Transport Planning Associates

Client

**BATH AND NORTH EAST SOMERSET COUNCIL**

In respect of

# Keynsham High Street
# KEYNSHAM

# Stage 4 Road Safety Audit

**December 2023**

Client

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# Document Management



## Document Review

| | Status | Author | Checker | Approver | Date |
|---|---|---|---|---|---|
| 01 | Draft | AS | PW | AS | 29 \| 11 \| 23 |
| - | Issue | AS | PW | AS | 06 \| 12 \| 23 |
| A | Revision[a] | PF | - | - | 01 \| 02 \| 23 |
| B | Revision[b] | PG/SF | - | - | 08 \| 02 \| 23 |
| C | Revision[c] | GT | - | - | 20 \| 02 \| 23 |
| | | | | | |

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[a] Designer response
[b] Overseeing organisation response
[c] Redactions

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# List of Appendices

# 1 Introduction

1.1 This report results from a Stage 4 Road Safety Audit carried out at the request of Bath and North East Somerset Council (BANES), for their public realm improvements at Keynsham High Street. The scheme included footpath widening and resurfacing, a segregated contraflow cycle lane, improved bus stop facilities and new street furniture, streetlights and landscaping.

1.2 The audit team membership was as follows:

| | |
|---|---|
| A. J. Snowden | MEng (Hons), MCIHT, MSoRSA, NH CoC |
| | Associate, Transport Planning Associates |
| P. S. White | Principal Technician, Transport Planning Associates |

Neither of the auditors have had any involvement with the development of the design.

1.3 The extent of the audit includes High Street between Charlton Road in the north and Bath Hill in the south, including the junctions and pedestrian crossing facilities provided at either end.

1.4 A visit to the site was made at approximately 10am on Wednesday 22nd November 2023 by the audit team together. Wendy Linham of Avon and Somerset Constabulary attended as an observer. At the time of the audit the weather was fine, and the road surface was dry. A visit during the hours of darkness was undertaken the same evening at approximately 7pm.

1.5 A Road Safety Audit Brief has been provided and is included at **Appendix A**. The following additional information has also been considered as part of this RSA4:

- Keynsham High St Detailed Design Final Scheme May 2021 (included at **Appendix B**)
- Keynsham High St Stage 2 Road Safety Audit and Designer's Response (included at **Appendix C**)
- Keynsham High St Stage 3 Road Safety Audit (included at **Appendix D**)
- Stage 3 Road Safety Audit Decision Log (included at **Appendix E**)
- Keynsham High Street Year One Monitoring and Evaluation Report dated June 2023 (included at **Appendix F**)
- Personal Injury Collision records and details of insurance claims (see **Chapter 2**)
- In progress as-built survey

1.6 No Departures from Standards have been advised.

1.7 The terms of reference of the audit are as described in the Design Manual for Roads and Bridges (DMRB) GG119.

1.8 The Audit team has examined and reported only on the road safety implications of the scheme as presented and has not examined or verified the compliance of the design to any other criteria.

# 2 PIC Data and Insurance Claims

2.1 Personal Injury Collision (PIC) records provided by BANES has confirmed that since the scheme opened in March 2022 there were two incidents recorded in the vicinity of High Street. Unfortunately, due to the way in which the police have been collecting collision data, the exact location of these incidents is not clear. The two incidents are summarised as follows:

- 08/01/2023 – Slight Injury collision following RTC between 2 cars on a roundabout.
- 08/02/2023 – Injury Collision. Pedestrian hit whilst on a crossing.

2.2 Whilst there have only been two PIC's reported, there have also been a number of reports made to BANES by pedestrians who claim to have tripped/fallen on the 50mm height kerb between the footway and cycleway. A total of 25 incidents of trips/falls were made in March and April 2022, before reducing to an average of 3 per month (ranging from 1 to 6 incidents per month) in the 17-month period thereafter. Changes were implemented in August 2022 to provide a red coloured surfacing within the cycle lane (previously black asphalt). In the next 14 months there were 41 incidents of trips/falls, an average of 2.9 per month.

2.3 It is noted that the number of incidents during the 5-month period of August to December 2022 and each 3 month period thereafter (Jan – Mar, Apr – Jun and Jul – Sep) showed averages of between 2.3 to 3.2 reports per month. This indicates that whilst the number of incidents has clearly reduced since opening, it remains an ongoing issue with a relatively consistent rate of incidents per month, rather than one which is reducing over time.

2.4 A Stage 3 Road Safety Audit was undertaken by Jacobs in May 2022 and subsequently updated in June 2022 to incorporate PIC and trip data. At that time, it was noted that a large number of the incidents were recorded within the first two weeks of the opening of the scheme and that these reduced in the following month. The Stage 3 Audit Team suggested that this indicated a declining trend as users became more familiar with the new arrangement, and no road safety issues were subsequently raised in relation to this. However, as set out above, with the benefit of additional data since the Stage 3 Audit was undertaken, it can be seen that the rate of incidents per month has continued at a relatively constant rate, rather than declining as the Stage 3 Audit Team expected.

# 3 Review of Stage 3 Audit

3.1 A review of the problems raised within the Stage 3 Audit and the designer's responses is set out below.

| Ref | Location | Problem | Recommendation | Designer Response | Overseeing Organisation Response | Status / Update | Stage 4 Audit Team Comment |
|---|---|---|---|---|---|---|---|
| 1 | N/A General | There is evidence that vehicles are parking on the footway adjacent to the High Street carriageway, particularly towards the southern end of the scheme. This increases the potential for conflicts between pedestrians and cyclists, which could result in pedestrian injuries. | It is recommended that additional physical measures are installed to discourage parking on the footway and that the existing clearway is enforced. | Accepted, this has been observed, Bollards are to be installed retrospectively to protect the footway | Action | Completed | No further comment |
| 2 | Footway at the southern end of the High Street at the existing access adjacent to property number 69 | While drainage is provided in this area, it is unclear if the carriageway and footway surface water will drain adequately across the feature paved existing access adjacent to property number 69. Ponding water at this location could result in vehicles skidding and pedestrian slips, increasing the potential for conflicts and pedestrian injuries. The problem could be exacerbated during cold conditions, when ponding water in this area may freeze. | It is recommended that the drainage provision adequately removes surface water from this area. | Accepted, drainage design has been calculated to adequately deal with surface water in carriageway and footway. The drainage has also been observed under heavy rainfall and no issues have been identified at this location. | Monitor | No issues reported | No further comment |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 3 | Gully cover in parking bays | There are a number of slotted gully covers located within parking bays, including the disabled bays. As those leaving vehicles will likely be heading towards the footway, there is potential that heeled shoes, walking aids, pram wheels or wheelchair wheels could be trapped within the gully cover. This could result in trips, falls and abrupt stops increasing the potential for injuries. | It is recommended that pedestrian friendly gully covers are installed in place of the slotted covers | Accepted, covers within the parking bays to be replaced with pedestrian friendly variants. | Monitor | No issues reported | No further comment |
| 4 | Bath Hill uncontrolled pedestrian crossing | An uncontrolled pedestrian crossing, with central refuge, is provided on Bath Hill. The following tactile paving related issues were observed at this crossing:<br>• The tactile paving on the north side of the crossing is red. Tactile paving at uncontrolled crossings should be buff.<br>• The tactile paving on the north side does not align with the tactile paving in the central refuge.<br>• The stick down tactile paving within the central refuge is lifting in places.<br>These issues could result in confusion for partially sighted users and increase the chance of trips and falls. Potentially into the carriageway. | It is recommended that the red tactiles are replaced with buff, that the tactiles align through the crossing and the lifting tactiles are removed and replaced. | Accepted, incorrect colour tactiles to be replaced with buff. | Action | Completed | See Problem 4.3 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 5 | High Street Zebra Crossing | The zebra crossing provided on High Street includes incorrect tactile paving arrangements that do not guide users to the beacon. In addition, the tactile arrangement on the west side of the carriageway has a number of utility covers within it. These issues could result in partially sighted users missing the crossing point or being unclear of whether it is controlled or not. This increases the potential for pedestrian conflicts with cyclists and vehicles, which could result in injury. | It is recommended that the tactile arrangements are installed as per the DETR Guidance on Use of Tactile Paving Surfaces, and that tactile paving is added to utility covers if they impact the revised layouts. | Partially accepted; the tactile layout is correct for the approaching traffic, (both motor vehicle and cycle path), patches caused by utility covers are unfortunate and it is proposed that the concrete infill covers have adhesive tactiles added.<br>The positioning of the Beacons is not consistent with conventional arrangements at Zebra Crossings. Whilst it is noted that there is flexibility which allows this within the TSM chapter 6 guidance, and the main purpose of the Beacons is to provide visibility of the crossing to road users (which the current arrangement achieves), it is acknowledged that the DETR guidance for the tactile tail aligning with the Beacon is not met. If it is determined that this should be rectified, the beacons could be relocated to the opposite side or an additional post with "Z" embossed could be added. | Reviewed by Highways - No action | N/A | Designer's response re. tail is noted and not raised further. However, it is considered that the issue of the utility covers remains, and Problem 4.2 refers. |
| 6 | Contraflow cycle lane at the northern end of the High Street in front of property number 40 (The Entertainer). | At the northern end of the scheme in front of property number 40 (The Entertainer) there is a large utility cover within the contraflow cycle lane. The cover has a metal finish and is relatively smooth. When wet, it is likely this cover will be slippery and could impact braking cyclists, resulting in riders being unseated, leading to injuries. | It is recommended that the cover is treated with an antiskid material. | Accepted, high friction surface to be added to cover | Action | Completed | No further comment |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 7 | High Street Bus Stop | Corduroy paving has not been installed at the kerb edge of the bus stop on High Street. This could result in partially sighted pedestrians being unaware of the raised kerb, leading to trips and falls, potentially into the carriageway. | It is recommended that corduroy paving is installed as per the DETR Guidance on Use of Tactile Paving Surfaces | Rejected, tactile paving at bus stops is optional and frequently omitted in heritage areas to maintain a consistent paving environment. This approach was taken at this location due to the heritage status and it is considered that the risk of trips and falls from a bus stop kerb is not significantly different to that of a standard heights kerb. | No action | N/A | No further comment |
| 8 | Contraflow cycle route | During the site visit cyclists were observed using the contraflow cycle lane in both directions. This could result in head on collisions between cyclists and increases the potential for collisions between cyclists and pedestrians, both resulting in injuries. | It is recommended that additional signing and carriageway markings are provided. | Accepted, additional intermediate directional road markings arrows to be added, noting that they are already in place at all decision points and the path is clearly signed. Additional signage is to be avoided as it unnecessarily adds to clutter. | Action | Completed | No further comment |
| 9 | Northern end of the High Street | On the southbound approach to High Street a map type direction sign is provided. The layout of this sign could result in confusion as drivers could interpret that the High Street (ahead) is for buses and taxis only. Confusion and hesitation at this location could increase the potential for rear shunt collisions. | It is recommended that the sign face is revised. | Rejected, the sign is pre-existing and outside of the scope of the project. However, it is necessary to provide warning to road users that to go towards straight ahead destinations (after the high street) they must take a right turn at this location. There doesn't appear to be a clearer way that this could be signed | No action | N/A | Noted that this is beyond the scope of this Audit and therefore not raised further. However, the RSA4 team concurs with the RSA3 that this sign is confusing and difficult to read in the short time available to passing drivers. It may be more appropriate for the sign to be replaced with a simple stack-type direction sign at this location and a second sign placed further south on High Street to advise of the bus gate. |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 10 | Uncontrolled pedestrian crossing point at the end of the Ashton Way access lane. | Where the Ashton Way access lane meets the High Street an uncontrolled pedestrian crossing is provided. On the west side of the contraflow cycle lane 'Look Right' carriageway markings have not been provided, but they have been elsewhere. At this location this could increase the potential for pedestrians to step into the contraflow cycle lane without looking to the right, resulting in collisions. | It is recommended that 'Look Right' carriageway markings are installed where the crossing interfaces with the contraflow cycle lane. | Accepted, markings to be installed | Action | Completed | No further comment |

# 4 Items Raised at this Stage 4 Audit

A location plan of the problems identified is included at **Appendix F**.

## 4.1 PROBLEM

**Location**: Kerb between cycleway and footway

**Summary**: Risk of pedestrian trips / falls

The 50mm height kerb between the cycleway and footway is not clearly visible (and further reduced at night) and it is clear from the number of incidents reported since opening that this has led to a number of pedestrian trips / falls. From the incident descriptions provided, it is clear that a large proportion of these are related to pedestrians walking along, rather than crossing, High Street, whether that be because they are stepping around other pedestrians or they simply have not recognised the presence of the kerb. It is noted that the scheme has been designed and delivered in accordance with the appropriate guidance set out in LTN1/20 and we are not aware of similar issues at other schemes where this type of design has been implemented. However, there is clearly some combination of factors in this location (and not any that are clearly identifiable to the Audit Team) which mean that there is a risk of pedestrian trips/falls.

**RECOMMENDATION**

It is recommended that stick-on corduroy tactile paving is applied along the kerb edge to highlight the level change and to deter pedestrians from walking along the kerb edge.

**DESIGNERS RESPONSE**

It The design team note that the Auditors are concerned that the level difference between the footway and the cycleway is not clearly visible but are unable to identify why this is. The auditors also identify that the predominant issue is with members of the public slipping off the kerb between the footway and cycleway. Following further analysis, the design team have categorised the qualitative info provided, which documents the Trip and Fall incidents and can confirm that the results show that approximately 5.5% of incidents were not related to kerbing, 19.5% relate to the interface between the footpath and the cycleway, 25% relate to the interface between the carriageway and the cycleway and 50% were unclear as to where the incidents occurred. On this basis the design team consider that the perceived issues have a roughly equal split between the footway, cycleway and the cycleway and carriageway. Based on the information provided it appears that many of the incidents between the footway and the cycleway relate to pedestrians walking longitudinally adjacent to the kerb and then tripping off the kerb when negotiating an object or person. With the trips between the carriageway and the cycleway the majority of incidents occur when people are crossing transversely, likely when crossing the road at non-prescribed crossing locations.

The design team have considered the Auditors recommendation of installing stick on tactile hazard warning paving adjacent to the kerb line to warn pedestrians of the change in levels. The design

team has no objections to this proposal from a Road safety perspective; however it should be noted that stick on tactiles may not meet with the schemes heritage objectives and are likely to lead to long term maintenance issues. A more permanent solution would be to install replacement tactile hazard warning slabs which would require approximately 100m of saw-cutting and slab laying. There is a question however, as to whether the users of Keynsham highstreet would understand what the tactile paving means and whether they would deter people from stepping off the kerb line in this manner. Typically tactile paving of this sort is to aid partially sighted or visually impaired people who have been trained to understand the purpose of different tactile surfaces. This isn't necessarily the primary demographic involved in the reported incidents. An alternative would be to install bollards along the kerb line which may discourage people from walking along ~~it~~ the kerb edge. This should be balanced against the level of "clutter" created in the built environment, noting that minimising clutter was an objective of the scheme.

Regarding trips and falls associated with pedestrians crossing the carriageway and tripping on the kerb between the carriageway and cycleway, the design team note that a lining proposal has been put forward to install double yellow line markings at the carriageway edge. The design team has no objections to this and acknowledge that this may have an effect of providing an additional cue to pedestrians that they are crossing the edge of carriageway which traditionally has a kerb upstand. It should be noted that double yellow line markings would not be enforceable without changes to existing parking restrictions TRO. Another proposal which has been put forward by external parties is to replace the solid white line marking delineating the edge of cycleway to a broken white line. This has been proposed to tackle a perceived visual illusion caused by the existing continuous marking which is anecdotally causing some people to mistake the white line for a kerb thus creating confusion with levels for some users. Whilst the Design team and Safety Auditors have not identified this during site inspections, it is a low cost intervention and may clarify the situation for some users and has no significant obvious negative impacts. On this basis the design team recommend trialling the lining interventions prior to any other physical measures listed above.

**OVERSEEING ORGANISATION RESPONSE**

Agree with the Design Organisation regarding trialling the lining interventions.

**AGREED RSA ACTION**

The Overseeing Organisation to arrange for:

(i) The installation of double yellow line markings at the carriageway edge.
(ii) The replacement of the solid white line marking delineating the edge of cycleway to a broken white line.

## 4.2 PROBLEM

**Location**: Zebra Crossing on High Street

**Summary**: Risk of pedestrians being struck by vehicles or cyclists

The tactile arrangement on the west side of the carriageway at the Zebra Crossing has a number of utility covers within it. Blind and partially sighted users may fail to detect the crossing point and instead attempt to cross at an unsuitable location with the resultant risk of being struck by a passing vehicle or cyclist.

**RECOMMENDATION**

Provide tactile paving within the utility cover.

**DESIGNERS RESPONSE**

The Design Team consider that the chance of a blind or visually impaired pedestrian missing the tactiles which are present is low but accept that the installation of tactile paving set into a new recessed cover or stick on tactiles on the paving slab would resolve the issue.

**OVERSEEING ORGANISATION RESPONSE**

Agree with the Design Organisation regarding the installation of tactile paving into a new recessed cover.

**AGREED RSA ACTION**

The Overseeing Organisation to arrange for the installation of tactile paving into a new recessed cover.

4.3 **PROBLEM**

**Location**: Bath Hill uncontrolled pedestrian crossing

**Summary**: Risk of pedestrians trips

The stick-on tactile paving is broken and lifting which results in a trip hazard for pedestrians

**RECOMMENDATION**

Replace the broken tactile paving and ensure a flush finish.

**DESIGNERS RESPONSE**

Accept tactiles to be repaired.

**OVERSEEING ORGANISATION RESPONSE**

Agree with the Design Organisation that the tactiles should be repaired.

**AGREED RSA ACTION**

The Overseeing Organisation to arrange for the tactiles to be repaired.

# 5 Audit Team Statement

We certify that this audit has been carried out in accordance with GG119.

**Audit Team Leader**

Andrew Snowden
Transport Planning Associates
25 King Street
Bristol
BS1 4PB

Signed [redacted]

Date 6th December 2023

**Audit Team Member**

Paul White
Transport Planning Associates
25 King Street
Bristol
BS1 4PB

Signed [redacted]

Date 6th December 2023

**OVERSEEING ORGANISATION COMMENTS**

Overseeing Organisation Statement

On behalf of the Overseeing Organisation, I certify that the RSA actions will be progressed by the Overseeing Organisation.

