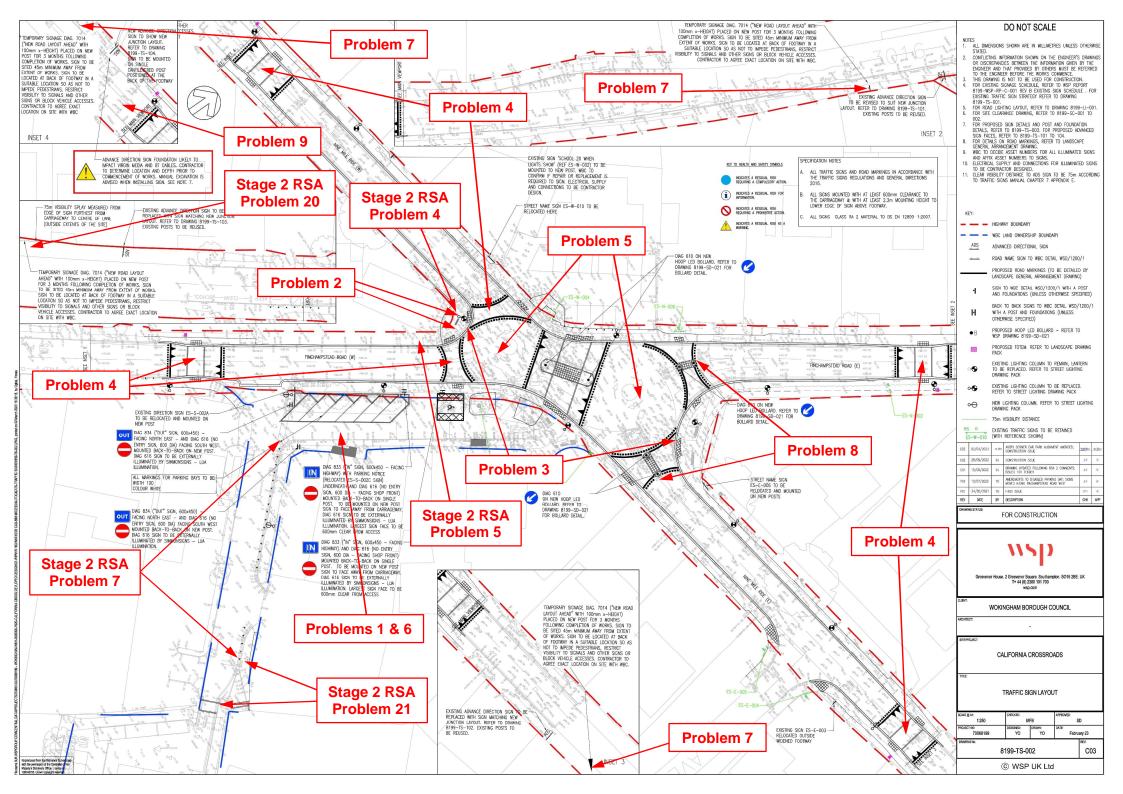


Drawing Title	Drawing Number	Revision
Proposed Cross Sections, Sheet 3 of 5	8199-RP-007	C02
Proposed Cross Sections, Sheet 4 of 5	8199-RP-008	C02
Proposed Cross Sections, Sheet 5 of 5	8199-RP-009	C03
Site Clearance	8199-SC-001	C03
Road Lighting Site Clearance	8199-SC-002	C01
Bollard Detail	8199-SD-001	C04
Courtesy Crossing - Gateway Crossings	8199-SD-005	C01
Courtesy Crossing - North West Crossing	8199-SD-006	C01
Courtesy Crossing - South West Crossing	8199-SD-007	C01
Courtesy Crossing - Centre Crossing	8199-SD-008	C01
Courtesy Crossing - North East Crossing	8199-SD-009	C01
Courtesy Crossing - South East Crossing	8199-SD-010	C01
Courtesy Crossing - Western Crossings	8199-SD-011	C01
Courtesy Crossing - Eastern Crossings	8199-SD-012	C01
Street Furniture Construction Detail, Sheet 1 of 3	8199-SD-014	C01
Street Furniture Construction Detail, Sheet 2 of 3	8199-SD-015	C01
Street Furniture Construction Detail, Sheet 3 of 3	8199-SD-016	C01
Traffic Sign Layout	8199-TS-002	C03
Traffic Sign Design – Signage Schedule	8199-TS-003	C02
Existing Sign Schedule	8199-WSP-RP-C01	C01
Proposed Advance Direction Sign ES-N-001	8199-TS-101	C02
Proposed Advance Direction Sign ES-E-001	8199-TS-102	C02
Proposed Advance Direction Sign ES-S-001	8199-TS-103	C02
Proposed Advance Direction Sign PS-W-012	8199-TS-104	C02
Landscape General Arrangement	8199-LA-001	C03
Proposed Road Lighting Layout	8199-LI-001	C05
Proposed Road Pavement – General Arrangement	8199-PV-001	C02
Proposed Footway and Paved Areas	8199-PV-002	C02
Proposed Carriageway and Footway Pavement – Typical Cross Sections	8199-SD-020	C01

Appendix B

LOCATION PLAN OF ROAD SAFETY PROBLEMS







Longbrook House New North Road Exeter Devon EX4 4GL

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