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Stage 1 Road Safety Audit Response Report

Project No: ITM10127
Project Title: Capitol Park, Leeds
Title: Stage 1 Road Safety Audit – Response Report (Proposed M62 Junction 28 Improvements: Full Works)
Ref: ITM10127-017B TN
Date: 17 October 2022

SECTION 1 Project Details and Authorisation Sheet

Table 1: Project Details

Report Title:	Stage 1 Road Safety Audit Response Report – Proposed M62 Junction 28 Improvements: Full Works
Date:	17 October 2022
Document Reference and Revision:	ITM10127-017B TN
Prepared by:	i-Transport LLP & Pell Frischmann
On behalf of:	Leeds City Council as the Overseeing Organisation

Table 2: Authorisation Sheet

Report Title:	Stage 1 Road Safety Audit Response Report – Proposed M62 Junction 28 Improvements: Full Works
Prepared by:	i-Transport LLP & Pell Frischmann
Name(s):	Greg Jones & Stephen Evans
Position:	Associate Partner & Technical Director
Signed:	
Date:	17 October 2022
Approved by:	Leeds City Council
Name:	Christopher Way
Position:	Principal Traffic Engineer
Signed:	Chris Way
Date:	17 October 2022

SECTION 2 Introduction

2.1 This RSA response report has been prepared by i-Transport LLP and Pell Frischmann as the Design Organisations.

2.2 It responds to the Stage 1 Road Safety Audit (*report ref: NS22/752B/RSA1*) prepared by Nicholson Sloan Consultancy (dated 05 August 2022), pursuant to the Stage 1 RSA Brief (*report ref: ITM10127-015B TN*) that was signed by the Overseeing Organisation (being Leeds City Council in its role as the Local Highway Authority) in June 2022.

2.3 The project summary – consistent with the agreed Brief – is as follows:

The safety audit relates to highway works at the M62 J28 proposed by Capitol Sterling and CC Projects as part of two separate planning applications, detailed in the Stage 1 RSA Brief. The works have been agreed in principle with Leeds City Council and National Highways. The proposed works have been split into two phases with this response report dealing with the full scheme (Phase 1 and 2). Phase 1 includes works to the A563 Dewsbury Road and associated downstream circulatory, road marking amendments on the M62 eastbound off-slip, widening of the northern circulatory to provide an additional lane and provision of two lanes at the M62 eastbound on-slip. This phase also includes upgrading existing footway/cycleway provision in the south western corner of the junction and new pedestrian and cycle provision around the western, northern and eastern sides of the junction with additional crossings provided at the A653 Dewsbury Road (northern arm) at the approach and circulatory and on the circulatory at the M62 westbound off-slip. Phase 2 includes works to the circulatory in the south eastern corner of the junction by providing an additional circulatory lane. Existing footway/cycleway is to be upgraded in this location, with new pedestrian and cycle facilities also provided on the internal island with new crossing at the A653 Dewsbury Road (southern arm) circulatory and across the through-about section of the roundabout. A northbound bus lane and gate will also be provided on the A653 Dewsbury Road (southern arm).

SECTION 3 Key Personnel

Table 3: Key Personnel

Overseeing Organisation:	Christopher Way, Leeds City Council – Audit Team Member Gillian MacLeod, Leeds City Council – Client Representative
RSA Team:	Kevin Nicholson, Nicholson Sloan Consultancy – Audit Team Leader Nancy Sloan, Nicholson Sloan Consultancy – Audit Team Member Christopher Way, Leeds City Council – Audit Team Member Lee Liutkevicius, National Highways – Audit Team Member
Design Organisation:	Greg Jones, i-Transport Jonathan Orton, i-Transport Stephen Evans, Pell Frischmann Dr Chris Osowski, Pell Frischmann