Paul Garrod, Traffic Management & Network Manager, Bath & North East Somerset Council

Signed [redacted]

Date: 8 February 2024

Steve Froggatt, Design & Projects Manager, Bath & North East Somerset Council

Signed [redacted]

Date: 8 February 2024

# APPENDIX A

Bath & North East Somerset Council

# Keynsham High Street

**Road Safety Audit Brief**

**Stage 4**

**20/11/23**

| Authorisation sheet | |
|---|---|
| **Project** | Keynsham High Street |
| **Report title** | Keynsham High Street Stage 4 Road Safety Audit |
| **APPROVE THE RSA BRIEF AND INSTRUCT THE RSA TO TAKE PLACE ON BEHALF OF THE OVERSEEING ORGANISATION** | |
| **Name** | Georgi Tyler |
| **Signed** | [redacted] |
| **Organisation** | Bath and North East Somerset Council (Overseeing Organisation) |
| **Date** | 20/11/2023 |

N.B. In the absence of the design organisation, the Overseeing Organisation has prepared the brief in line with GG 119 (para 4.5)

| General details | |
|---|---|
| **Highway scheme name and road number** | Keynsham High Street |
| **Type of scheme** | High Street regeneration |
| **RSA Stage** | 4 |
| **Overseeing organisation** | **Design organisation** |
| Bath and North East Somerset Council | Jacobs (unavailable) |
| **Police contact details** | **Maintaining agent contact details** |
| Avon and Somerset Police – Wendy Linham<br>[redacted] | Highway inspector – Peter Clark<br>[redacted] |
| **RSA team membership** | Andrew Snowden<br>Paul White<br>Tom Wilkins |
| **Terms of reference** | This Road Safety Audit (RSA) is to be undertaken fully in accordance with the DMRB Standard GG 119, as well as the contents of this Road Safety Audit Brief. |

| Scheme details | |
|---|---|
| **General** | |
| Keynsham High Street is a one-way road with a contraflow cycle lane. This layout was introduced in 2018, initially as a trial before being made permanent. The purpose of this scheme was to formally introduce the new arrangement whilst improving the functionality and public realm.<br><br>Scheme include the widen of footway, the provision of a stepped contra-flow cycle lane, the resiting of bus stop and zebra crossing, the provision of two uncontrolled crossings on raised tables and landscaping. Existing controlled crossing on Temple Street has been adjusted.<br><br>Construction finished in March 2022. A high friction surface (HFS) was applied to the cycle lane in August 2022, and additional bollards to prevent vehicle over were installed in summer 2023. | |
| **Design standards** | DMRB, MCHW, LTN 1/20, Manual for Streets |
| **Design speeds** | 20 mph |
| **Speed limits** | 20 mph (mandatory) |
| **Existing traffic flows/queue** | See Year 1 Monitoring and Evaluation Report |
| **Forecast flows** | N/A |
| **Desire lines** | Local shops, F&B, post office, places of worship, bus stop, Keynsham Memorial Park, Keynsham Civic Centre<br>WCHRA provided |
| **Environmental constraints** | Conservation area |

| Locality |
| --- |
| **Description of locality** |
| A local high street within Keynsham town centre. Located within Keynsham Conversation Area, which includes 57 listed buildings. A number of the listed buildings are located on the high street.<br><br>The Civic Centre (the Council main office ) is located in the vicinity of the high street, as is the Keynsham Memorial Park. |
| **General description** |
| One-way street within town centre, with contra-flow cycle lane and bus stop |
| **Relevant factors that may affect road safety** |
| Since construction completed the Council has received reports and claim relating to trips and falls in around the stepped cycle lane.<br><br>The scheme was construction during Covid-19. From summer 2020 the high street was closed between 10am-4pm to enable social distancing. A 24/7 closure followed at the beginning of of construction (June 2021) and was in place until scheme completion in March 2022.<br><br>The year 1 monitoring and evaluation report indicates that vehicle movement through the high street is lower than the modeling predicted and that pedestrians the dominant users. Cycling movements remain low. |

| Analysis |
| --- |
| **Collision data analysis** |
| Post opening collision data is provided (plot is missing due to the change to the way the police is collecting collision data)<br><br>In addition a log of reported trips and falls and data relating to claims is provided |
| **Departure from standards** |
| N/A |
| **Previous road safety audit stage reports, road safety audit response reports and evidence of agreed actions** |
| RSA Stage 3 report and action taken provided |
| **Strategic decisions** |
| N/A |

| List of included documents and dwgs |
| --- |
| **Documents** |
| Site location plan (with land uses)<br>Stage 3 Road Safety Audit (and agreed actions)<br>WCHRA<br>Year 1 Monitoring and Evaluation Report (with traffic flow data)<br>Collision data<br>Trips and falls log (Confidential)<br>Insurance claim data (Confidential) |
| **Drawings** |
| BRIS-ABS-101 02 : As built survey |

| Checklist | | | |
|---|---|---|---|
| Site location plan | X | Scale layout plans | See note |
| Departure and relaxation from standards | N/A | Construction/typical detail | See note |
| Previous RSA reports | X | Previous RSA response reports and evidence of agreed actions | X |
| Collison data and collision data analysis | X | Road traffic collision plot | See note |
| Traffic signal stage | N/A | Traffic counts | |
| Speed surveys | N/A | Pedestrian, cyclist and horse riding desire lines and volumes | N/A |
| Walking, cycling and horse riding assessment and review | X | Items outside of the scope of RSA/strategic decision | X |
| Design standard used | X | Adjacent land use | X |

**Notes**

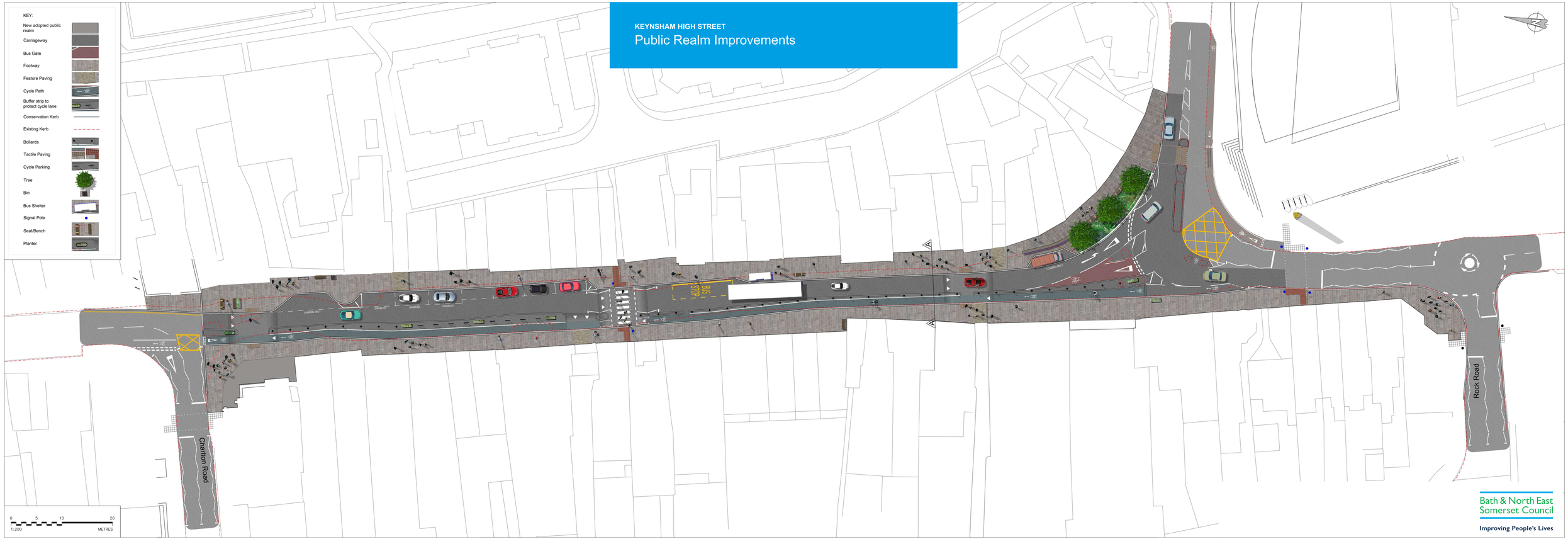
Construction and typical detail dwgs can be provided as requested.

Road traffic collision plot not provided by the police (owing to the change they've made to the way the collect traffic collision data and delay have subsequently occurred).

# APPENDIX E

**KEYNSHAM HIGH STREET**

# Public Realm Improvements




Bath & North East Somerset Council

Improving People's Lives

# APPENDIX C

# Keynsham High Street, Public Realm Improvements

## Road Safety Audit Stage 2 Response

Designer Response | Rev 1

22nd March 2020

Bath and North East Somerset Council

Final

## Keynsham High Street, Public Realm Improvements

| | |
|---|---|
| Project No: | 674726.CP.66 |
| Document Title: | Road Safety Audit Stage 2 Response |
| Document No.: | Designer Response |
| Revision: | 1 |
| Document Status: | Final |
| Date: | 22nd March 2020 |
| Client Name: | Bath and North East Somerset Council |
| Client No: | N/A |
| Project Manager: | Peter Franklin |
| Author: | Andy Higginson |
| File Name: | KiHS Public Realm Improvements - RSA 2 Response Final.docx |

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**Document history and status**

| Revision | Date | Description | Author | Checked | Reviewed | Approved |
|---|---|---|---|---|---|---|
| First Issue | 05/02/20 | Designer Response, for Client Response | AH | JU | ACW | PF |
| Final issue | 22/03/20 | Designer Response, for Client Response | JU | ACW | ACW | PF |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

# 1. Introduction

This report details the design organisation response to the Stage 2 Road Safety Audit (RSA) carried out on the planned Keynsham High Street Public Realm Improvements. The improvements include:

- public realm upgrades on the High Street;
- provision of a contraflow cycle lane with separation from the vehicle carriageway;
- enhancement of existing pedestrian links to Back Lane and Ashton Way;
- relocation of the bus stop;
- alterations to the footway provision; and
- provision of loading bays.

The RSA was carried out at the request of Andy Higginson of Jacobs, on behalf of Bath & North East Somerset Council.

The Audit Team membership was as follows:

**Alison Foale** BEng (Hons) MSc MCIHT MSoRSA
Highways England Approved Certificate of Competency
Senior Road Safety Engineer, Jacobs

**Daniel Harris** BA (Hons) MCIHT MSoRSA RegRSA (IHE)
Highways England Approved Certificate of Competency
Senior Road Safety Engineer, Jacobs

The team responsible for carrying out the design organisation response is as follows:

**Joe Urwin** MEng (Hons) GMICE
Graduate Civil Engineer | Highways – Jacobs

**Andy Craven-Webb** BA PGDip CMLI
Principal Landscape Architect – Jacobs

**Andy Higginson** BSc (Hons) PG Dip IEng FIHE
Principal Civil Engineer | Highways – Jacobs

This report is presented based upon the checklist contained in Appendix F of GG119 for Road Safety Audits.

# 2. Items raised at previous road safety audits

The following issues were raised in the December 2018 Stage 1 Road Safety Audit and have been reviewed as part of this Stage 2 Road Safety Audit.

| **Stage 1 Response Report Decision Log** | | | | **Audit Team review of response** | | |
|---|---|---|---|---|---|---|
| Stage 1 Item No. | Problem | Observations | Designer's decision log | Problem remains? **(in part or full)** | Comments | Relevant new Stage 3 item no. **(if applicable)** |
| 2.1.1 | Restricted access to disabled parking bays | Bays difficult to access due to the alignment of the kerb with drivers potentially mounting the footway in close proximity to an uncontrolled pedestrian crossing. | Comment accepted - Design changed. | No | Parking bay layout has been revised. | - |
| 2.2.1 | Width of narrowed section increasing the risk of vehicles striking cyclists | The proposed alignment may result in higher vehicle speeds through the narrow section, increasing the risk of more serious collisions. | Comment accepted – Tracking has been undertaken, to be demonstrated. | No | Physical separation between the vehicle and cycle lanes is now provided | - |
| 2.3.1 | Emergency vehicle access to the High Street | The narrowed section of the High Street may impact on accessibility for emergency vehicles. | Difficult to achieve in full due to other issues facing the scheme. Partially rejected – Allowing width to pass provided negatives to the functionality of the scheme. | Yes | Problem remains | 3.4.1 |
| 2.4.1 | Drainage / standing water concerns where there are level differences | No details of how the difference in levels will be drained has been provided, increasing the risk of pedestrian slips and falls if water is able to collect. | Full drainage design will be undertaken at the detailed design stage. | Yes | Problem remains at various locations. | 3.5.1 |
| 2.5.1 | Confusing use of feature paving | Feature paving is used for pedestrian links and vehicular crossovers. | Differentiated feature paving is only in colour to highlight access points. No difference in texture. | Yes | Problem remains. | 3.6.1 |
| 3.1.1 | Turning movements at the High St/Bath Hill junction | Buses intending to turn right out of High Street at the junction with Bath Hill are orientated such that they may strike the cycle refuge island, potentially resulting in injuries to bus passengers and cyclists. | Swept path drawings will be produced, and appropriate changes made at detailed design. | Yes | Vehicle tracking for all movements by large vehicles required to demonstrate they are achievable. | 3.3.1 |
| 4.1.1 | Pedestrian / cycle conflict where the cycle lane is at footway level | Layout likely to result in conflicts. | This has been redesigned in detailed design to remove conflict. | No | Conflict removed due to change in cycle provision. | - |

| | | | | | | |
|---|---|---|---|---|---|---|
| 4.1.2 | Pedestrian link leads pedestrians into parking bays | Pedestrian link leads pedestrians into parking bays. | Feature paving on footway to be reviewed at detailed design. | Yes | Remains. | 4.1.5 |
| 4.1.3 | Pedestrian/cycle conflict where the cycle lane is at footway level | The uncontrolled pedestrian crossing at the southern end of the High Street will result in pedestrians standing in the cycle facility which is at footway level. | The uncontrolled crossing has now been removed. | No | Conflict removed due to change in cycle provision. | - |
| 4.1.4 | Loading bay restricts visibility from uncontrolled pedestrian crossing | When in use the loading bay on the east side of the High Street is likely to restrict visibility to and from the uncontrolled pedestrian crossing. | Uncontrolled crossing at the junction removed. | Yes | Issue remains in relation to the crossing on Bath Hill and could be exacerbated by proposed landscaping on the radii. | 4.1.6 |
| 4.1.5 | Footway pinch point at the Methodist Church | There is a pinch point in the footway between the cycle lane and the Methodist church. | Design has been revised, Cyclists will no longer be in conflict with pedestrians as a result. | No | Pinch/conflict removed due to change in cycle provision. | - |
| 4.2.1 | Cycle control at the puffin crossing | The contraflow cycle lane is uncontrolled at the puffin crossing. | Design reverted back to a Zebra Crossing. | No | Puffin crossing removed from scheme. | - |
| 4.2.2 | Size of cycle refuge | The cycle refuge island is 2m deep which will result in cyclists using the island protruding into the carriageway. | Following review by the client, the preference is to revert back to the existing arrangement following internal discussion. This may be in the form of a client instruction as the design is non DMRB compliant. | Yes | Refuge dimensions have changed from the stage 1 RSA but are still a concern. | 4.2.4 |
| 4.2.3 | Northbound cyclists joining the carriageway | Additional point of conflict created. | Cycle link removed from scheme. | No | Problem removed due to change in the northbound cycle provision. | - |
| 4.2.4 | Lack of cycle lane transition feature detail | No details have been provided on how the transition is achieved or the gradient of the feature. | 3D level design including the transition from the cycleway to footway will be undertaken at detailed design. | No | Problem removed due to change in cycle provision. | - |
| 5.1.1 | Lack of sign details | No sign details have been provided. | Full signage design will be undertaken at detailed design. | Yes | Sign details not available at the time of the Stage 2 RSA. | 5.1.1 |
| 5.1.2 | Loss of existing bollards | Bollards removed on the north west side of the High Street/Charlton Road junction. | Section has been removed from scheme. | No | Problem removed due to change in cycle provision/ area being removed from the scheme. | - |
| 5.2.1 | Use of conservation kerb as cycle lane delineator | Conservation kerb is shown as the delineator for the contra flow cycle lane. | The use of conservations kerbs and road markings along the cycle lane will be clarified at detailed design. | No | Problem removed due to change in cycle provision. | - |

# 3. General

## 3.1 Scheme Suitability

### 3.1.1 Problem

**Location**: Pedestrians, Cyclists and Equestrians

**Summary**: Safety concerns linked to the suitability and operation of the proposed scheme.

High Street is used by all modes of vehicles. During the site visit, large vehicles and private cars were observed parking, dropping off and unloading throughout the scheme. This included vehicles in hatched areas, parked on double yellow lines (some with blue badges visible) and unloading at the kerbside. The proposed scheme reduces the width of the carriageway and creates a defined edge on one side (the bollards between the vehicle carriageway and contraflow cycle lane). While this should discourage some of the current behavior, it could increase the level of vehicles parking on the footway in order to still allow other vehicles to continue south on High Street. This increases the potential for operational issues through the scheme and potential for conflicts resulting in injuries to pedestrians.

**Recommendation**
It is recommended that double yellow lines and loading restrictions are installed through the length of the High Street and are enforced once the scheme is operational.

**Design Organisation Response:** Parking and loading restrictions will be introduced via a new RPZ covering the length of the High Street, from its junction with Charlton Road which will link up with the existing RPZ at the junction of High Street with Temple Street/Bath Hill. This will be signed in accordance with the TRO.

**Overseeing Organisation Response: No additional comments**

**Agreed RSA Action: Accept**

## 3.2 Cross sections

### 3.2.1 Problem

**Location**: High Street

**Summary**: Offset to raised median bollards.

The raised median that separates vehicles from the contraflow cycle lane varies in width. At its narrowest it is unclear if 450mm clearance from the edge of the vehicle carriageway to the bollards on the raised median can be achieved. This increases the risk of vehicles striking the bollards, which could result in driver injuries or injuries to cyclists in the contraflow lane.

**Recommendation:**
It is recommended that a minimum of 450mm clearance is provided from the edge of the carriageway to all bollards.

**Design Organisation Response:** 450mm clearance to be provided from bollards to carriageway.

**Overseeing Organisation Response:** No additional comments

**Agreed RSA Action:** Accept

## 3.3 Access

### 3.3.1 Problem

**Location**: Throughout scheme

**Summary**: Vehicle movements may impact pedestrians and cyclists.

Vehicle tracking information has not been provided. It is not clear whether all permitted vehicle movements through the High Street can be undertaken without overrunning or overhanging footways or cycleways or striking street furniture. This includes large vehicle movements associated with general deliveries, Post Office vehicle access/egress and all bus movements. This increases the risk of injuries to drivers, passengers, pedestrians and cyclists.

**Recommendation:**
Provide swept path analysis to demonstrate that all permitted vehicle movements are possible within the extents of the carriageway. If necessary, revise the layout so that all expected movements can be accommodated.

**Design Organisation Response:** Swept Path Analysis to be provided to demonstrate all manoeuvres are achievable. The layout will be revised to accommodate as appropriate if required.

**Overseeing Organisation Response:** No additional comments

**Agreed RSA Action:** Accept

## 3.4 Emergency Vehicle Access

### 3.4.1 Problem

**Location:** High Street

**Summary:** Emergency vehicle access to the High Street.

The narrowed entrance and width through extended lengths of the High Street, with a raised median including bollards, to one side, may impact on emergency vehicle access and movements. During the site visit queuing was observed on the High Street, which could result in vehicles mounting the footway in the event of an emergency service vehicle requiring access. This increases the risk of conflicts between vehicles and pedestrians and could result in operational issues for emergency service vehicles.

**Recommendation:**
It is recommended that emergency service providers are consulted on the scheme and operational issues are addressed.

**Design Organisation Response:** Consultation with Emergency Services to be undertaken. Widening the scheme to allow emergency access throughout will negate the objectives of this scheme and lead to inconsiderate parking which will also prevent emergency access. To eliminate this, the widths required are not achievable.

**Overseeing Organisation Response:** Consultation with Emergency services is being undertaken – feedback to be incorporated where necessary

**Agreed RSA Action:** Partially Accept

## 3.5 Drainage

### 3.5.1 Problem

**Location:** Throughout scheme

**Summary:** Potential for drainage to impact users and ponding to occur.

Drainage details for the scheme have not been provided. While kerblines and cross sections will be modified, there are a number of areas where ponding already occurs, which could be exacerbated by the introduction of the raised median, wider footways and retaining walls. The cross sections indicate that drainage will be required in the contraflow cycle lane. Gullies and ponding within the cycle lane

increases the risk of cyclists losing control and being unseated or cyclists avoiding the cycle lane and coming into conflict with either pedestrians or vehicles.

**Recommendation:**
It is recommended that full drainage details are provided, and that the drainage provision addresses the existing ponding issues and concerns regarding gully covers in the contraflow cycle lane.

**Design Organisation Response:** Drainage design ongoing, issues mentioned are routinely resolved as part of the design process although gully covers in the cycleway needs consideration.

**Overseeing Organisation Response:** No additional comments

**Agreed RSA Action:** Partially Accept

## 3.6 Surfacing

### 3.6.1 Problem

**Location:** High Street

**Summary:** Confusing use of feature paving.

Feature paving is used at four locations. Two are at pedestrian links and two are at vehicular crossovers. Pedestrians, particularly those with visual impairments, may find this confusing and be unaware of vehicles crossing the footway where they are expecting a pedestrian link, increasing the risk of conflicts.

**Recommendation:**
It is recommended that different feature paving is provided at pedestrian links and vehicular crossovers to avoid confusion.

**Design Organisation Response:**
The material colours and sizes for the two identified feature paving types will be reviewed to ensure there is a notable difference.

**Overseeing Organisation Response:** No additional comments

**Agreed RSA Action:** Accept

# 4. Pedestrians, Cyclists and Equestrians

## 4.1 Pedestrians

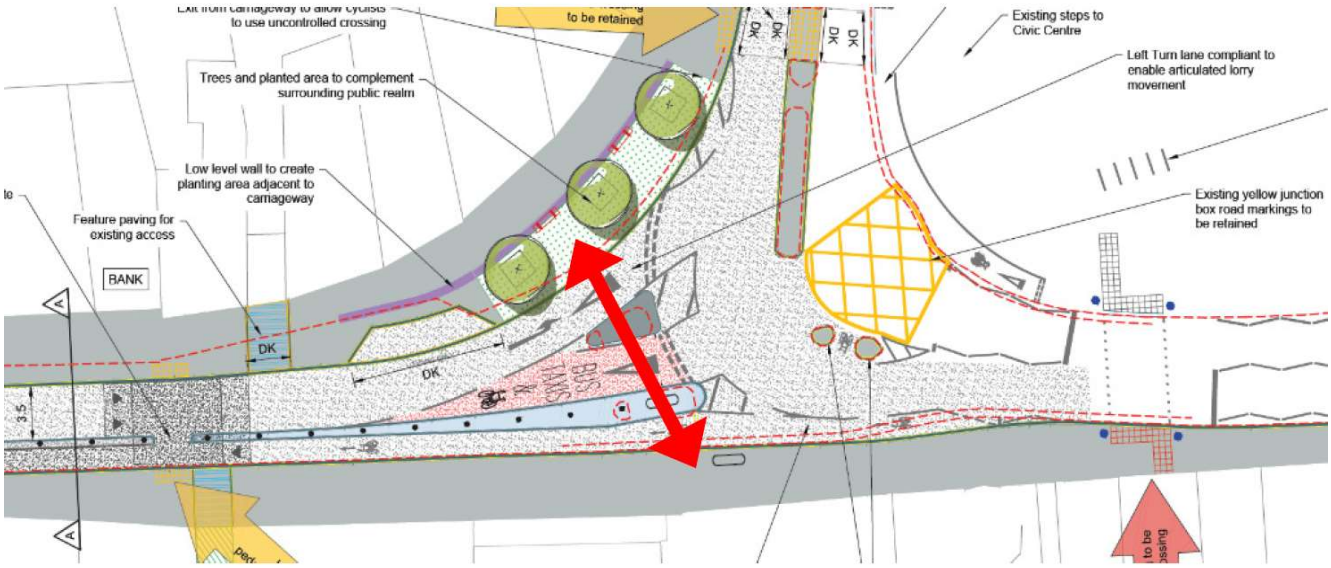
### 4.1.1 Problem

**Location**: Southern end of High Street

**Summary**: Existing desire line uncontrolled crossing being removed.

At the southern end of the High Street, at its junction with Bath Hill, an existing uncontrolled pedestrian crossing on the desire line across the mouth of the junction is being removed. During the site visit, despite the weather conditions, this crossing was well used. The alternative crossing is located 25m north, aligned with the pedestrian link connecting to Ashton Way.

It is likely that pedestrians will still cross the carriageway at this location, potentially obscured by planters and street furniture, where dropped kerbs are not provided and in conflict with vehicles and cyclists. This increases the risk of trips and falls, cyclists being unseated and conflicts with vehicles.




**Recommendation*:***
It is recommended that a crossing is retained on the desire line.

**Design Organisation Response:** Upgraded facility provided nearby that allows for crossing in one movement. The layout of the road means that there is no increase in distance to any destinations. Planting beneath the canopy of the three trees along with the changing level as a result of the retaining wall, will mean any previous desire line will no longer be ‘attractive’.

**Overseeing Organisation Response:** No additional comments

**Agreed RSA Action:** Reject

### 4.1.2 Problem

**Location**: Pedestrian links from Back Lane and Ashton Way

**Summary**: Potential for pedestrians to continue across the carriageway and cycle lane.

Pedestrian links connecting the High Street with Back Lane and Ashton Way are provided between existing buildings. Where the links interface with the High Street vertical features are in place to prevent pedestrians from walking straight out into the carriageway. These vertical features are being removed as part of the scheme increasing the risk of pedestrians continuing straight on into the carriageway and the contraflow cycle lane, away from designated crossing locations. This could result in trips/falls and potential for conflicts with vehicles or cyclists.

**Recommendation:**
It is recommended that vertical features are installed either where the pedestrian links join the High Street or at the carriageway edge (with suitable offsets) to discourage 'straight on' movements.

**Design Organisation Response:** Parked cars are likely to block the exit from Back Lane for people approaching the High Street from the Park. and the Ashton Way passage has been widened to provide better visibility to motorists of people exiting the lane. Speed is also negated at this location by a raised table and the reduction to 20mph since the original barrier was installed. In addition, paving defining the different spatial use will be installed at the boundary of Back Lane. At Ashton Way one of the proposed planters will obstruct the direct line of movement to the cycleway. Therefore, it is considered that adequate mitigation is in place without requiring additional street furniture/ clutter.

**Overseeing Organisation Response:** No additional comments

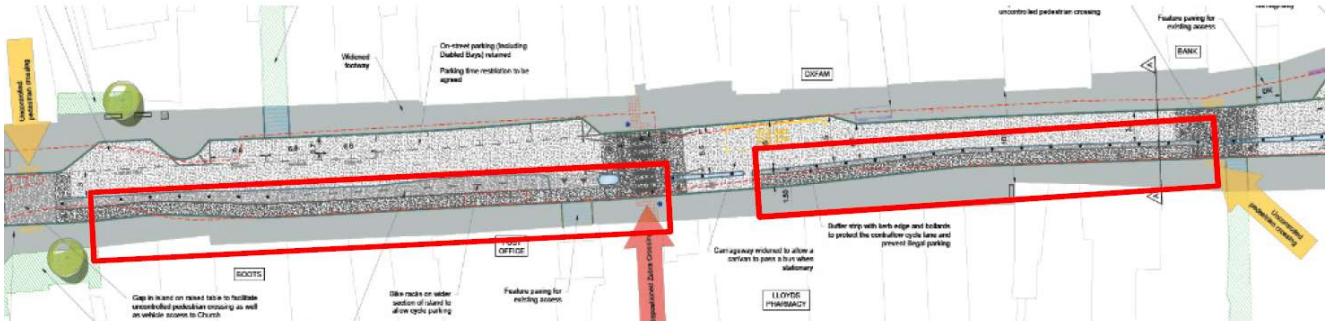
**Agreed RSA Action: Reject**

### 4.1.3 Problem

**Location**: Contraflow cycle lane

**Summary**: Potential for pedestrians to enter contraflow lane.

There are two extended lengths of the contraflow cycle lane that do not have any markings within them. If pedestrians are unaware of the contraflow cycle lane, they may enter the lane in conflict with cyclists. This increases the risk of cyclists becoming unseated and pedestrian injuries.




**Recommendation:**
It is recommended that additional carriageway markings are provided within the contraflow cycle lane.

**Design Organisation Response:** Additional markings to be added

**Overseeing Organisation Response:** No additional comments

**Agreed RSA Action:** Accept

### 4.1.4 Problem

**Location**: Disabled parking bays

**Summary**: Lack of dropped kerb access.

Three disabled parking bays are provided on High Street. The drawings provided indicate that the adjacent kerbs will be full height. The lack of a dropped kerb facility adjacent to disabled parking bays could result in mobility impaired users proceeding in the carriageway in order to locate the nearest dropped kerb. This could result in collisions with vehicles.

**Recommendation**
It is recommended that suitable dropped kerb provisions are provided adjacent to the disabled parking bays.

**Design Organisation Response:** It was not clear on the drawing provided but dropped kerbs are to be provided along this section.

**Overseeing Organisation Response:** No additional comments

**Agreed RSA Action:** Accept

### 4.1.5 Problem

**Location**: Pedestrian link from Back Lane

**Summary**: Path and feature paving lead pedestrians into parking bays.

Feature paving is used where the pedestrian link from Back Lane meets High Street. The paving leads pedestrians into the side of the disabled parking bays on the High Street. Visually impaired pedestrians may not anticipate this, increasing the risk of injury. (See 3.6.1.)

**Recommendation:**
It is recommended that delineation/contrast, suitable for visually impaired users, is provided between the feature paving and edge of carriageway.

**Design Organisation Response:**
The feature paving is proposed to subtly highlight the location of the pedestrian link off the high street and is intended to be a positive inclusion for visually impaired users moving along the High St footway. On reflection the more likely risk will be from other pedestrians on the high st bumping into visually impaired users emerging from the Back Lane link. As such we will utilise standard hazard warning paving where the link meets the High St, following the building line.

**Overseeing Organisation Response:** No additional comments

**Agreed RSA Action:** Accept

**4.1.6 Problem**

**Location*:*** Southern end of High Street

**Summary:** Loading/parking bay and landscaped area restricts visibility to/from the uncontrolled pedestrian crossing.

Visibility to and from the uncontrolled pedestrian crossing on Bath Hill is likely to be restricted by the area of landscaping, and by vehicles using the loading/parking bay. Visibility could be further restricted by the change in level on approach to the crossing and the retaining wall at the rear of the landscaped area. This increases the risk of conflicts involving pedestrians at the crossing point.

**Recommendation:**
It is recommended that the parking/loading bay is relocated out of the visibility splay for the uncontrolled crossing and that the retaining wall, ground level planting and tree canopies do not impact visibility.

**Design Organisation Response:**
Trees are to specified with a 2m clear stem ensuring the canopy will not obstruct views. The species selected (Pyrus chanticleer), has a narrow contained form.
Plant species will be a mix of ground cover and smaller shrubs and perennial with a fully grown height of approx. 600mm.

Overseeing Organisation Response: No additional comments

**Agreed RSA Action:** Reject

#### 4.1.7 Problem

**Location:** Northern end of High Street

**Summary:** Bench and planter restrict visibility to/from the uncontrolled pedestrian crossing.
Visibility to pedestrians, particularly children, approaching the uncontrolled pedestrian crossing at the northern end of High Street is restricted by a bench and planter. This increases the risk of conflicts involving pedestrians at the crossing point.

**Recommendation:**
It is recommended that the bench and planter are located south of the uncontrolled pedestrian crossing.

**Design Organisation Response:** Planter to be relocated/repositioned locally. The south side of the crossing may interfere with footway access to the loading bay.

**Overseeing Organisation Response:** No additional comments

**Agreed RSA Action:** Accept

### 4.2 Cyclists

#### 4.2.1 Problem

**Location**: Bath Hill cycle lane

**Summary**: Potential for conflicts.

It is proposed that the existing cycle lane that runs parallel to the carriageway on Bath Hill is to be extended to the Temple Street Puffin crossing, where cyclists are required to give way. It is not clear how cyclists undertake onward movements and re-join the carriageway.

Extending the current provision increases the risk of conflicts with vehicles if cyclists re-join the carriageway prior to the Puffin crossing or as part of a right turn manoeuvre to access the High Street contraflow cycle lane. There is also an increased risk of cyclist conflicts with pedestrians at the Bath Hill uncontrolled crossing and on the Puffin crossing, which is likely to be used by cyclists as they are provided with no onward direction or requirement to dismount.


***Recommendation:***
It is recommended that the cycle route is modified to better accommodate for all movements and that additional onward journey/dismount signing is provided. This signing should be in advance of the existing cycle lane and as part of the extension, in order that cyclists can position themselves/dismount accordingly.

**Design Organisation Response:** Adding formal cycle hop on in advance of the crossing would introduce an additional hazard in an area with existing conflicts. It is intended that the cycle lane finishes in advance of the toucan where cyclists give way to pedestrians and join the carriageway if necessary at the Toucan crossing. The cycle lane markings will be extended to the Toucan crossing. Necessary signing will be provided as part of design process.

**Overseeing Organisation Response:** No additional comments

**Agreed RSA Action:** Accept

**4.2.2 Problem**

**Location**: Bicycle racks within the raised median

**Summary**: Risk of collisions and vehicles striking bicycles.

Bicycle racks are proposed on the raised median between the vehicle and contraflow cycle lanes. The raised median varies in width and it is unclear if 450mm clearance is provided from the edge of the vehicle carriageway to the racks and cycles that may be left secured to them.

In addition, the audit team are concerned that riders locking/unlocking their bicycle or bicycles left attached to the racks could be struck by vehicles or cyclists. This increases the risk of vehicle strikes, which could result in driver injuries and injuries to cyclists on the raised median or in the adjacent contraflow lane.

***Recommendation:***
Provide a minimum of 900mm clearance each side of the cycle racks in line with best practice (London Cycling Design Standards).

**Design Organisation Response:**
It is not possible to achieve a 900mm clearance to each side at all locations for cycle parking.
Where the median is 2m wide we will achieve this in other areas where the median is narrower, 900 clearance will be provided to the carriageway side of the cycle stands.

**Overseeing Organisation Response:** No additional comments

**Agreed RSA Action:** Partially agree

**4.2.3 Problem**

**Location**: High Street

**Summary**: Offset to planter on the northern splitter island.

A planter is located on the splitter island at the northern end of the scheme. The planter is immediately adjacent to the cycle lane with no offset. This could result in bicycle handlebars striking the planter or cyclists striking the kerb and being unseated.

**Recommendation:**
It is recommended that the planter is removed from the splitter island.

**Design Organisation Response:** The height of planter will be lower than handle bars of general cyclists to negate this risk. We will also consider moving the planter onto the footway west of the cycle path.

**Overseeing Organisation Response:** No additional comments

**Agreed RSA Action:** Reject

**4.2.4 Problem**

**Location**: High Street junction with Bath Hill

**Summary**: Size of cycle refuge island

The cycle refuge island appears to be less than 2m deep, which will result in those cyclists using the island protruding into the carriageway, increasing the risk of being struck by passing vehicles. The orientation of the refuge does not direct cyclists towards High Street. This could result in cyclists using

the gap provided for southbound movements, increasing the risk of head on conflicts with buses, taxis and southbound cyclists.

**Recommendation:**
It is recommended that the refuge is better orientated to facilitate the right turn movement and is of suitable depth to accommodate a turning cyclist.

**Design Organisation Response:** This was noted and omitted from earlier iterations of the design. The design was changed back to include this arrangement at the request from BANES on the basis that the accident statistics did not demonstrate any problems here, and that the current arrangement is functional. It is not possible to fit a DMRB compliant solution in this location. However, as mitigation it is proposed to provide further guidance with road markings.