SECTION 4 Road Safety Audit Decision Log

Table 4: Road Safety Audit Decision Log

Ref:	RSA Problem	RSA Recommendation	Design Organisation Response	Overseeing Organisation Response	Agreed RSA Action
3.1	Location: The northbound bus stops on Dewsbury Road. Summary: Cyclists could be involved in overtaking collisions. The bus and cycle lane on the west side of Dewsbury Road contains two bus stops. Cyclists approaching a waiting bus might drift into the nearside traffic lane to overtake, with the attendant risk of collisions with northbound vehicles. The situation could be exacerbated by the uphill gradient (cyclists might not pass the bus quickly) and the available forward visibility for motorists to the northernmost bus stop which is on a left-hand bend. Providing an alternative route past the bus stops along the footway will give cyclists the option to avoid passing on the carriageway. It is appreciated that this could generate conflicts with pedestrians on the footway, but this is considered to be preferable to conflicts with vehicles travelling at speed.	It is recommended that dropped kerbs and appropriate road markings are provided on the approaches and exits from the bus stop cages.	The recommendation is accepted and will be addressed at the detailed design stage.	The recommendation is accepted and will be addressed at the detailed design stage.	Address at detailed design stage.

Ref:	RSA Problem	RSA Recommendation	Design Organisation Response	Overseeing Organisation Response	Agreed RSA Action
3.2	Location: The Dewsbury Road northbound approach to the roundabout. Summary: The nearside lane marking could confuse motorists and increase the risk of collisions. The nearside lane worded destinations are correct (A650 and M62), but the arrow shows the lane as left-turn only. Motorists, particularly those unfamiliar with the area and intending to access the M62 west, could be led to believe that they should stay in the nearside lane, then brake and manoeuvre suddenly at the A650 exit to regain the correct lane on the circulatory on their offside. This could increase the risk of tail-end or side-swipe collisions with following motorists in that lane.	It is recommended that the left-turn arrow is replaced with a double-headed straight-ahead and left-turn marking.	The recommendation is accepted. The nearside lane marking has been amended in Revision H of the scheme drawings, enclosed at **Appendix A**.	The recommendation is accepted	Nearside land marking amended.

Ref:	RSA Problem	RSA Recommendation	Design Organisation Response	Overseeing Organisation Response	Agreed RSA Action
3.3	Location: The proposed footway/cycleway on the roundabout central island. Summary: The level difference between the footway/cycleway and the circulatory carriageway could increase the risk of collisions with vehicles. The existing roundabout is raised above the carriageway level. If this level is retained for the footway cycleway, users could slip down the embankment with the collateral risk of being struck by circulating vehicles.	If the footway/cycleway is to be installed at the existing level on the central island, it is recommended that barrier restraints are provided.	The recommendation is accepted and will be addressed at the detailed design stage.	The recommendation is accepted and will be addressed at the detailed design stage.	Address at detailed design stage.

Ref:	RSA Problem	RSA Recommendation	Design Organisation Response	Overseeing Organisation Response	Agreed RSA Action
3.4	Location: The new Toucan crossings of the circulatory carriageway opposite A653 Dewsbury Road (north) and the M62 westbound off-slip. Summary: The level difference between the footway/cycleway and the circulatory carriageway could increase the risk of slips and falls and of collisions with vehicles. If the footway/cycleway is to be installed at the existing level on the central island, the ramps down to the crossing points should cater for physically impaired pedestrians, including wheelchair and mobility scooter users. This will reduce the risks of slips, overturns and potentially, collisions with vehicles if users enter the carriageway unintentionally.	If the footway/cycleway is to be installed at the existing level on the central island, it is recommended that appropriate ramps to the crossing points are provided.	The recommendation is accepted and will be addressed at the detailed design stage.	The recommendation is accepted and will be addressed at the detailed design stage.	Address at detailed design stage.

Ref:	RSA Problem	RSA Recommendation	Design Organisation Response	Overseeing Organisation Response	Agreed RSA Action
3.5	Location: The existing Toucan crossing on the circulatory carriageway between the two sections of Bradford Road. Summary: Continued use of the crossing point could increase the risk of collisions. The Toucan crossing is to be removed but pedestrians and cyclists might continue to cross at this point as it is on the desire line along Bradford Road. Crossing without the benefit of a green man or cycle symbol (even if traffic is temporarily stopped) could increase the risk of collisions.	It is recommended that physical measures are introduced to prevent pedestrians and cyclists crossing the circulatory carriageway.	The recommendation is accepted and will be addressed at the detailed design stage. A wayfinding scheme will be produced as part of the detailed design submission to reinforce the new routing options.	This concern will be addressed at detailed design stage by either accepting the recommendation or amending the agreed crossing location to remove the concern.	Address at detailed design stage.