**Overseeing Organisation Response:** No additional comments

**Agreed RSA Action:** Reject

# 5. Road signs, carriageway markings and lighting

## 5.1 Road signs

### 5.1.1 Problem

**Location**: Throughout scheme

**Summary**: Lack of sign details.

No sign details have been provided. At some locations it may be difficult to sign the one-way vehicle carriageway and contraflow cycle lane without impacting on pedestrians, cyclists or vehicles. Without clear signage both drivers and cyclists could travel the wrong way along the High Street resulting in head on type collisions.

**Recommendation:**
It is recommended that full sign details are provided.

**Design Organisation Response:** Sign design to be provided shortly.

**Overseeing Organisation Response:** No additional comments

**Agreed RSA Action:** Accept

### 5.1.2 Problem

**Location**: Throughout scheme

**Summary**: Splitter islands and raised median vulnerable to strikes.

The splitter islands and raised median between the cycle contra flow lane and the carriageway are vulnerable to vehicle and/or bicycle strikes, particularly at night, due to the lack of features, signs or bollards on the leading edges. This could result in vehicle strikes and unseated cyclists, potentially into the path of oncoming vehicles.

**Recommendation:**
It is recommended that bollards are provided on all of the splitter island and raised median leading edges.

**Design Organisation Response:**
Keep left bollards/ signage will be used as appropriate on the splitter islands, the islands approaching the raised tables between the cycleway and the general traffic lane will be flush with the top surface and therefore will not pose a hazard.

**Overseeing Organisation Response:** No additional comments

**Agreed RSA Action: Accept**

# 6. Design Organisation and Overseeing Organisation Statements

On behalf of the design organisation, I certify that the RSA actions identified in response to the road safety audit problems in this road safety audit have been discussed and agreed with the overseeing organisation.

Name: Peter Franklin

Signed: [redacted]

Position: Design team lead

Organisation: Jacobs

Date: 22/03/2020

On behalf of the overseeing organisation, I certify that the RSA actions identified in response to the road safety audit problems in this road safety audit have been discussed and agreed with the design organisation, and that the RSA actions will be progressed.

Name: Sally-Anne Carr

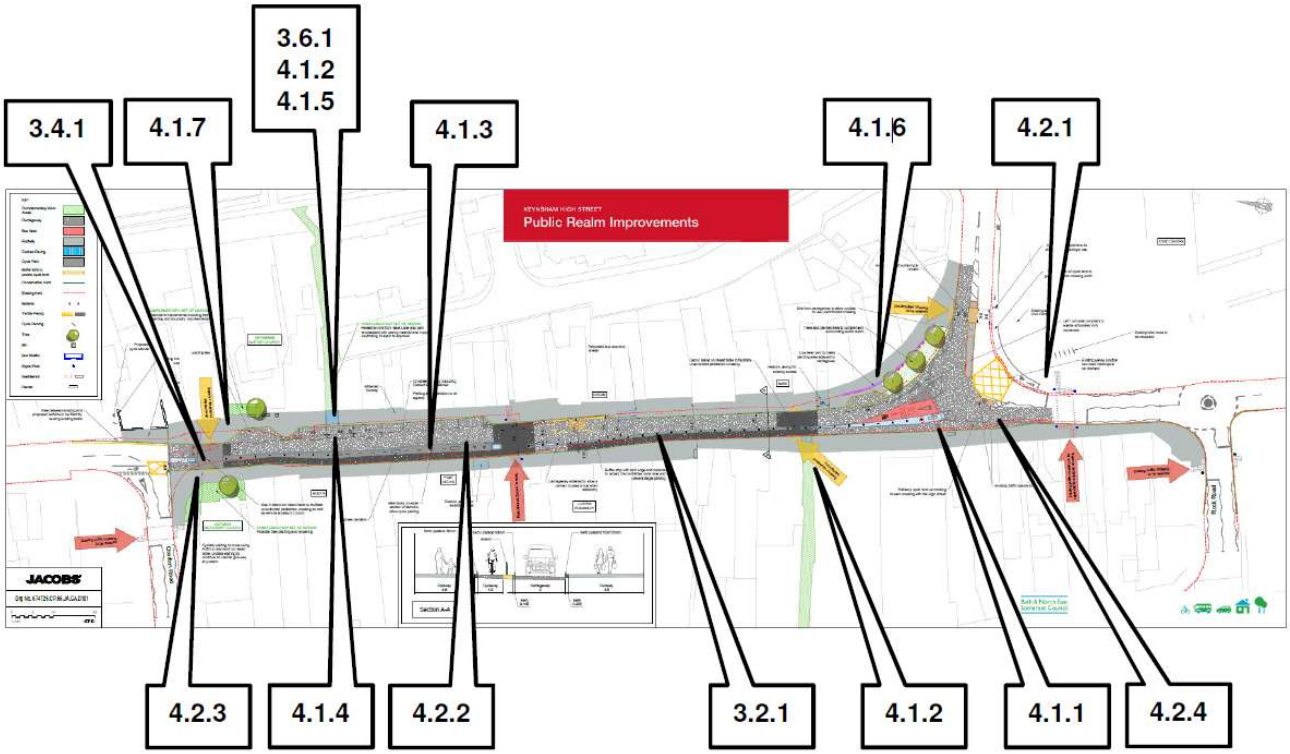
Signed: [redacted]

Position: Projects Director

Organisation: BANES

Date: 18/03/2020

# Appendix C. Key Plan



# APPENDIX D

# Keynsham High Street

## GG 119 Stage 3 Road Safety Audit

674726CH.CP.66.06/RSA3| P03

22.06.2022

# Project Name

| | |
|---|---|
| Project No: | 674726CH.CP.66.06 |
| Document Title: | Keynsham High Street GG 119 Stage 3 Road Safety Audit |
| Document No.: | 674726CH.CP.66.06/RSA3 |
| Revision: | P03 |
| Document Status: | Final Issue |
| Date: | 22.06.2022 |
| Client Name: | Bath & North East Somerset Council (B&NES) |
| Client No: | - |
| Project Manager: | Pete Franklin |
| Author: | Daniel Harris |
| File Name: | 674726CH.CP.66.06/RSA3 |

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## Document history and status

| Revision | Date | Description | Author | Checked | Reviewed | Approved |
|---|---|---|---|---|---|---|
| P01 | 26 May 2022 | Final Issue | Daniel Harris | Phil Gasston | Phil Gasston | Daniel Harris |
| P02 | 14 June 2022 | Update to include PIC and trip data | Daniel Harris | Phil Gasston | Phil Gasston | Daniel Harris |
| P03 | 22 June 2022 | Update to include second set of PIC data | Daniel Harris | Phil Gasston | Phil Gasston | Daniel Harris |

## Contents

# 1 Introduction

## 1.1 Road Safety Audit

1.1.1 This report results from a Stage 3 Road Safety Audit (RSA) carried out on the Keynsham High Street regeneration scheme, in accordance with the Design Manual for Roads and Bridges (DMRB) General Principles and Scheme Governance General Information GG 119.

1.1.2 This Audit has been undertaken at the request of Peter Franklin (Jacobs) on behalf of Bath & North East Somerset Council (B&NES). Georgi Tyler (B&NES – Project Sponsor) approved the brief and Audit Team.

1.1.3 The audit was carried out during May 2022.

1.1.4 The RSA team was as follows:

Daniel Harris BA (Hons) MCIHT MSoRSA RegRSA (IHE)
National Highways Approved Certificate of Competency
Road Safety Audit Team Leader, Jacobs

Phil Gasston MCIHT MSoRSA
National Highways Approved Certificate of Competency
Road Safety Audit Team Member, Jacobs

1.1.5 The scheme has previously been subject to Stage 1 and Stage 2 Road Safety Audits, as detailed in section 2.

## 1.2 Scheme Summary

1.2.1 Keynsham High Street is a one-way road with a contraflow cycle lane. This layout has only recently been introduced in the past few years, initially as a trial before being made permanent and the purpose of this scheme is to formally introduce the new arrangement whilst improving the functionality and public realm.

1.2.2 The footways have been widened and a physical island added to separate vehicles from the contra-flow cycle lane. Two uncontrolled crossing points on raised tables have been added at each end of the scheme, along with elevating the existing zebra crossing which has been relocated slightly north to be in advance of the bus stop.

1.2.3 An existing controlled crossing on Temple Street has also been adjusted.

## 1.3 Site Visits

1.3.1 A daytime site visit was undertaken by the Audit Team on Thursday 12th May 2022 between 1500 and 1700 hours when the weather was sunny, the road surface was dry and traffic conditions were light and free flowing. The footways and crossings were well used by pedestrians and a number of cyclists were noted using the contra-flow system, as well as the main street. The scheme was also visited during hours of darkness on the same day between 2045 and 2130 hours when the weather was

sunny, the road surface was dry and traffic conditions were light to moderate with lower pedestrian and cyclist use.

1.3.2 Representatives from the police and maintaining agent were invited to attend, but declined. The police requested a copy of the RSA.

## 1.4 This Report

1.4.1 This report is presented based upon the checklist contained in Appendix B of GG 119 for RSA. The terms of reference of the RSA are as described in GG 119. The RSA team has examined and reported only on the road safety implications of the scheme as presented and has not examined or verified the compliance of the designs to any other criteria. However, in order to clearly explain a safety problem or the recommendation to resolve a problem, the audit team may on occasion have referred to a design standard for information only. Observations made should not be construed as implying that a technical audit has been undertaken in any respect.

1.4.2 This RSA has examined the road safety implications of the scheme as presented, based on the normal operating state.

1.4.3 The drawings and documents provided as part of this RSA are shown in the List of Drawings and Documents Supplied in Appendix A.

1.4.4 Two sets of Personal Injury Collision (PIC) data were supplied to the RSA team. The first set covered a period from 01/06/2014 to 31/05/2019. This data period represents the last extended period (for which data is available) where the High Street was operational under the previous arrangement. Since this time the operation of the High Street has been impacted by Covid-19 (March 2020), a social distancing TTRO (temporary traffic regulation order) 9am-5pm seven days a week (Summer 2020), construction starting (June 2021) and a 24/7 construction TTRO (July 2021) in place until March 2022. This data indicates that seven PICs occurred during the five year period (all of which were before February 2017) within the extents of the High Street regeneration scheme. This includes three slight collisions and four serious collisions. The collisions include four between vehicles and crossing pedestrians, two between cyclists and vehicles and one rear shunt.

1.4.5 The second PIC data set covered a period from 01/05/2017 to 31/05/2022 and represents the most up to date data. This data indicates that no PICs have been recorded during the 61 month period, within the extents of the High Street regeneration scheme.

1.4.6 In addition to the PIC data, a log of pedestrian trips and falls following the opening of the scheme was supplied, as this had been raised as a concern locally. This included 46 reports in total, of which 17 were in the fortnight after opening, 21 in the following month (April) and 8 in May. It was noted that some of the logged reports were multiple reports of the same event or comments, rather than incidents of trips or falls.

1.4.7 The log generally indicates a declining trend as users became more familiar with the new arrangement. This trend may have also been aided by additional temporary signs installed on site and coverage in the local press.

1.4.8 A location plan is supplied in Appendix B. Each of the problems identified by the RSA Team has been allocated a unique reference number and is shown on the plan extracts contained within Appendix C.

## 1.5 What happens next?

1.5.1 This audit report has been submitted to the Project Sponsor. The design organisation is required to manage the production of the RSA response report, as detailed in GG 119, in collaboration with the Overseeing Organisation. The response report should reach one of the conclusions set out below, namely:

- accept the RSA problem and recommendation made by the RSA team;
- accept the RSA problem raised, but suggest an alternative solution, giving appropriate reasoning; or
- disagree with the RSA problem and recommendation raised, giving appropriate reasoning for rejecting both.

1.5.2 In addition, the RSA response report shall contain a response from the Overseeing Organisation and RSA action for each problem agreed between the Design Organisation and Overseeing Organisation.

# 2 Items Raised in previous Road Safety Audits

## 2.1 Summary

2.1.1 The road safety aspects of the Keynsham High Street regeneration scheme have been reviewed in two previous RSAs, as detailed below:

- Stage 1 RSA undertaken in December 2018
- Stage 2 RSA undertaken in January 2020

2.1.2 Stage 2 Road Safety Audit problems and designers responses have been reviewed as part of this Stage 3 Road Safety Audit, within the table below.

| Designers Response to Stage 2 Audit Problems | | | | Audit Team review of Stage 2 response | | |
|---|---|---|---|---|---|---|
| **Stage 2 item number** | **Problem** | **Recommendation** | **Designers Organisation Response /Agreed RSA Action** | **Problem remains (full or partial)** | **Comment** | **Relevant new RSA 3 item number** |
| 3.1.1 | Location: Pedestrians, Cyclists and Equestrians<br>Summary: Safety concerns linked to the suitability and operation of the proposed scheme.<br>High Street is used by all modes of vehicles. During the site visit, large vehicles and private cars were observed parking, dropping off and unloading throughout the scheme. This included vehicles in hatched areas, parked on double yellow lines (some with blue badges visible) and unloading at the kerbside. The proposed scheme reduces the width of the carriageway and creates a defined edge on one side (the bollards between the vehicle carriageway and contraflow cycle lane). While this should discourage some of the current behaviour, it could increase the level of vehicles parking on the footway in order to still allow other vehicles to continue south on High Street. This increases the potential for operational issues through the scheme and potential for conflicts resulting in injuries to pedestrians. | It is recommended that double yellow lines and loading restrictions are installed through the length of the High Street and are enforced once the scheme is operational. | There is currently an adjacent EPZ which is going to be extended to cover the high street. This will be signed in accordance with the TRO. | No | Clearway extended. | - |
| 3.2.1 | Location: High Street<br>Summary: Offset to raised median bollards.<br>The raised median that separates vehicles from the contraflow cycle lane varies in width. At its narrowest it is unclear if 450mm clearance from the edge of the vehicle carriageway to the bollards on the raised median can be achieved. This increases the risk of vehicles striking the bollards, which could result in driver injuries or injuries to cyclists in the contraflow lane. | It is recommended that a minimum of 450mm clearance is provided from the edge of the carriageway to all bollards. | 450mm clearance to be provided from bollards to carriageway. | No | Clearance provided. | - |
| 3.3.1 | Location: Throughout scheme<br>Summary: Vehicle movements may impact pedestrians and cyclists. | Provide swept path analysis to demonstrate that all permitted vehicle | Swept Path Analysis to be provided to demonstrate all manoeuvres are achievable. | No | Designers Organisation Response / Agreed RSA Action noted. No | - |

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| | Vehicle tracking information has not been provided. It is not clear whether all permitted vehicle movements through the High Street can be undertaken without overrunning or overhanging footways or cycleways or striking street furniture. This includes large vehicle movements associated with general deliveries, Post Office vehicle access/egress and all bus movements. This increases the risk of injuries to drivers, passengers, pedestrians and cyclists. | movements are possible within the extents of the carriageway. If necessary, revise the layout so that all expected movements can be accommodated. | The layout will be revised to accommodate as appropriate if required. | | related problems observed on site. | |
| 3.4.1 | Location: High Street<br>Summary: Emergency vehicle access to the High Street. The narrowed entrance and width through extended lengths of the High Street, with a raised median including bollards to one side, may impact on emergency vehicle access and movements. During the site visit queuing was observed on the High Street, which could result in vehicles mounting the footway in the event of an emergency service vehicle requiring access. This increases the risk of conflicts between vehicles and pedestrians and could result in operational issues for emergency service vehicles. | It is recommended that emergency service providers are consulted on the scheme and operational issues are addressed. | Consultation with Emergency Services to be undertaken. Widening the scheme to allow emergency access throughout will negate the objectives of this scheme and lead to inconsiderate parking which will also prevent emergency access. To eliminate this the widths required are not achievable. | No | Designers Organisation Response / Agreed RSA Action noted. | - |
| 3.5.1 | Location: Throughout scheme<br>Summary: Potential for drainage to impact users and ponding to occur.<br>Drainage details for the scheme have not been provided. While kerblines and cross sections will be modified, there are a number of areas where ponding already occurs, which could be exacerbated by the introduction of the raised median, wider footways and retaining walls. The cross sections indicate that drainage will be required in the contraflow cycle lane. Gullies and ponding within the cycle lane increases the risk of cyclists losing control and being unseated or cyclists avoiding the cycle lane and coming into conflict with either pedestrians or vehicles. | It is recommended that full drainage details are provided, and that the drainage provision addresses the existing ponding issues and concerns regarding gully covers in the contraflow cycle lane. | Drainage design ongoing, issues mentioned are routinely resolved as part of the design process although gully covers in the cycleway needs consideration. | Yes – in part | Area where ponding could occur identified at southern end of the scheme. | 3.1.2 |
| 3.6.1 | Location: High Street<br>Summary: Confusing use of feature paving. | It is recommended that different feature paving is provided at pedestrian | No response provided. | No | Not considered a problem at this stage. | - |

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| | Feature paving is used at four locations. Two are at pedestrian links and two are at vehicular crossovers. Pedestrians, particularly those with visual impairments, may find this confusing and be unaware of vehicles crossing the footway where they are expecting a pedestrian link, increasing the risk of conflicts. | links and vehicular crossovers to avoid confusion. | | | | |
| 4.1.1 | Location: Southern end of High Street<br>Summary: Existing desire line uncontrolled crossing being removed.<br>At the southern end of the High Street, at its junction with Bath Hill, an existing uncontrolled pedestrian crossing on the desire line across the mouth of the junction is being removed. During the site visit, despite the weather conditions, this crossing was well used. The alternative crossing is located 25m north, aligned with the pedestrian link connecting to Ashton Way.<br><br>It is likely that pedestrians will still cross the carriageway at this location, potentially obscured by planters and street furniture, where dropped kerbs are not provided and in conflict with vehicles and cyclists. This increases the risk of trips and falls, cyclists being unseated and conflicts with vehicles. | It is recommended that a crossing is retained on the desire line. | Design Organisation Response: Upgraded facility provided nearby that allows for crossing in one movement. The layout of the road means that there is no increase in distance to any destinations. | No | Not considered a problem at this stage. | - |
| 4.1.2 | Location: Pedestrian links from Back Lane and Ashton Way<br>Summary: Potential for pedestrians to continue across the carriageway and cycle lane.<br>Pedestrian links connecting the High Street with Back Lane and Ashton Way are provided between existing buildings. Where the links interface with the High Street vertical features are in place to prevent pedestrians from walking straight out into the carriageway. These vertical features are being removed as part of the scheme increasing the risk of pedestrians continuing straight on into the carriageway and the contraflow cycle lane, away from designated crossing locations. This could result in trips/falls and potential for conflicts with vehicles or cyclists. | It is recommended that vertical features are installed either where the pedestrian links join the High Street or at the carriageway edge (with suitable offsets) to discourage 'straight on' movements. | Design Organisation Response: Parked cars are likely to block the exit from Back Lane for people approaching the High Street from the Park and the Ashton Way passage has been widened to provide better visibility to motorists of people exiting the lane. Speed is also negated at this location by a raised table and the reduction to 20mph since | No | Designers Organisation Response / Agreed RSA Action noted. Not considered a problem at this stage. | - |