Ref:	RSA Problem	RSA Recommendation	Design Organisation Response	Overseeing Organisation Response	Agreed RSA Action
3.6	Location: The amended northern section of the circulatory carriageway. Summary: Reduced visibility of the offside traffic signals could increase the risk of collisions. A fourth lane is shown to be developed on the offside approach to the traffic signals and proposed Toucan crossing opposite Dewsbury Road. Notwithstanding that some site clearance will be required on the central island to provide the lane and the footway/cycleway, there is heavy foliage present which could compromise forward visibility to the offside signal head. In turn, this could increase the risk of last minute braking and tail end collisions.	It is recommended that the foliage is removed or cut back sufficiently to provide adequate forward visibility to the offside signal head, bearing in mind the potential for re-growth.	The recommendation is accepted. Foliage will be cut back as part of implementing the proposed works. However on-going maintenance of the foliage will remain the responsibility of the Local Highway Authority (as is presently the case). Annotation to the above is included in Revision H of the scheme drawings, enclosed at **Appendix A**.	The recommendation is accepted. Foliage will be cut back as part of implementing the proposed works and maintained thereafter by LCC.	Foliage will be cut back as part of implementing the proposed works and maintained thereafter by LCC.

Ref:	RSA Problem	RSA Recommendation	Design Organisation Response	Overseeing Organisation Response	Agreed RSA Action
3.7	Location: The junction of Station Lane with Dewsbury Road. Summary: The proximity of the junction to the traffic signals could increase the risk of collisions. The traffic signals are to be moved closer to Station Lane. While it is appreciated that Station Lane is a cul-de-sac and exiting drivers should be aware of the signals, it is possible that some might not see the signal heads clearly, depending on their orientation and the potential presence of high vehicles which could mask the heads. In turn, this could increase the risk of a number of collision types, including stop line overshoots with the collateral risk of striking crossing pedestrians.	It is recommended that, as far as possible, the signal heads are aligned to be visible to drivers approaching the give way point on Station Lane. In addition, it is recommended that a traffic signals warning sign (Diagram 543), together with an arrow and distance plate are erected on the Station Lane approach.	The recommendation is accepted and will be addressed at the detailed design stage. Any signage which is provided will need to be located within the public highway.	The recommendation is accepted and will be addressed at the detailed design stage.	Address at detailed design stage.

Ref:	RSA Problem	RSA Recommendation	Design Organisation Response	Overseeing Organisation Response	Agreed RSA Action
3.8	Location: The existing and new Toucan Crossings throughout the scheme. Summary: Providing sufficient width at the crossings could reduce the risk of collisions. The existing crossings vary in width, but all are less than the current recommended width of 3m. Providing this minimum width can help to reduce the risk of collisions involving cyclists and pedestrians, particularly when crossing volumes are high.	It is recommended that the proposed crossings are specified with a minimum width of 3m between the crossing studs. In addition, the opportunity could be taken to widen the existing retained crossings as part of the improvement works.	The proposed crossings are all specified as being 4m in width and therefore exceed the minimum width requirement. Amendments are not needed. Widening of the existing crossings, which are unaffected by the proposed works, is considered to fall beyond the scope of the audit process. The proposed works already provide significant betterment to the pedestrian and cycle environment at the Junction. The proposed works also already represent a very significant obligation to the two developers. In this context it is not considered reasonable to require the developers to widen existing crossings.	The recommendation and design organisation response is accepted. This audit does not restrict the scope of safety matters addressed at detailed design stage.	N/A Consider any residual safety matters relating to crossing widths at detailed design stage.