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| | | | the original barrier was installed. | | | |
| 4.1.3 | Location: Contraflow cycle lane<br>Summary: Potential for pedestrians to enter contraflow lane.<br>There are two extended lengths of the contraflow cycle lane that do not have any markings within them. If pedestrians are unaware of the contraflow cycle lane, they may enter the lane in conflict with cyclists. This increases the risk of cyclists becoming unseated and pedestrian injuries. | It is recommended that additional carriageway markings are provided within the contraflow cycle lane. | Additional markings to be added | No | Designers Organisation Response / Agreed RSA Action noted. | - |
| 4.1.4 | Location: Disabled parking bays<br>Summary: Lack of dropped kerb access.<br>Three disabled parking bays are provided on High Street. The drawings provided indicate that the adjacent kerbs will be full height. The lack of a dropped kerb facility adjacent to disabled parking bays could result in mobility impaired users proceeding in the carriageway in order to locate the nearest dropped kerb. This could result in collisions with vehicles. | It is recommended that suitable dropped kerb provisions are provided adjacent to the disabled parking bays. | It was not clear on the drawing provided but dropped kerbs are to be provided along this section. | No | Dropped kerbs installed. | - |
| 4.1.5 | Location: Pedestrian link from Back Lane<br>Summary: Path and feature paving lead pedestrians into parking bays.<br>Feature paving is used where the pedestrian link from Back Lane meets High Street. The paving leads pedestrians into the side of the disabled parking bays on the High Street. Visually impaired pedestrians may not anticipate this, increasing the risk of injury. (See 3.6.1.) | It is recommended that delineation/contrast, suitable for visually impaired users, is provided between the feature paving and edge of carriageway. | No response provided. | No | Not considered a problem at this stage. | - |
| 4.1.6 | Location: Southern end of High Street<br>Summary: Loading/parking bay and landscaped area restricts visibility to/from the uncontrolled pedestrian crossing.<br>Visibility to and from the uncontrolled pedestrian crossing on Bath Hill is likely to be restricted by the area of landscaping, and by vehicles using the loading/parking bay. Visibility could be further restricted by the change in level on approach to the crossing and the retaining wall at the rear of the landscaped area. This | It is recommended that the parking/loading bay is relocated out of the visibility splay for the uncontrolled crossing and that the retaining wall, ground level planting and tree canopies do not impact visibility. | No response provided. | No | Not considered a problem at this stage. | - |

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| | increases the risk of conflicts involving pedestrians at the crossing point. | | | | | |
| 4.1.7 | Location: Northern end of High Street<br>Summary: Bench and planter restrict visibility to/from the uncontrolled pedestrian crossing. Visibility to pedestrians, particularly children, approaching the uncontrolled pedestrian crossing at the northern end of High Street is restricted by a bench and planter. This increases the risk of conflicts involving pedestrians at the crossing point. | It is recommended that the bench and planter are located south of the uncontrolled pedestrian crossing. | Planter to be relocated | No | Not considered a problem at this stage. | - |
| 4.2.1 | Location: Bath Hill cycle lane<br>Summary: Potential for conflicts.<br>It is proposed that the existing cycle lane that runs parallel to the carriageway on Bath Hill is to be extended to the Temple Street Puffin crossing, where cyclists are required to give way. It is not clear how cyclists undertake onward movements and re-join the carriageway.<br>Extending the current provision increases the risk of conflicts with vehicles if cyclists re-join the carriageway prior to the Puffin crossing or as part of a right turn manoeuvre to access the High Street contraflow cycle lane. There is also an increased risk of cyclist conflicts with pedestrians at the Bath Hill uncontrolled crossing and on the Puffin crossing, which is likely to be used by cyclists as they are provided with no onward direction or requirement to dismount. | It is recommended that the cycle route is modified to better accommodate for all movements and that additional onward journey/dismount signing is provided. This signing should be in advance of the existing cycle lane and as part of the extension, in order that cyclists can position themselves/dismount accordingly. | Signing to be provided as part of design process | No | Signing and markings provided. | - |
| 4.2.2 | Location: Bicycle racks within the raised median<br>Summary: Risk of collisions and vehicles striking bicycles.<br>Bicycle racks are proposed on the raised median between the vehicle and contraflow cycle lanes. The raised median varies in width and it is unclear if 450mm clearance is provided from the edge of the vehicle carriageway to the racks and cycles that may be left secured to them.<br>In addition, the audit team are concerned that riders locking/unlocking their bicycle or bicycles left attached | Provide a minimum of 900mm clearance each side of the cycle racks in line with best practice (London Cycling Design Standards). | No response provided. | No | Not considered a problem at this stage. | - |

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| | to the racks could be struck by vehicles or cyclists. This increases the risk of vehicle strikes, which could result in driver injuries and injuries to cyclists on the raised median or in the adjacent contraflow lane. | | | | | |
| 4.2.3 | Location: High Street<br>Summary: Offset to planter on the northern splitter island.<br>A planter is located on the splitter island at the northern end of the scheme. The planter is immediately adjacent to the cycle lane with no offset. This could result in bicycle handlebars striking the planter or cyclists striking the kerb and being unseated. | It is recommended that the planter is removed from the splitter island. | Height of planter will be lower than handle bars to negate this risk | No | Not considered a problem at this stage. | - |
| 4.2.4 | Location: High Street junction with Bath Hill<br>Summary: Size of cycle refuge island.<br>The cycle refuge island appears to be less than 2m deep, which will result in those cyclists using the island protruding into the carriageway, increasing the risk of being struck by passing vehicles. The orientation of the refuge does not direct cyclists towards High Street. This could result in cyclists using the gap provided for southbound movements, increasing the risk of head on conflicts with buses, taxis and southbound cyclists. | It is recommended that the refuge is better orientated to facilitate the right turn movement and is of suitable depth to accommodate a turning cyclist. | The design was changed back to this arrangement at client's request. It is not possible to fit a DMRB compliant solution in this location that offers the protection the client requires. | No | Designers Organisation Response / Agreed RSA Action noted. | - |
| 5.1.1 | Location: Throughout scheme<br>Summary: Lack of sign details.<br>No sign details have been provided. At some locations it may be difficult to sign the one-way vehicle carriageway and contraflow cycle lane without impacting on pedestrians, cyclists or vehicles. Without clear signage both drivers and cyclists could travel the wrong way along the High Street resulting in head on type collisions. | It is recommended that full sign details are provided. | Sign design to be provided shortly. | No | Designers Organisation Response / Agreed RSA Action noted. | - |
| 5.1.2 | Location: Throughout scheme<br>Summary: Splitter islands and raised median vulnerable to strikes.<br>The splitter islands and raised median between the cycle contra flow lane and the carriageway are vulnerable to vehicle and/or bicycle strikes, particularly at night, due | It is recommended that bollards are provided on all of the splitter island and raised median leading edges. | No response provided. | No | Bollards provided. | - |

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| | to the lack of features, signs or bollards on the leading edges. This could result in vehicle strikes and unseated cyclists, potentially into the path of oncoming vehicles. | | | | | |

# 3 Items Raised in this Stage 3 Road Safety Audit

## 3.1 General

### 3.1.1 Problem

**Location:** High Street

**Summary:** Parking on the footway increases the potential for conflicts with pedestrians

**Problem:** There is evidence that vehicles are parking on the footway adjacent to the High Street carriageway, particularly towards the southern end of the scheme. This increases the potential for conflicts between pedestrians and cyclists, which could result in pedestrian injuries.

**RECOMMENDATION**

It is recommended that additional physical measures are installed to discourage parking on the footway and that the existing clearway is enforced.

### 3.1.2 Problem

**Location:** Footway at the southern end of the High Street at the existing access adjacent to property number 69.

**Summary:** Potential for drainage to impact users and ponding to occur.

**Problem:** While drainage is provided in this area, it is unclear if the carriageway and footway surface water will drain adequately across the feature paved existing access adjacent to property number 69. Ponding water at this location could result in

vehicles skidding and pedestrian slips, increasing the potential for conflicts and pedestrian injuries. The problem could be exacerbated during cold conditions, when ponding water in this area may freeze.


**RECOMMENDATION**

It is recommended that the drainage provision adequately removes surface water from this area.

### 3.1.3 Problem

**Location:** Gully covers in parking bays.

**Summary:** Slotted gully covers in parking bays could result in pedestrian injuries.

**Problem:** There are a number of slotted gully covers located within parking bays, including the disabled bays. As those leaving vehicles will likely be heading towards the footway, there is potential that heeled shoes, walking aids, pram wheels or wheelchair wheels could be trapped within the gully cover. This could results in trips, falls and abrupt stops increasing the potential for injuries.


**RECOMMENDATION**

It is recommended that pedestrian friendly gully covers are installed in place of the slotted covers.

## 3.2 Walking, Cycling and Horse Riding

### 3.2.1 Problem

**Location:** Bath Hill uncontrolled pedestrian crossing.

**Summary:** Incorrect and lifting tactile paving could cause confusion and result in trips or falls.

**Problem:** An uncontrolled pedestrian crossing, with central refuge, is provided on Bath Hill. The following tactile paving related issues were observed at this crossing:

- The tactile paving on the north side of the crossing is red. Tactile paving at uncontrolled crossings should be buff.
- The tactile paving on the north side does not align with the tactile paving in the central refuge.
- The stick down tactile paving within the central refuge is lifting in places.

These issues could result in confusion for partially sighted users and increase the chance of trips and falls. Potentially into the carriageway.

**RECOMMENDATION**

It is recommended that the red tactiles are replaced with buff, that the tactiles align through the crossing and the lifting tactiles are removed and replaced.

### 3.2.2 Problem

**Location:** High Street Zebra Crossing.

**Summary:** Incorrect and patchy tactile paving could result in problems for partially sighted users.

**Problem:** The zebra crossing provided on High Street includes incorrect tactile paving arrangements that do not guide users to the beacon. In addition, the tactile arrangement on the west side of the carriageway has a number of utility covers within it. These issues could result in partially sighted users missing the crossing point or being unclear of whether it is controlled or not. This increases the potential for pedestrian conflicts with cyclists and vehicles, which could result in injury.

**RECOMMENDATION**

It is recommended that the tactile arrangements are installed as per the DETR Guidance on Use of Tactile Paving Surfaces and that tactile paving is added to utility covers if they impact the revised layouts.

### 3.2.3 Problem

**Location:** Contraflow cycle lane at the northern end of the High Street in front of property number 40 (The Entertainer).

**Summary:** Large, smooth utility cover may become slippery when wet increasing the potential for collisions and unseated riders.

**Problem:** At the northern end of the scheme in front of property number 40 (The Entertainer) there is a large utility cover within the contraflow cycle lane. The cover has a metal finish and is relatively smooth. When wet, it is likely this cover will be slippery and could impact braking cyclists, resulting in riders being unseated, leading to injuries.

**RECOMMENDATION**

It is recommended that the cover is treated with an antiskid material.

3.2.4 Problem

**Location:** High Street Bus Stop.

**Summary:** Lack of corduroy paving could result in partially sighted pedestrians falling into the carriageway.

**Problem:** Corduroy paving has not been installed at the kerb edge of the bus stop on High Street. This could result in partially sighted pedestrians being unaware of the raised kerb, leading to trips and falls, potentially into the carriageway.

**RECOMMENDATION**

It is recommended that corduroy paving is installed as per the DETR Guidance on Use of Tactile Paving Surfaces.

3.2.5 Problem

**Location:** Contraflow cycle route.

**Summary:** Cyclists using the contraflow cycle lane in the wrong direction.

**Problem:** During the site visit cyclists were observed using the contraflow cycle lane in both directions. This could result in head on collisions between cyclists and increases the potential for collisions between cyclists and pedestrians, both resulting in injuries.

**RECOMMENDATION**

It is recommended that additional signing and carriageway markings are provided.

## 3.3 Traffic Signs, Carriageway Markings and Lighting

### 3.3.1 Problem

**Location:** Northern end of the High Street.

**Summary:** Confusing map type direction sign could result in rear shunt collisions.

**Problem:** On the southbound approach to High Street a map type direction sign is provided. The layout of this sign could result in confusion as drivers could interpret that the High Street (ahead) is for buses and taxis only. Confusion and hesitation at this location could increase the potential for rear shunt collisions.


**RECOMMENDATION**

It is recommended that the sign face is revised.

### 3.3.2 Problem

**Location:** Uncontrolled pedestrian crossing point at the end of the Ashton Way access lane.

**Summary:** Missing 'Look Right' carriageway markings increase the potential for conflicts with cyclists using the contraflow lane.

**Problem:** Where the Ashton Way access lane meets the High Street an uncontrolled pedestrian crossing is provided. On the west side of the contraflow cycle lane 'Look Right' carriageway markings have not been provided, but they have been elsewhere. At this location this could increase the potential for pedestrians to step into the contraflow cycle lane without looking to the right, resulting in collisions.

**RECOMMENDATION**

It is recommended that 'Look Right' carriageway markings are installed where the crossing interfaces with the contraflow cycle lane.

# 4 Road Safety Audit Team Statement

## 4.1 Audit Team Statement

4.1.1 This RSA3 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. The problems identified in this report together with associated safety improvement suggestions that we recommend should be studied for implementation. No member of the audit team has been involved with the scheme design.

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

4.1.3 Signed on behalf of Jacobs

| **Road Safety Audit Team Leader** | |
|---|---|
| Name: | Daniel Harris |
| Signed: | [redacted] |
| Position: | Principal Road Safety Engineer - Operational Safety and Traffic Engineering |
| Organisation: | Jacobs |
| Address: | 1 The Square, Temple Quay, Bristol, BS1 6DG |
| Date: | 22.06.2022 |
| **Road Safety Audit Team Members** | |
| Name: | Phil Gasston |
| Signed: | [redacted] |
| Position: | Associate Director of Operational Road Safety |
| Organisation: | Jacobs |
| Address: | Churchill House, Churchill Way, Cardiff, CF10 2HH |
| Date: | 22.06.2022 |

# Appendix A. Drawings & Documents Provided for Road Safety Audit

## Table A.1 – Supplied Documents

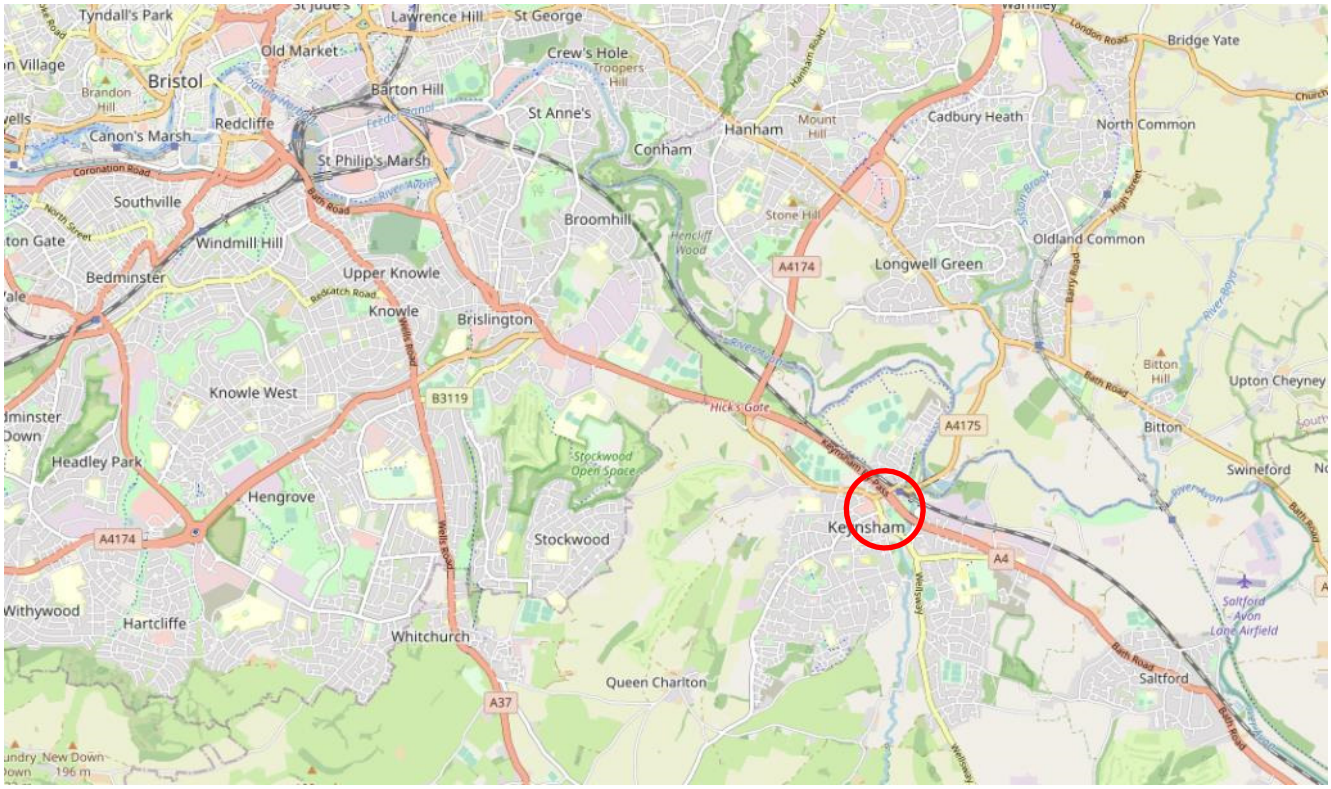
| Document Number / Reference | Title | Date/ Version |
|---|---|---|
| Keynsham High Street Stage 3 Road Safety Audit Brief | Keynsham High Street Stage 3 Road Safety Audit Brief | 05/04/2022 |
| Road Safety Audit Stage 1 Response | Keynsham High Street Stage 1 Road Safety Audit Response Report | A |
| Road Safety Audit Stage 2 Response | Keynsham High Street Stage 2 Road Safety Audit Response Report | 0 |
| 674726CH.CP.66.01/001 | Keynsham High Street Walking, Cycling & Horse Riding Assessment & Review Report | 001 |
| Keynsham High St Works – Trips & Falls Database | Keynsham High St Works – Trips & Falls Database | Last input 30/05/22 |
| Keynsham High Street PIC Data | Keynsham High Street PIC Data | 01/06/14 to 31/05/19 |
| Keynsham High Street PIC Data | Keynsham High Street PIC Data | 01/05/17 to 31/05/22 |

## Table A.2 – Supplied Drawings

| Drawing Number / Reference | Title | Revision |
|---|---|---|
| 674726.CP.66-JA-DR-0101 | General Arrangement | C01 |
| 674726.CP.66-JA-DR-0102 | General Arrangement | C02 |
| 674726.CP.66-JA-DR-0111 | 3D Design Alignment | C01 |
| 674726.CP.66-JA-DR-0112 | Cross Section Markers | C01 |
| 674726.CP.66-JA-DR-0113 | 3D Design Cross Section C-L-01 | C02 |
| 674726.CP.66-JA-DR-0114 | 3D Design Cross Section C-L-01 | C02 |
| 674726.CP.66-JA-DR-0115 | 3D Design Cross Section C-L-01 | C01 |
| 674726.CP.66-JA-DR-0116 | 3D Design Cross Section C-R-02 | C01 |
| 674726.CP.66-JA-DR-0117 to 0127 | 3D Design Cross Section C-R-01 Sheets 1 to 11 | C01 |
| 674726.CP.66-JA-DR-0128 to 0129 | 3D Design Cross Section C-R-01 Sheets 12 to 13 | C02 |
| 674726.CP.66-JA-DR-0130 | 3D Design Vertical L Section | C01 |
| 674726.CP.66-JA-DR-0131 | 3D Design Section C-L-01 | C01 |
| 674726.CP.66-JA-DR-0132 | 3D Design Section C-R-01 | C01 |
| 674726.CP.66-JA-DR-0133 | 3D Design Design Contours | C02 |
| 674726.CP.66-JA-DR-0150 | Ashton Way Car Park | C01 |
| 674726.CP.66-JA-DR-0151 to 0152 | Existing Utilities | C01 |
| 674726.CP.66-JA-DR-0153 | Site Compound Location Plan | C01 |
| 674726.CP.66-JA-DR-0201 to 0202 | Site Clearance | C01 |
| 674726.CP.66-JA-DR-0501 to 0502 | Existing Drainage GAs | C01 |
| 674726.CP.66-JA-DR-0503 to 0504 | Proposed Drainage GAs | C02 |
| 674726.CP.66-JA-DR-0505 | Proposed Drainage GAs | C04 |
| 674726.CP.66-JA-DR-0506 | Drainage Pipe and Manhole Schedules | C04 |

| | | |
|---|---|---|
| 674726.CP.66-JA-DR-0507 | Drainage Pipe and Manhole Schedules | C03 |
| 674726.CP.66-JA-DR-0520 | Drainage Road Gully Detail | C01 |
| 674726.CP.66-JA-DR-0521 | Drainage Cyclepath Gully Detail | C01 |
| 674726.CP.66-JA-DR-0522 | Drainage Footpath Gully Detail Type 1 | C01 |
| 674726.CP.66-JA-DR-0523 | Drainage Footpath Gully Detail Type 2 | C01 |
| 674726.CP.66-JA-DR-0524 | Drainage Downpipe Detail | C01 |
| 674726.CP.66-JA-DR-0525 | Rodding Eye Detail | C01 |
| 674726.CP.66-JA-DR-0526 to 0527 | Proposed Drainage Trial Holes | C01 |
| 674726.CP.66-JA-DR-0701 | Pavement Plan | C01 |
| 674726.CP.66-JA-DR-0702 | Pavement Plan | C02 |
| 674726.CP.66-JA-DR-0703 | Proposed Kerb Plan | C01 |
| 674726.CP.66-JA-DR-0704 | Proposed Kerb Plan | C02 |
| 674726.CP.66-JA-DR-0705 | New Kerb Layout and Railing Elev | C01 |
| 674726.CP.66-JA-DR-1101 to 1102 | Paving Layout | C01 |
| 674726.CP.66-JA-DR-1103 | Paving Layout Detail Sheet 1 | C01 |
| 674726.CP.66-JA-DR-1104 | Paving Layout Detail Sheet 2 | C01 |
| 674726.CP.66-JA-DR-1105 | Paving Layout Detail Sheet 3 | C02 |
| 674726.CP.66-JA-DR-1106 | Raised Table Sections | C01 |
| 674726.CP.66-JA-DR-1107 | Paving Standard Details | C01 |
| 674726.CP.66-JA-DR-1120 | Street Furniture Sheet 1 of 2 | C01 |
| 674726.CP.66-JA-DR-1121 | Street Furniture Sheet 2 of 2 | C02 |
| 674726.CP.66-JA-DR-1122 | Street Furniture Details | C01 |
| 674726.CP.66-JA-DR-1200 | Traffic Sign Schedule | C01 |
| 674726.CP.66-JA-DR-1201 | Traffic Signs Bollards and Beacons | C01 |
| 674726.CP.66-JA-DR-1202 | Traffic Signs Bollards and Beacons | C02 |
| 674726.CP.66-JA-DR-1203 to 1204 | Traffic Sign Details | C01 |
| 674726.CP.66-JA-DR-1205 to 1206 | Road Markings | C01 |
| 674726.CP.66-JA-DR-1251 | Temple Street Toucan General Arrangement | C01 |
| 674726.CP.66-JA-DR-1253 | Temple Street Toucan Visibility | C01 |
| 674726.CP.66-JA-DR-1301 | Proposed Lighting | C02 |
| 674726.CP.66-JA-DR-1401 | Termination and Indicative Conns | C02 |
| 674726.CP.66-JA-DR-1402 | Market Power Supply Standard Detail | C01 |
| 674726.CP.66-JA-DR-2401 | Retaining Wall | C03 |
| 674726.CP.66-JA-DR-2402 to 2403 | Retaining Wall RC Details | C01 |
| 674726.CP.66-JA-DR-2404 | Retaining Wall Coping Plan | C01 |
| 674726.CP.66-JA-DR-2405 | Setting Out Information | C01 |
| 674726.CP.66-JA-DR-3001 | Planting Plan and Schedule | C02 |
| 674726.CP.66-JA-SH-2402 | Reinforcement Schedule 1 | C01 |
| 674726.CP.66-JA-SH-2403 | Reinforcement Schedule 2 | C01 |
| 674726.CP.66-JA-TRO-01 | Traffic Regulation Order | C01 |

# Appendix B. Location Plan

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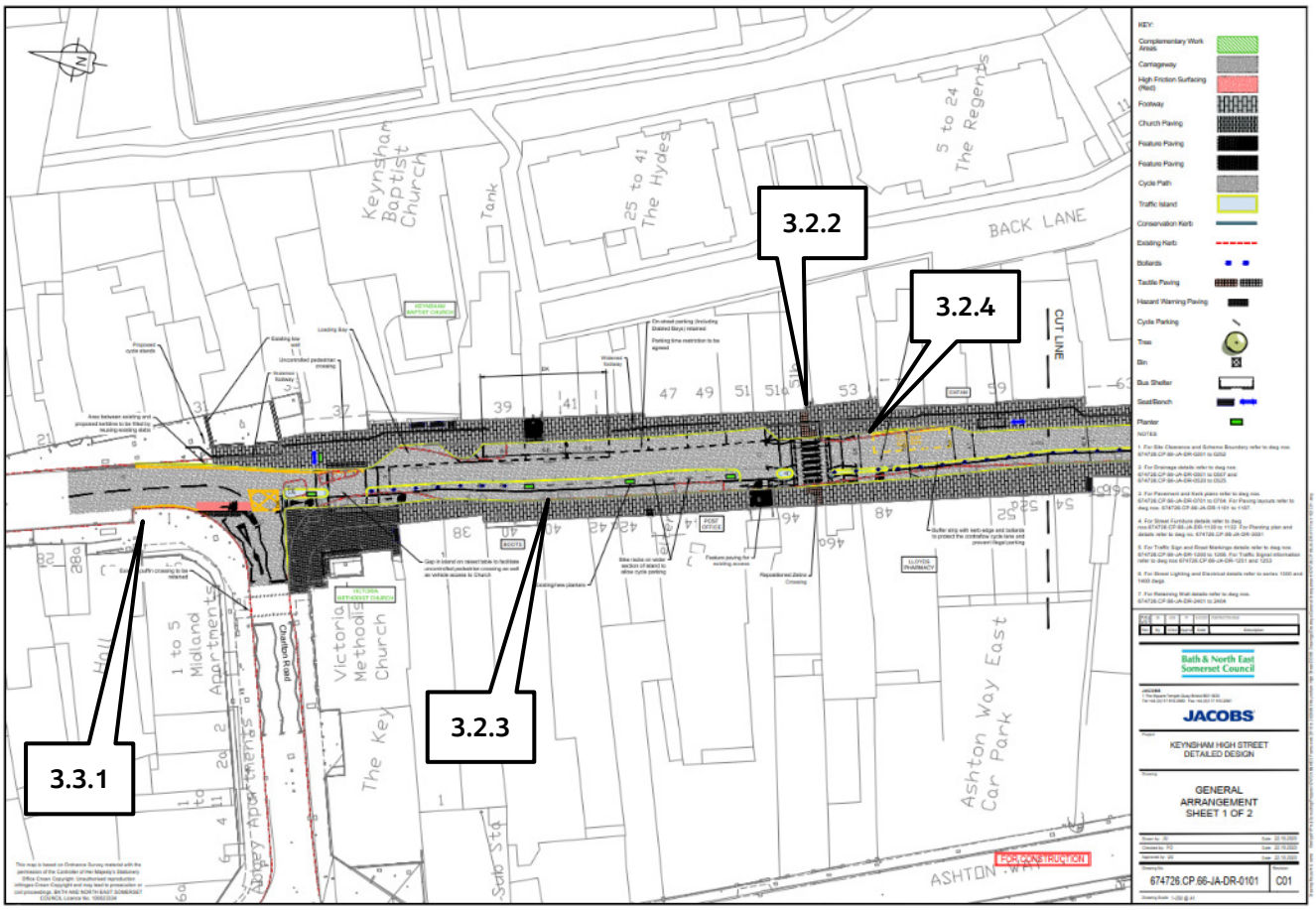
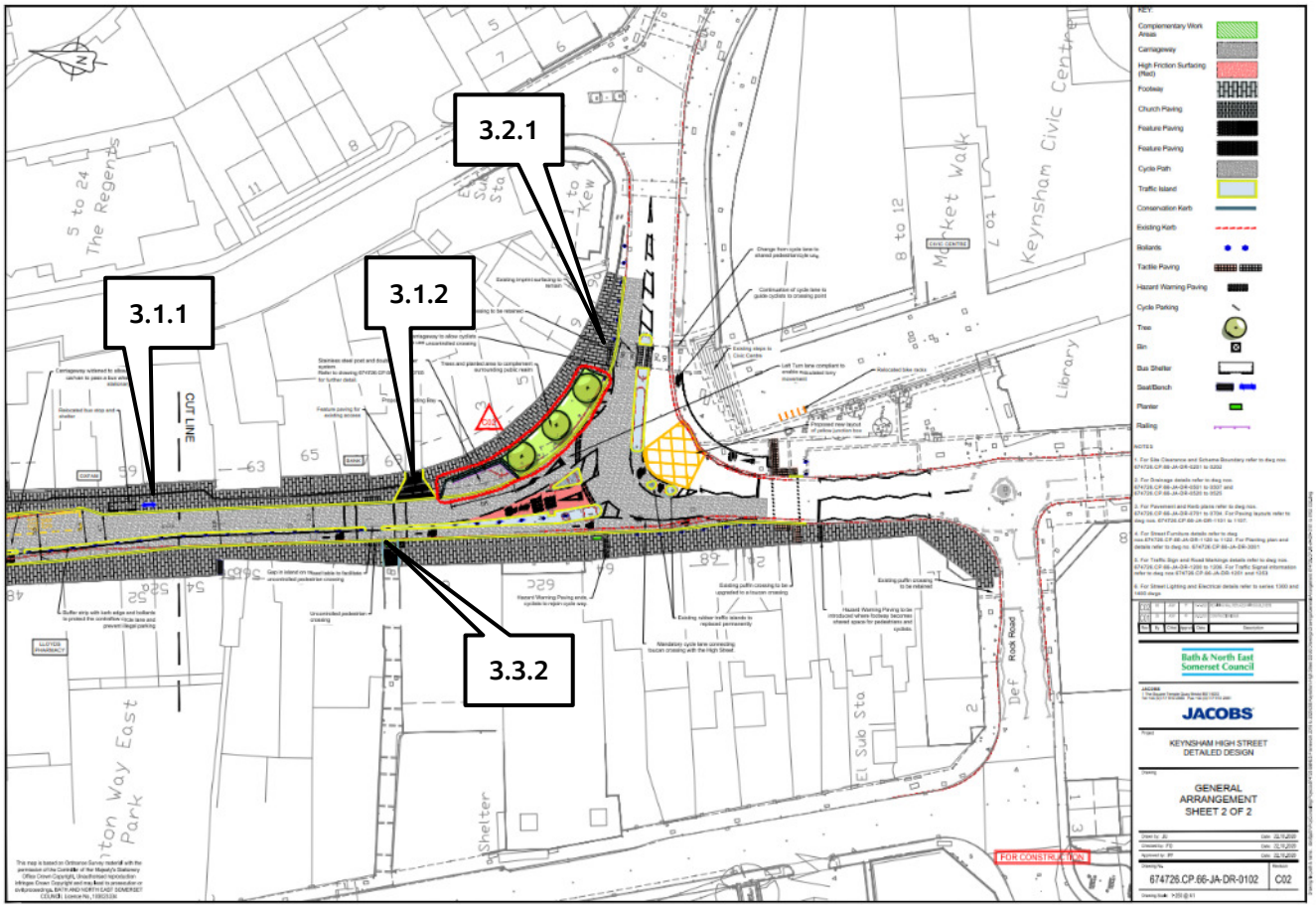
# Appendix C. Problem Location Plan

Problem location plans based on General Arrangement drawings 674726.CP.66-JA-DR-0101 (C01) and 674726.CP.66-JA-DR-0102 (C02).

Problems 3.1.3 and 3.2.5 occur at multiple locations or throughout the scheme.




3.2.1
3.1.2
3.1.1
3.3.2
CUT LINE
Market Walk
Keynsham Civic Centre
Library
Rock Road
Shelter
FOR CONSTRUCTION
Bath & North East Somerset Council
JACOBS
KEYNSHAM HIGH STREET DETAILED DESIGN
GENERAL ARRANGEMENT SHEET 2 OF 2
674726.CP.66-JA-DR-0102
C02

# APPENDIX F

**STAGE 3 ROAD SAFETY AUDIT**

| Ref | Location | Problem | Recommendation | Designer Response | Overseeing Orgainsation Repsonse | Status/Update |
|---|---|---|---|---|---|---|
| 1 | N/A General | There is evidence that vehicles are parking on the footway adjacent to the High Street carriageway, particularly towards the southern end of the scheme. This increases the potential for conflicts between pedestrians and cyclists, which could result in pedestrian injuries. | It is recommended that additional physical measures are installed to discourage parking on the footway and that the existing clearway is enforced. | Accepted, this has been observed, Bollards are to be installed retrospectively to protect the footway | Action | Completed |
| 2 | Footway at the southern end of the High Street at the existing access adjacent to property number 69 | While drainage is provided in this area, it is unclear if the carriageway and footway surface water will drain adequately across the feature paved existing access adjacent to property number 69. Ponding water at this location could result in vehicles skidding and pedestrian slips, increasing the potential for conflicts and pedestrian injuries. The problem could be exacerbated during cold conditions, when ponding water in this area may freeze. | It is recommended that the drainage provision adequately removes surface water from this area. | Accepted, drainage design has been calculated to adequately deal with surface water in carriageway and footway. The drainage has also been observed under heavy rainfall and no issues have been identified at this location. | Monitor | No issues reported |
| 3 | Gully cover in parking bays | There are a number of slotted gully covers located within parking bays, including the disabled bays. As those leaving vehicles will likely be heading towards the footway, there is potential that heeled shoes, walking aids, pram wheels or wheelchair wheels could be trapped within the gully cover. This could results in trips, falls and abrupt stops increasing the potential for injuries. | It is recommended that pedestrian friendly gully covers are installed in place of the slotted covers | Accepted, covers within the parking bays to be replaced with pedestrian friendly variants. | Monitor | No issues reported |
| 4 | Bath Hill uncontrolled pedestrian crossing | An uncontrolled pedestrian crossing, with central refuge, is provided on Bath Hill. The following tactile paving related issues were observed at this crossing:<br>•The tactile paving on the north side of the crossing is red. Tactile paving at uncontrolled crossings should be buff.<br>•The tactile paving on the north side does not align with the tactile paving in the central refuge.<br>•The stick down tactile paving within the central refuge is lifting in places.<br>These issues could result in confusion for partially sighted users and increase the chance of trips and falls. Potentially into the carriageway. | It is recommended that the red tactiles are replaced with buff, that the tactiles align through the crossing and the lifting tactiles are removed and replaced. | Accepted, incorrect colour tactiles to be replaced with buff. | Action | Completed |
| 5 | High Street Zebra Crossing | The zebra crossing provided on High Street includes incorrect tactile paving arrangements that do not guide users to the beacon. In addition, the tactile arrangement on the west side of the carriageway has a number of utility covers within it. These issues could result in partially sighted users missing the crossing point or being unclear of whether it is controlled or not. This increases the potential for pedestrian conflicts with cyclists and vehicles, which could result in injury. | It is recommended that the tactile arrangements are installed as per the DETR Guidance on Use of Tactile Paving Surfaces and that tactile paving is added to utility covers if they impact the revised layouts. | Partially accepted; the tactile layout is correct for the approaching traffic, (both motor vehicle and cycle path), patches caused by utility covers are unfortunate and it is proposed that the concrete infill covers have adhesive tactiles added.<br>The positioning of the Beacons is not consistent with conventional arrangements at Zebra Crossings. Whilst it is noted that there is flexibility which allows this within the TSM chapter 6 guidance, and the main purpose of the Beacons is to provide visibility of the crossing to road users (which the current arrangement achieves), it is acknowledged that the DETR guidance for the tactile tail aligning with the Beacon is not met. If it is determined that this should be rectified, the beacons could be relocated to the opposite side or an additional post with "Z" embossed could be added. | Reviewed by Highways - No action | N/A |
| 6 | Contraflow cycle lane at the northern end of the High Street in front of property number 40 (The Entertainer). | At the northern end of the scheme in front of property number 40 (The Entertainer) there is a large utility cover within the contraflow cycle lane. The cover has a metal finish and is relatively smooth. When wet, it is likely this cover will be slippery and could impact braking cyclists, resulting in riders being unseated, leading to injuries. | It is recommended that the cover is treated with an antiskid material. | Accepted, high friction surface to be added to cover | Action | Completed |
| 7 | High Street Bus Stop | Corduroy paving has not been installed at the kerb edge of the bus stop on High Street. This could result in partially sighted pedestrians being unaware of the raised kerb, leading to trips and falls, potentially into the carriageway. | It is recommended that corduroy paving is installed as per the DETR Guidance on Use of Tactile Paving Surfaces | Rejected, tactile paving at bus stops is optional and frequently omitted in heritage areas to maintain a consistent paving environment. This approach was taken at this location due to the heritage status and it is considered that the risk of trips and falls from a bus stop kerb is not significantly different to that of a standard heights kerb. | No action | N/A |
| 8 | Contraflow cycle route | During the site visit cyclists were observed using the contraflow cycle lane in both directions. This could result in head on collisions between cyclists and increases the potential for collisions between cyclists and pedestrians, both resulting in injuries. | It is recommended that additional signing and carriageway markings are provided. | Accepted, additional intermediate directional road markings arrows to be added, noting that they are already in place at all decision points and the path is clearly signed. Additional signage is to be avoided as it unnecessarily adds to clutter. | Action | Completed |
| 9 | Northern end of the High Street | On the southbound approach to High Street a map type direction sign is provided. The layout of this sign could result in confusion as drivers could interpret that the High Street (ahead) is for buses and taxis only. Confusion and hesitation at this location could increase the potential for rear shunt collisions. | It is recommended that the sign face is revised. | Rejected, the sign is pre-existing and outside of the scope of the project. However it is necessary to provide warning to road users that to go towards straight ahead destinations (after the highstreet) they must take a right turn at this location. There doesn't appear to be a clearer way that this could be signed | No action | N/A |
| 10 | Uncontrolled pedestrian crossing point at the end of the Ashton Way access lane. | Where the Ashton Way access lane meets the High Street an uncontrolled pedestrian crossing is provided. On the west side of the contraflow cycle lane 'Look Right' carriageway markings have not been provided, but they have been elsewhere. At this location this could increase the potential for pedestrians to step into the contraflow cycle lane without looking to the right, resulting in collisions. | It is recommended that 'Look Right' carriageway markings are installed where the crossing interfaces with the contraflow cycle lane. | Accepted, markings to be installed | Action | Completed |