Ref:	RSA Problem	RSA Recommendation	Design Organisation Response	Overseeing Organisation Response	Agreed RSA Action
3.9	Location: The approaches to the existing and new Toucan crossings throughout the scheme. Summary: The proximity of the vehicle stop lines to the crossings could lead to vehicles striking pedestrians. The distances between the pedestrian crossing studs and the vehicle stop lines at the existing crossings vary, but some are less than the recommended minimum. Additionally, those distances are not specified at this stage for the proposed crossings, but they appear to be closer than recommended on the drawings. Accidents can occur at signal controlled crossings because drivers of high fronted vehicles can pull away unaware of the presence of pedestrians, particularly those who are slow moving and who cross close to their vehicles. This problem can be mitigated by ensuring that adequate visibility of pedestrians is available to drivers and given effect by providing sufficient distance from the stop line to the crossing studs.	It is recommended that, for the proposed crossings, the stop lines are specified as a minimum distance of 3m from the crossing studs (2.5m from the primary signal post) and shown as such on the drawings. In addition, the opportunity could be taken to provide this minimum spacing at the existing retained crossings as part of the improvement works.	The recommendation is accepted in respect of proposed crossings. The stoplines have been amended to provide a minimum distance of 3m between stop lines and crossing studs as shown in Revision H of the scheme drawings, enclosed at **Appendix A**. Providing minimum spacing between the stop lines and crossing studs at existing crossings not affected by the proposed works is again considered to fall outside the scope of works agreed through extensive discussions with the Overseeing Organisation and National Highways. The proposed works also already represent a very significant obligation to the two developers. In this context it is not considered reasonable to require the developers to amend spacing at the existing retained crossings.	The recommendation and design organisation response is accepted. This audit does not restrict the scope of safety matters addressed at detailed design stage.	Stoplines amended. Consider any residual safety matters relating to spacing between stop lines and crossing studs at existing crossings at detailed design stage.

Ref:	RSA Problem	RSA Recommendation	Design Organisation Response	Overseeing Organisation Response	Agreed RSA Action
3.10	Location: The removed lengths of footway/cycleway throughout the scheme. Summary: Making the removed routes unattractive to users could reduce the risk of trips and falls. At this stage, it is not clear how the removed sections of footway/cycleway are to be reinstated. If the treatment is unattractive or difficult to use for pedestrians and cyclists, they will be discouraged from attempting to follow the previous desire lines and a reduced risk of trips and falls.	It is recommended that the reinstatements are designed to deter use by pedestrian and cyclists and/or the removed lengths are fenced off.	The recommendation is accepted and will be addressed at the detailed design stage.	The recommendation is accepted and will be addressed at the detailed design stage.	Address at detailed design stage.

Ref:	RSA Problem	RSA Recommendation	Design Organisation Response	Overseeing Organisation Response	Agreed RSA Action
3.11	Locations: Throughout the scheme. Summary: Worn road markings could increase the risk of a number of collision types. While primarily a maintenance issue, many of the road markings within the scheme extents are worn and their conspicuity for motorists is reduced. This could increase the potential for last minute lane changes or of sudden braking, with the attendant risk of tail-end or side-swipe collisions.	It is recommended that, as part of the scheme, the opportunity is taken to refresh the road markings that are to remain in place.	The recommendation is not accepted. The Stage 1 RSA report explains that this is primarily a maintenance issue requiring upkeep by the Local Highway Authority. Therefore, this is considered to fall outside the scope of works agreed through extensive discussions with the Overseeing Organisation and National Highways and would, if included represent a material cost uplift for the developers to bear which is not considered reasonable.	The recommendation should be reviewed at detailed design stage. This audit does not restrict the scope of safety matters addressed at detailed design stage.	Review any residual safety concerns relating to road markings at detailed design stage.