# APPENDIX G

TRANSPORT PLANNING
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# Keynsham High Street Year One Monitoring and Evaluation Report

**June 2023**

**IMA-22-087**

**REVISIONS**

| Report No | Description | Date | Approved |
|---|---|---|---|
| PM2 | Final issue | 28 June 2023 | |
| PM1 | Final Draft | 1st June 2023 | DS |
| | | | |
| | | | |
| | | | |

**CONTENTS**

# 1 Introduction

## 1.1 Background

1.1.1 Keynsham High Street has recently seen extensive works to improve the public realm by removing significant amounts of traffic from the street scene and reallocating the space released to pedestrians. The physical works, which had a capital cost of £1.7 million, took place over a period from May 2021 to April 2022 and had been preceded by an experimental period where the same traffic restrictions were in place but the works to enforce these were temporary and readily reversible. For the period of the works High Street was closed to all vehicular traffic.

1.1.2 This report examines key findings from the monitoring and evaluation exercise undertaken following these major public realm works on Keynsham High Street. They build on a previous exercise that looked at the impact of experimental works to test the concept of the scheme.

1.1.3 The core of the scheme is the removal of two-way traffic from a section of the High Street between Charlton Road and Bath Hill, which in both the experimental scheme and the final scheme has been reduced to one way only in a southerly direction towards Bath Hill. At the southern end of the scheme general traffic can only turn left onto Bath Hill, only buses and cycles can move straight on to travel further along High Street towards Temple Street. This fundamentally affects the journey choices available for motorised vehicles using High Street. In effect, a motorist joining the one-way section of High Street can only continue via Bath Hill which heads away from the Town Centre, any other route option requires use of Charlton Road.

1.1.4 The one-way scheme, which is the fundamental change to traffic management on High Street, occurred in the experimental scheme reported on in 2017; the scheme as completed has taken advantage of the reduced carriageway made possible by this and given over more space to pedestrians. Both schemes included a contraflow cycle lane as is customary for one-way schemes where the diversion necessary to travel in the other direction is significantly longer.

1.1.5 The fundamental objectives of the works are to enhance the vitality and viability of the High Street by creating a better environment for pedestrians who are visiting the businesses there. The logic is that less vehicular traffic and more space for pedestrians will reduce vehicle dominance and create a more pleasant environment for customers, which in turn will encourage and increase footfall. This report looks at whether the outputs that were sought, of reduced traffic and increased footfall have been achieved. It also briefly examines the business conditions on the High Street.

# 2 Surveys and Data sources

## 2.1 Previous Data

2.1.1 The "before" data presented to us by B&NES was gathered to evaluate the experimental scheme and thus much of this data is from 2016 (before the experimental scheme had been implemented) and 2017 (whilst the experimental scheme was in place). This data is examined in more detail below. IMA commissioned AutoSurveys Ltd to undertake traffic counts and pedestrian counts in July 2022 to provide comparison data for that collected in 2016 and 2017. In addition, B&NES provided parking ticket sales data for the period April 2017 to August 2022. This has proved invaluable in detecting trends not apparent from the snapshot data collected in 2016,2017 and 2022.

2.1.2 In addition to the above data, which mostly relates to traffic, parking and footfall, B&NES have provided data on unit occupancy and a contact with the main contractor for the works to discuss trading during the works.

## 2.2 B&NES Data

2.2.1 The primary source of "before" data is the Keynsham High Street Monitoring Report published in January 2018. This was aimed at assessing the impact *in traffic terms* of the temporary works that had been in place through 2017. The surveys covered traffic counts, (including turning counts), journey time surveys, queuing surveys, car parking, cycling, footfall, and air quality. Much of this data was gathered to assess whether the impact of the changes on surrounding streets was acceptable, and the report provided evidence that these changes were beneficial to the High Street without causing undue harm to the highway network elsewhere.

2.2.2 B&NES also provided car parking data for the town based on receipts from parking ticket machines. This data proved invaluable in detecting long term trends in the number of visitors to the town centre.

2.2.3 Finally, B&NES also provided details of business vacancy rates in the High Street before and after the works had been undertaken.

## 2.3 Data Collected by IMA

2.3.1 IMA instructed AutoSurveys ltd to collect data as follows.

- Automated Traffic Counter in High Street between Road and Bath Hill
- Automated Traffic Counter in Charlton Road between High Street and Danes Lane
- Pedestrian and cycle flow survey on High Street approx. one third of the way between Charlton Road and Bath Hill [hereafter *High Street North*]
- Pedestrian and cycle flow survey on High Street approx. fifty metres north of Bath Hill to cover the ginnel leading to Ashton Way as well as movements on High Street [hereafter *High Street South*]

2.3.2 The pedestrian surveys were undertaken using video cameras – these also monitored cycle movements as, whilst ATC equipment (a rubber tube in the road) is intended to detect cyclists the much lesser weight compared to other vehicles makes cycle counts by this means less reliable.

2.3.3 The two ATC counters were positioned so that the outputs would be directly comparable to flows that could be calculated from three of the turning counts in the 2017 surveys. The two

pedestrian surveys allowed comparison with the single flow cited in the 2017 surveys but also allowed a degree of interpretation of patterns within High Street.

2.3.4 The ATC surveys took place during week commencing 11th July 2022, the pedestrian surveys took place on Tuesday the 12th and Saturday 16th July.

## 3 Changes to traffic flow

3.1.1 In the 2022 surveys placed automated traffic counters on The High Street (in the one-way section) and on Charlton Road immediately east of the junction with High Street. These points were directly comparable with flows counted in 2016 and 2017 and would capture all traffic on high street and all traffic using Charlton Road to avoid High Street, as well as traffic that would be using Charlton Road for any other reason. Thus, these two locations provided a comparable proxy for the volume of traffic in the immediate locality before and after the changes.

3.1.2 The resultant traffic flows Tables.

The resultant traffic flows are shown below in the following Tables.

**Table 1 – traffic flows in Charlton Road and High Street**

| Year | High Street | Charlton Road |
|---|---|---|
| 2016* | 10,046 | 8,556 |
| 2017 | 3,442 | 10,891 |
| 2022** | 2,100 | 9,366 |

** In 2016 there is a significant traffic flow between High Street and Charlton Street of just over 1800 vehicles, almost all turning out of High Street left into Charlton Street – these vehicles are in effect counted twice, once in each street. In 2017 and 2022 this movement was not possible and thus no double counting occurred.*

*** 2022 data is the 12-hour 5-day average from automated counts lasting for one week, 2016 and 2017 are one-off 12-hour counts undertaken on a weekday*

The above figures show that, whilst traffic has gone up slightly on Charlton Street following the introduction of the one-way scheme, the increase is nothing like commensurate with the reduction on High Street. In 2022 traffic on High Street was 20% of its 2016 levels and 60% of the 2017 levels. Charlton Street is carrying 10% more traffic than in 2016 but only 86% of 2017 levels. Overall, allowing for the double counting mentioned above, traffic through the High Street/Charlton Road Junction is at 71% of 2016 levels, and 80% of 2017 levels.

**Table 2 – percentage change in traffic flows in Charlton Road and High Street since 2016**

| Year | High Street | Charlton Road |
|---|---|---|
| 2016 (index) | 100% | 100% |
| 2017 | 34.2% | 127.3% |
| 2022 | 20.9% | 109.1% |

The above table illustrates changes in flow relative to the base year of 2016, before the temporary works were implemented, and illustrates the dramatic changes in flow on the High Street, the focus of the study.

**Table 3 - percentage change in traffic flows in Charlton Road and High Street**

| Year | High Street | Charlton Road |
|---|---|---|
| 2017 | 100% | 100% |
| 2022 | 61.0% | 85.9% |

Table three illustrates that, for High Street the reduction in flow has continued but also that flows have come down on Charlton Street by a significant percentage. One obvious point is that the COVID pandemic, with various changes to retail and employment patterns, occurred in this period, however COVID restrictions had largely been lifted but certain trends such as working from home and home delivery had become established in this time. It may also be that over time drivers had worked out other routes through the area.

Having looked at the percentages it is also worth examining the absolute changes to traffic figures.

**Table 4 - traffic flow reductions in Charlton Road and High Street 2016-2022**

| Year | High Street | Charlton Road |
|---|---|---|
| 2016* | 10,046 | 8,556 |
| 2017 | *Reduced by 6604* | *Increased by 2335* |
| 2022** | *Reduced by 7946* | *Increased by 810* |

And also, the reduction between 2017 and 2022

**Table 5 - traffic flows in Charlton Road and High Street**

| Year | High Street | Charlton Road |
|---|---|---|
| 2017 | 3,442 | 10,891 |
| 2022** | *Reduced by 1342* | *Reduced by 1525* |

The interesting point to note here is that the reductions are very similar in total suggesting that traffic on the immediate network may have reduced. This could be the result of an overall network reduction but is more likely to be that through traffic is avoiding the area *in both directions* with drivers having adapted their routes over time since the experimental scheme.

# 4 Cycling

4.1.1 Cycling is accommodated in the scheme by means of a contraflow cycle lane – this is necessary regardless of anticipated levels of cycling as the point-to-point distance from one end of the new one way section to the other is approximately 200m whereas the alternative route for traffic via Ashton Way is approximately 450m – this increase in distance has virtually no impact on the driver of a motorised vehicle but is a significant penalty for a cyclist, especially as the biggest impact in terms of distance added is on those arriving at the southern end of High Street having cycled up Bath Hill. The combined climb and diversion route would be a significant disincentive to cycling and would hinder any other initiatives, now or at a later date, which seek to encourage cycling around Keynsham.

4.1.2 The 2018 report included cycling figures that were collected by video as part of the junction traffic counts at either end of the High Street. These surveys took place on a weekday in each of 2016 and 2017 and provide the base data for any comparison with our data collected as part of the footfall surveys undertaken in High Street. Both surveys used video collection to gather the data and thus the collection techniques are comparable (ATC collection, which is very reliable for motor vehicles, is less effective at gathering cycle data).

4.1.3 The following table of cycle use is derived from the January 2018 report:

Aa **Table 6 - High Street Cycle flows 2016-2017**

| Location | Weekday 2016 | Weekday 2017 | %Change | Notes |
|---|---|---|---|---|
| | | | | |
| High Street Northern Junction | | | | |
| **High Street South Inflow** | **88** | **80** | **-9** | |
| High Street North Inflow | 134 | 102 | -24 | |
| Charlton Road Inflow | 34 | 28 | -18 | |
| Total Inflow | 256 | 210 | -18 | |
| High Street Southern Junction | | | | |
| High Street South Inflow | 34 | 60 | 76 | |
| **High Street North Inflow** | **85** | **380** | | Movement affected by cycling event |
| Bath Hill Inflow | 68 | 94 | 38 | |
| Total Inflow | 102 | 154 | 51 | High Street North Excluded |

4.1.4 The term inflow refers to traffic heading into the junction and the direction it is coming from, thus *Bath Hill Inflow* in this table is cyclists coming from Bath Hill into the junction. The two rows highlighted in bold are the two flows that cover cycle traffic in High Street and thus it is these flows that can be compared with the cycle movements recorded in our 2022 surveys. Unfortunately, the flow southbound flow in 2017 was inflated by a cycling event passing

through the survey area on the day of the survey, but the 2016 flow can still be used for comparison purposes.

4.1.5 It should be noted that the 2018 report refers to cyclists by where they have come from, whereas ours gives direction of travel and thus the terms "north" and "south" are reversed. In table 7 below "northbound" equates to "south inflow" and southbound equates to "north inflow"

Table 7 below compares the 2022 survey flows with the 2016 and 2017 survey flows.

**Table 7 - cycling in High Street**

| Weekday (12th July) | Northbound (contraflow) | Southbound |
|---|---|---|
| 2022 site 1 (north) | 91 | 125 |
| 2022 site 2 (south) | 120 | 118 |
| Weekend (14th July) | | |
| 2022 site 1 (north) | 69 | 94 |
| 2022 site 2 (south) | 61 | 97 |
| "Before" Flows | | |
| 2016 | 88 | 85 |
| 2017 | 80 | n/a |

4.1.6 The flows shown here are relatively low and tell a somewhat ambiguous story – there is little doubt that southbound cycle traffic has increased compared to 2016 (2017 figures are not available) but northbound the picture is less clear. The weekend figures are lower than previous years (for which only weekday data is available) but the weekday figures are up on previous years, however it is notable that the contraflow cycle traffic varies from being around 60% of the with-flow figure up to being equal to the with flow figure.

4.1.7 The discrepancy by direction likely to be because for some combinations of origin and destination the choice whether to use High Street or an alternative is very marginal and the cyclist "goes with the flow" and follows the alternative when heading north. It should also be noted that cyclists walking with their bikes rather than cycling on them are counted as pedestrians and thus a cyclist who cycled past one camera and then dismounted to pass the second camera would be counted differently by each camera. There is of course a further twist to the data in that cyclists, unlike cars, can turn round in the High Street, and thus cyclists visiting a shop between the cameras and then returning to their point of origin will pass one camera twice but not pass the other one at all.

# 5 Footfall

5.1.1 The Footfall is a key indicator of the health of a retail street and has been measured at each stage of the project in 2016, 2017 and 2022. The basic technique was the same on each occasion with a count of pedestrians on each side of the High Street over a 12-hour period on a weekday. In 2016 and 2017 counts took place in one location but in 2022 counts were taken at two locations approximately 1/3 and 2/3 the way along the length of the High Street. In addition, the 2022 counts captured people crossing the High Street and using a ginnel that connects High Street with Ashton Way Car Park. Overall, the volume of the 2016, 2017 and 2022 counts are comparable as pedestrians were not double counted in the 2022 survey – someone crossing the road was not counted on either footway. Whilst the crossing data does not help with past comparisons it was felt useful to collect it for future comparisons and for possible comparison with similar figures recently collected on Temple Street.

5.1.2 Footfall Table

The total footfall recorded was as follows.

**Table 8 - footfall surveys in High Street**

| Year | Midweek | Saturday |
|---|---|---|
| 2016 | 7040 | 9803 |
| 2017 | 7174 | 9028 |
| 2022 site 1 (north) | 6204 | 7965 |
| 2022 site 2 (south) | 6233 | 10291 |
| 2022 avg of 2 sites | 6218 | 9128 |

5.1.3 These figures show a significant reduction midweek between the earlier surveys and 2022, with footfall at both sites around 88% of that recorded in 2016 and 2017. On Saturday the footfall at the north end of the High Street is significantly lower than in 2016/17 (81% of 2016 and 88% of 2017) but at the south end footfall is higher than in previous years. This may reflect the location of the southern survey near the access to Ashton Street Car Park. The averages, intended to approximate the single location records from previous years, indicate that midweek footfall has indeed fallen to 88% of previous levels but Saturday footfall has been maintained compared to 2017.

5.1.4 Two factors need to be considered when examining these footfall figures. The first is that the major change to the High Street occurred in 2017 when the one-way system was introduced and the traffic in High Street dropped dramatically, this would have a significant impact on the amenity of the street for pedestrians and the subsequent changes built on this. The second is that 2017 to 2022 is a significant duration between surveys when some changes would have been expected anyway – even without a change to the street scene a 2017 survey would be regarded as potentially out of date, and in this case the COVID pandemic meant a general loss of footfall to retail areas in 2020 and 2021. Overall, whilst this report is not intended as an analysis of COVID recovery, it should be noted that Keynsham High Street has bounced back more quickly from COVID than the national trend for such retail areas.

5.1.5 Whilst not specifically part of the brief it is interesting to note the peak hour flow in high street for each mode – vehicle traffic, cycles and pedestrians. The figures below are TOTAL flow for the busiest hour, with the time of that hour alongside, and the total 12-hour flow for each mode.

**Table 9 - Peak hour flows**

| Mode | Peak flow | hour | 12 hour |
|---|---|---|---|
| Vehicle | 238 | 8-9am (Wed) | 2100 |
| Cycle | 36 | 5-6pm (Tue) | 238 (Tue) |
| Pedestrian | 1287 | 10-11am (Sat) | 9128 (Sat) |

5.1.6 What these do show is that the High Street can genuinely claim to be a predominantly pedestrian street, given that the peak flow of pedestrians is over five times higher than the peak flow of vehicular traffic and that the daily flow of pedestrians is over four times higher than the daily flow of vehicular traffic.

5.1.7 We do not have historic peak hour flows to compare with, however this report draws heavily on historic 12-hour flows and overall traffic has reduced in the High Street whilst footfall has remained steady.

5.1.8 We will next look at parking data as this data offers an insight into trends between 2017 and 2022.

# 6 Parking Data

6.1.1 B&NES have furnished us with parking data for the pay and display car parks in Keynsham from April 2017 to August 2022. The data is very comprehensive and invited analysis over and above that presented here, but the main principle is that parking ticket sales for both long stay and short stay provide a proxy for the level of activity within the town centre, and the data shows us trends and thus casts light on when changes in activity level may have occurred.

6.1.2 Pay and Display Parking Table

The following table gives ticket sales for June and July in each year between 2017 and 2022.

Table 10 – pay and display ticket sales (cash and online) in Keynsham.

| Year | June (short stay) | June (Total) | July (Short Stay) | July (Total) |
|---|---|---|---|---|
| 2017 | 25,083 | 34,432 | 23,570 | 32,409 |
| 2018 | 24,086 | 33,317 | 22,488 | 30,705 |
| 2019 | 20,215 | 27,879 | 21,958 | 30,550 |
| *2020** | *9,274* | *12,294* | *15,979* | *21,650* |
| *2021** | *18,104* | *24,542* | *18,719* | *24,973* |
| 2022 | 20,178 | 27,771 | 21,216 | 30,040 |

** 2020 was greatly affected by the pandemic and covid restriction - some covid restrictions were still in place in 2021*

6.1.3 What these demonstrate is that there is an apparent downturn in activity between 2018 and 2019, in particular in June, and that the 2019 figures have more or less been replicated in 2022 after two years affected by COVID restrictions. The town centre as a whole will be affected by wider factors and also the propensity to travel by car may vary. However, the overall picture shows that there has been a decline in activity in Keynsham and that this predates the latest improvement works. Short stay parking (up to 3 hours) in June and July 2022 was approximately 85% of the level in 2017, and total parking sales numbers were similarly down in 2022. The reduction in parking activity is similar too and slightly greater than the reduction in footfall, and the main fall in parking activity occurred by 2019. The fact the fall in parking is slightly greater than the reduction in footfall suggests the scheme may, if anything, helped protect the High Street from further reductions in footfall.

6.1.4 It should also be noted that the figure for August 2022 (not included above) is the first month within the records received to exceed the total parking ticket sales achieved in the same month in 2017 – it will be interesting to see how the figures for footfall and parking in 2023 develop.

# 7 High Street Activity During Works

## 7.1 General programme

7.1.1 The works took place between May 2021 and April 2022, during this period there was always some level of COVID restriction in force for both the workforce and the general public (the last COVID restrictions for the public were lifted on April 1st, 2022, however businesses and workplaces still had to operate COVID policies up to and beyond the end of April 2022). When considering how Keynsham High Street operated during the contract period, the impact of COVID cannot be ignored. It should be noted that IMA undertook a study on Temple Street in January 2022 and those businesses, which were not directly affected by the works as they were not in High Street, were operating under the "Plan B" guidelines that were introduced when the Omicron variant became prevalent in December 2021, and this was clearly inhibiting footfall and business activity.

## 7.2 Managing the works

7.2.1 Although the works in effect altered virtually all the street surface and furniture in the High Street the contractor only closed off small areas at any one time, creating a compact work site that moved around the High Street. The High Street was also completely closed to general traffic during this period.

7.2.2 Works were undertaken six days a week. The only out of hours work that was undertaken was when the access to businesses for their customers would be directly affected – e.g. when the surface outside the door for the business was replaced. In these instances, evening, overnight and Sunday working was used to avoid disruption.

7.2.3 Typically, there were ten workers on site at any one time, COVID was managed by maintaining a small team of site workers who lodged together in Keynsham and, on site, had access to full facilities such that they only needed to leave the works compound at break time and at the end of each day. By lodging together these workers effectively formed a bubble for the week (there was some turnover of staff during the works, in part due to different skill sets being needed at different times as well as natural turnover and staff taking annual leave). Workers on site were masked at all times and practised 2m social distancing as far as practical whilst on site.

7.2.4 When leaving the compound, workers were masked, observed social distancing and any local rules in force within local business premises. Staff were encouraged to use local businesses for day-to-day needs, e.g. to buy lunch and refreshments. This was at a point where businesses were working under COVID restrictions which included the requirement to wear masks and restricting the number of customers in the premises at any one time could result in customers queuing into the street even for a very short queue.

7.2.5 It is reported that deliveries were unaffected as businesses had rear access and/or could arrange deliveries around the works schedule. However, the few parking spaces in the High Street (post scheme that are seven – three for disabled and four short stay) would not have been available in this period.

## 7.3 Observations during the works

7.3.1 The Volker project manager observed that during the works the majority of High Street was both outside the works compound and closed to traffic and was thus available to the public. The comment was made that this created an attractive environment and that people enjoyed extended dwell times in the High Street. This comment is offered as a qualitative perspective as no surveys were undertaken to establish footfall or dwell times in this period, however it

would suggest the opposite effect to that which might have been expected during the works, in that far from making the High Street less attractive the management of the works actually made the High Street a more attractive place to linger for the duration of the works. This, coupled with the COVID restrictions on meeting inside for part of the period, coupled with a general hesitation for socialising inside that is still present to some extent, would appear to have increased activity in the High Street rather than reduced it during the works.

## 7.4 Impact of Town Centre activity

7.4.1 Once again, we turn to parking figures to assist here: the table below looks at the parking figures for March, April, May, and June each year (thus capturing the two months either side of the start and finish of works. This allows a direct comparison at the start and finish of the works of the month before commencement and completion and the month after, as well as a longer-term comparison with previous years.

**Table 11 - short stay (up to 3 hours) parking in Keynsham March-June 2017-2022**

| Year | March | April | May | June |
|---|---|---|---|---|
| 2017 | | 23158 | 24382 | 25083 |
| 2018 | 22081 | 21390 | 22380 | 24086 |
| 2019 | 26006 | 22381 | 21471 | 20215 |
| 2020 | 14687 | 1299 | 5392 | 9274 |
| 2021 | 9896 | 14726 | 16588 | 18104 |
| 2022 | 22869 | 21184 | 21403 | 20178 |

7.4.2 The above table shows parking tickets purchased for three hours or less across all Keynsham pay and display car parks. The first two months and last two months of the works period are highlighted in old-gold. It is noticeable that the first two months are considerably higher than the two months that preceded them, whilst the last two months are comparable (and slightly higher) than the months that followed them. The figures for 2022 are broadly comparable with 2018 and 2019. This suggests that the works had little effect on demand for parking in Keynsham as a whole and by proxy had little effect on footfall either.

7.4.3 To get a clearer picture of the impact on High Street the figures for Ashton Way Car Parks are given below.

**Table 12 - Parking in Ashton Way (Main and East) car parks - all tickets:**

**March-June 2017-2022**

| Year | March | April | May | June |
|---|---|---|---|---|
| 2017 | | 19124 | 20454 | 21296 |
| 2018 | 17321 | 15261 | 17084 | 19994 |
| 2019 | 20953 | 18215 | 17273 | 15615 |
| 2020 | 11472 | 1105 | 3503 | 6173 |
| 2021 | 7240 | 10810 | 11156 | 12565 |
| 2022 | 16414 | 15474 | 16585 | 15487 |

7.4.4 The above data is for all parking tickets, as the data available to use was disaggregated by length of stay or by location but not both. The Ashton Way Car Parks are the closest to High Street and aside from there being an easy walk along Charlton Road or Rock Road to High Street there is a connecting ginnel that leads directly from Ashton Way to the southern end of the length of High Street subject to the works. Thus, any significant reduction in activity in the High Street is likely to be reflected in the use of this car park.

7.4.5 Once again, the figures show that 2022 is broadly comparable to 2018 and 2019, with a slight reduction that may be a result of these figures being for all day rather than short stay as "work from home" may have reduced demand for all day parking. Again, it is notable that the figures increase at the start of the works period and are stable at the end of it.

7.4.6 Overall, the conclusion must be that footfall during the works probably held up compared to pre-covid and post works levels, and that any variations (positive or negative) are masked by the effects of progressively coming out of COVID restrictions.

# 8 Business premises occupation and turnover

8.1.1 We have been furnished with data for business occupiers in Keynsham as of 22nd October 2022, which lists 48 premises in the length of High Street directly affected by the construction works. This includes addresses between 37/38 High Street and 67/64 High Street – odd and even numbers are on opposite sides of the road and do not quite match. Of these forty-eight, eight are offices/professional services that are less dependent on footfall rather than retail or café/restaurant/takeaway businesses. This data shows that only two units were transferred to new businesses during the construction works. One unit has been unoccupied since before the works commenced. This is the former Barclays Bank which appears to be a conventional vacant shop unit – a google image search verified the unit in question was once the bank.

8.1.2 The schedule provided also includes eight businesses in the affected length of the High Street that were thought to have changed their name although no tenant change has been noted. We compared this data with other sources and undertook a walk over survey of the High Street and Temple Street: this was not an attempt to re-invent the data base but a way of verifying any discrepancies between the data we received and other sources such as Google searches and business directories.

8.1.3 A brief analysis of this using business directories, google search and any available information such as business Facebook pages, plus a walk along the High Street, suggests the following breakdown.

8.1.4 Six of these businesses were found to be present at the same address, of these three are non-retail businesses that have an "a" after the number indicating that they operate from a sub-division of the unit, possibly a different floor or to the rear of the building.

8.1.5 One premise has changed occupier but remains as a retail business.

8.1.6 One non-retail business is listed but under a different address to that in the schedule provided to us. It is not clear that they were ever at the original address listed.

In total therefore:

48 listed premises in the length of the High Street affected by the works

2 premises have changed hands

1 premise has been unoccupied from before the works started and remains unoccupied.

1 business present before the works commenced ceased trading shortly after the works were completed.

1 business (a showroom) ceased trading from the premises during the pandemic although the company is still trading elsewhere.

43 businesses have remained operating since before the works commenced, one of which is not at the address listed in the schedule

There are currently a total of three unoccupied retail units.

8.1.7 It is worth noting that the two premises that changed hands, one has become an independent retailer of wooden toys and ornaments, and one has seen the adjacent restaurant expand into the vacant unit. We also noted on our walkover survey, which was on a sunny Saturday, that all takeaway food outlets had placed seating on the footway outside their premises.

# 9 Summary and Conclusion

9.1.1 The changes in the High Street affect traffic movements in the length between Charlton Road and Bath Hill. These changes mean that traffic can only travel southbound and on reaching Bath Hill can only turn left down Bath Hill. These changes occurred in two stages – in 2017 a temporary scheme was introduced that effected the changes to traffic management, and in 2021/2 the public realm was altered to take advantage of these changes to allow an increase in and better definition of the pedestrian space within this length of the High Street.

9.1.2 The impact of the changes is thus also recorded in two stages: the fundamental changes in the traffic flow occurred in 2017 with the experimental scheme, which saw a large (60+%) reduction in traffic flow in High Street. Pedestrian footfall fell slightly on Saturdays and rose slightly on weekdays following this. Although the scale of change is fairly small and may not be statistically significant. By 2022 there is little doubt weekday footfall had fallen but Saturdays seem to have held at 2017 levels.

9.1.3 During the works, which had a capital value of £1.7 million, there were typically ten construction workers on site at any one time. These workers were encouraged to patronise local businesses during their breaks. Anecdotally the traffic free street appears to have been popular during the works. The works occurred during various periods of COVID restriction, and the temporary traffic free space was doubtless attractive in this period when indoor meetings were heavily restricted. Parking figures indicate that the effect of the works period on town centre use was minimal and that the recovery from COVID restrictions masked any impact that may have occurred.

9.1.4 Cycling surveys suggest cycling through High Street has increased since 2016, although this should be treated with some caution as the overall numbers are low, and cycling can be dramatically affected by the weather. It can be concluded that the scheme works for cyclists and may assist in encouraging cycling through and to the High Street.

9.1.5 The only long-term trend figures are for parking take up. These indicate that total parking uptake and short-stay parking uptake fell significantly from between 2017 and 2019 and have not risen since. The pandemic had a predictable disruptive effect on these figures but by 2022 parking take up had recovered to pre-pandemic levels. August 2022 (the last month for which data is available) has shown a return to 2017 levels. Collection of further data in future years will demonstrate whether this is a trend or not.

9.1.6 Business occupancy has remained steady throughout the period of the works; we found only one unit that had been unoccupied since before the works commenced, that being the former Barclays Bank branch. Although this appears to be a standard retail unit it is not known who the freehold belongs to and there is little evidence that they have attempted to relet it. Two other units have changed hands – one to become an independent retailer specialising in wooden toys and ornaments and one allowing the expansion of the adjacent restaurant. In total, in March 2023, there were three vacant units.

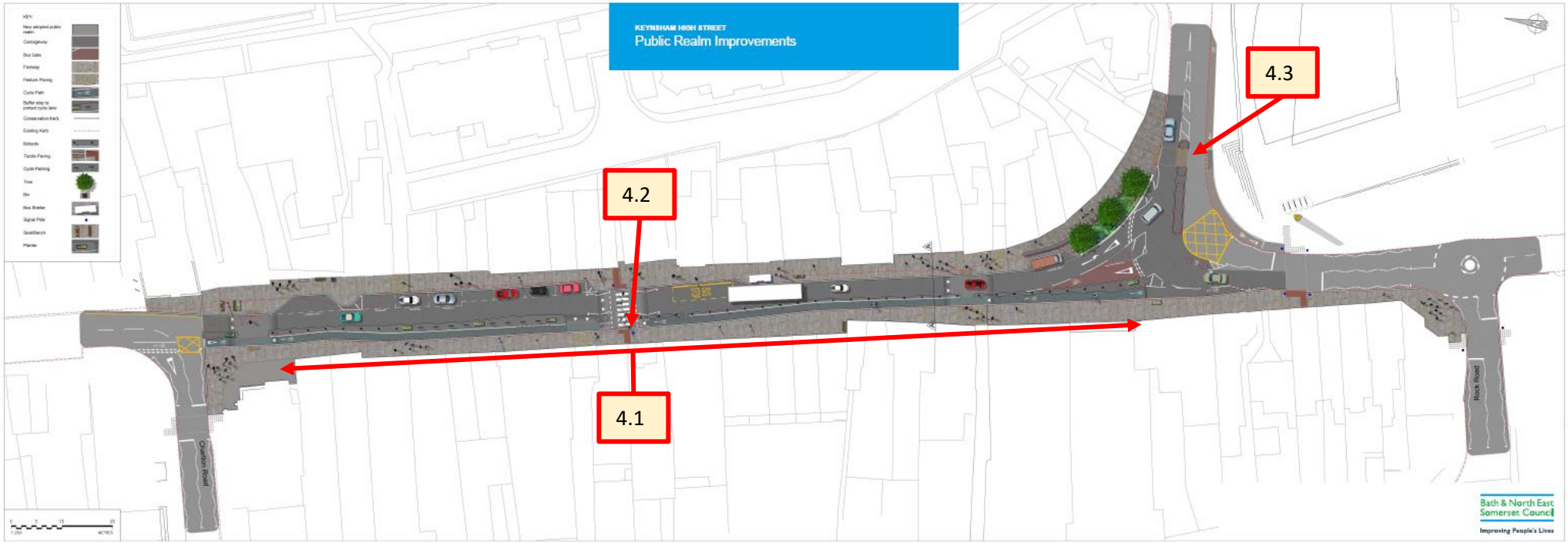
9.1.7 Overall trends nationally suggest some fall in town centre footfall between 2017 and 2021, however until spring 2022 there were still significant COVID restrictions in place for retail and the recorded figures since summer 2020 have shown some instability as restrictions varied in their intensity and as customers responded with either caution or enthusiasm to the release of conditions. Overall, it is difficult to know whether the recorded footfall in July 2022 will be sustained and to what extent the maintenance of Saturday footfall levels can be attributed to the scheme. What can be stated however is that footfall levels have held up whilst the scheme has resulted in traffic levels falling dramatically, thus the High Street is now much

more focused on pedestrian activity and less dominated by vehicles. In addition, the High Street has beaten the overall national trend of reduced footfall following COVID and had recovered better from the period of lockdown and restrictions.

9.1.8 Assessing the scheme after one year suggests that the works have protected the High Street from decline that was beginning to show in the parking figures from 2018 onwards and that has been witnessed in some other towns. The impact of the scheme is difficult to determine on this timescale given the impact of and recovery from COVID restrictions which have had a far greater impact on retail generally than either the finished works or the disruption of the works period would have had.

9.1.9 The real test will be in the long term and how well the High Street responds to the natural turnover of businesses in years to come. The improved environment may alter the likely business profile attracted to the High Street as units become available, and from this perspective the number of pavement tables seen at cafes and bakeries on the High Street during our walkover survey is very encouraging, as is the take up of one vacant unit by a specialist independent retailer and the expansion of an existing restaurant into another vacant unit.

# APPENDIX B


KEYNSHAM HIGH STREET
Public Realm Improvements
4.3
4.2
4.1
Charlton Road
Rock Road
Bath & North East Somerset Council
Improving People's Lives