SECTION 5 Design Organisation and Overseeing Organisation Statements

Table 5: Design Organisation Statement

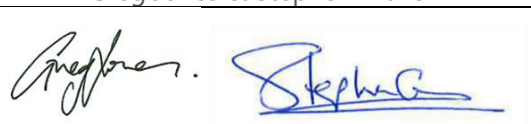
On behalf of the Design Organisation I certify that: **1) The RSA actions identified in response to the road safety audit problems in this road safety audit have been discussed and agreed with the Overseeing Organisation.**	
Name:	Greg Jones & Stephen Evans
Signed:	
Position:	Associate Partner & Technical Director
Organisation:	i-Transport LLP & Pell Frischmann
Date:	17 October 2022

Table 6: Overseeing Organisation Statement

On behalf of the Overseeing Organisation I certify that: **1) 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.** **2) The agreed RSA actions will be progressed.**	
Name:	Gillian MacLeod BEng Hons CEng MICE
Signed:	Gillian MacLeod
Position:	Transport Development Services Manager
Organisation:	Leeds City Council
Date:	17/10/22

APPENDIX A. UPDATED SCHEME DRAWINGS – REVISION H

M62 J28: A653 Dewsbury Road (S)

Scale: 1:1000 @ A1

M62 J28: Main Roundabout

Scale: 1:750 @ A1

M62 J28: A653 Dewsbury Road (N)

Scale: 1:1000 @ A1

Continued on Panel B

Continued on Panel C

Continued on Panel A

New toucan crossing points added to provide routes to central island

Existing tree planting to be curtailed to ensure forward visibility

Existing crossing point removed

Existing subsidiary deflection island markings renewed on existing alignment

Existing lane markings reconfigured to allow slip road Lane 2 to route safely to circulatory Lane 2 towards Leeds.

New bus signal gate added to existing signal arrangement

New bus lane added to nearside

New pedestrian/cycle route (5m width) to western side of circulatory island

New pedestrian/cycle route (5m width) to eastern side of circulatory island

Existing crossing point removed

Existing tree planting within NH ownership to be curtailed to ensure forward visibility

New kerbline taper transition to existing at minimum 1:55 (per CD127, 2.28)

Existing NH operational equipment in verge to be relocated in detailed design if necessary

Existing pedestrian/ cycle route removed

Existing pedestrian/ cycle route removed

Section A

New toucan crossing point added to provide route to central island

Signing and marking strategy to circulatory area and to M62 offlsip to be reinforced at detailed design

Additional lane added to offside to provide five lanes to stop line

Upgrade of existing pedestrian/ cycle route to 5m width

Existing crossing point removed

New pedestrian/cycle route (5m width) to southern side of circulatory island

New toucan crossing point added to provide route to central island

Minor change to kerbline to ensure smooth vehicle paths and two lane exit to A650 (W)

Upgrade of existing pedestrian/ cycle route to general 5m width (NB: min. 4.0m width where land constrained)

Northbound A653 Dewsbury Road approach widened to four lanes

Upgrade of existing pedestrian/ cycle route to 5m width

Extent of bus lane in abeyance pending ongoing design discussions with LCC (65m length indicated)

Potential retaining wall required to support existing cutting slope

New bus lane added to nearside

Existing footway extended to relocated bus stop (3m width)

New bus signal gate added to existing signal arrangement

Existing island reshaped, retaining existing crossings

Additional exit lane for right turners

Existing island removed and signal heads relocated

Central island curtailed to improve right turn vehicle path

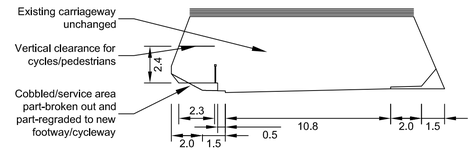
Existing pedestrian/ cycle route removed

Continued on Panel B

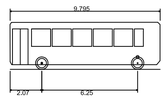
Continued on Panel A

Example section under motorway

Section A



Vehicle profile for illustrative track



Single Deck Bus	
Overall Length	9.795m
Overall Width	2.500m
Overall Body Height	3.070m
Min Body Ground Clearance	0.306m
Track Width	2.322m
Lock to lock time	6.00s
Kerb to Kerb Turning Radius	10.111m

Notes

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- OS Data: © Crown copyright and database rights 2022. Ordnance Survey Licence number 100040148.
- Proposed highway layout subject to further investigations and detailed design.

Layout

- Existing layout (post-2019 per WSP Drawing: 70038464-WSP-HGN-J28-DR-CH-01_01.AB01)
- Capitol Park improved access (per i-Transport Drawing: ITM10127-GA-007-B)
- LCC M2D2L bus schemes (north arrangement per discussion with LCC at meeting of 15 September 2021 and i-Transport Drawing ITM10127-GA-019A; and south arrangement per LCC Phase 1 Drawing: -LCC-HWT-2B-DR-CH-0001.P01.1)
- New crossings and pedestrian routes to central island.
- Removal of pedestrian routes from peripheral routes under M62.
- Lane reconfiguration to M62 EB offslip to provide safer access to A653 Dewsbury Road (N)
- Additional lane capacity to northern circulatory area
- Additional lane capacity to M62 EB onslip exit
- Additional lane capacity to southeastern circulatory area
- Additional lane capacity to A653 Dewsbury Road (S)

Key

- New pedestrian/cycle route
- Upgraded pedestrian/cycle route
- Existing pedestrian/cycle route removed

REV	DESCRIPTION	DRN	CHK	APP	DATE
H	Update following Stg1 Road Safety Audit	CJO	SME/GJ	PDS/GJ	16.08.2022
G	Updated to actions of meeting 09.06.2022	CJO	SME/GJ	PDS/GJ	14.06.2022
F	-				
E	-				
D	Updated markings to JSJV/NH comments	CJO	SME/GJ	PDS/GJ	04.11.2021
C	Update to discussions with LCC/NH	CJO	SME/GJ	PDS/GJ	14.10.2021
B	Update to discussions with LCC/NH	CJO	SME/GJ	PDS/GJ	28.09.2021

i-Transport

Pell Frischmann

Project

M62 J28
TINGLEY INTERCHANGE

Drawing Title

MITIGATION SCHEME
FEASIBILITY DESIGN
GENERAL ARRANGEMENT

	Name	Date
Drawn	CJO	24.09.2021
Designed	CJO / JO	24.09.2021
Checked	SME / GJ	24.09.2021
Approved	PDS / GJ	24.09.2021

Scale: 1:750/1:1000 @ A1

File No.: A13398-T-146 - M62 J28 Tingley - Rev H.dwg

Drawing Status: FEASIBILITY DESIGN

Drawing No.: A13398-T-146

Revision: H

Panel A

Panel B

Panel C

Panel A

M62 J28: A653 Dewsbury Road (S)

Scale: 1:1000 @ A1

Continued on Panel B

Panel B

M62 J28: Main Roundabout

Scale: 1:750 @ A1

Continued on Panel B

Continued on Panel C

New toucan crossing points added to provide routes to central island

Existing tree planting to be curtailed to ensure forward visibility

Existing crossing point removed

Existing subsidiary deflection island markings renewed on existing alignment

Existing lane markings reconfigured to allow slip road Lane 2 to route safely to circulatory Lane 2 towards Leeds.

New pedestrian/cycle route (5m width) to western side of circulatory island

New pedestrian/cycle route (5m width) to eastern side of circulatory island

Existing pedestrian/ cycle route removed

Section A

New toucan crossing point added to provide route to central island

Existing crossing point removed

Minor change to kerbline to ensure smooth vehicle paths and two lane exit to A650 (W)

Upgrade of existing pedestrian/ cycle route to general 5m width (NB: min. 4.0m width where land constrained)

Northbound A653 Dewsbury Road approach widened to four lanes

Continued on Panel B

Continued on Panel A

Panel C

Existing crossing point removed

Existing tree planting within NH ownership to be curtailed to ensure forward visibility

New kerbline taper transition to existing at minimum 1:55 (per CD127, 2.28)

Existing NH operational equipment in verge to be relocated in detailed design if necessary

Existing pedestrian/ cycle route removed

M62 J28: A653 Dewsbury Road (N)

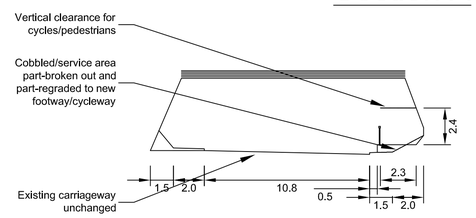
Scale: 1:1000 @ A1

Bus lane, bus gate and Topcliffe Lane widening scheme to be delivered by the Applicant for Capitol Park in agreement with Leeds City Council

Existing pedestrian/ cycle route removed

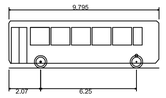
Continued on Panel B

Example section under motorway



Section A

Vehicle profile for illustrative track



Single Deck Bus	
Overall Length	9.795m
Overall Width	2.500m
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Notes

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- Proposed highway layout subject to further investigations and detailed design.

Layout

- Existing layout (post-2019 per WSP Drawing: 70038464-WSP-HGN-J28-DR-CH-01_01.AB01)
- Capitol Park improved access (per i-Transport Drawing: ITM10127-GA-007-B)
- LCC M2D2L bus scheme (north arrangement per discussion with LCC at meeting of 15 September 2021 and i-Transport Drawing ITM10127-GA-019A)
- New crossings and pedestrian routes to central island.
- Removal of pedestrian routes from peripheral routes under M62.
- Lane reconfiguration to M62 EB offslip to provide safer access to A653 Dewsbury Road (N)
- Additional lane capacity to northern circulatory area
- Additional lane capacity to M62 EB onslip exit
- Additional lane capacity to A653 Dewsbury Road (S)

Key

- New pedestrian/cycle route
- Upgraded pedestrian/cycle route
- Existing pedestrian/cycle route removed

REV	DESCRIPTION	DRN	CHK	APP	DATE
H	Update following Stg1 Road Safety Audit	CJO	SME/GJ	PDS/GJ	16.08.2022
G	Updated to actions of meeting 09.06.2022	CJO	SME/GJ	PDS/GJ	14.06.2022
F	-				
E	Incorporation of Phase 1+ part to Ph 1	CJO	SME	PDS	25.01.2021
D	Extract of Phase 1 from A13398-T-147-D	CJO	SME	PDS	16.12.2021

i-Transport

Pell Frischmann

Project

M62 J28
TINGLEY INTERCHANGE
PHASE 1

Drawing Title

MITIGATION SCHEME
FEASIBILITY DESIGN
GENERAL ARRANGEMENT

	Name	Date
Drawn	CJO	16.12.2021
Designed	CJO	16.12.2021
Checked	SME	16.12.2021
Approved	PDS	16.12.2021

Scale: 1:750/1:1000 @ A1

File No.: A13398-T-247 - M62 J28 Phase 1 - Rev H.dwg

Drawing Status: FEASIBILITY DESIGN

Drawing No.: A13398-T-247

Revision: H

M62 J28: A653 Dewsbury Road (S)

Scale: 1:1000 @ A1

M62 J28: Main Roundabout

Scale: 1:750 @ A1

Continued on Panel B

Continued on Panel C

Continued on Panel B

New toucan crossing points added to provide routes to central island (delivered in Phase 1)

Existing tree planting to be curtailed to ensure forward visibility (delivered in Phase 1)

Existing crossing point removed (delivered in Phase 1)

Existing subsidiary deflection island markings renewed on existing alignment (delivered in Phase 1)

Existing lane markings reconfigured to allow slip road Lane 2 to route safely to circulatory Lane 2 towards Leeds (delivered in Phase 1)

New bus signal gate added to existing signal arrangement

New bus lane added to nearside

New pedestrian/cycle route (5m width) to western side of circulatory island (delivered in Phase 1)

New pedestrian/cycle route (5m width) to eastern side of circulatory island (delivered in Phase 1)

Existing pedestrian/ cycle route removed (delivered in Phase 1)

Existing crossing point removed (delivered in Phase 1)

Existing tree planting within NH ownership to be curtailed to ensure forward visibility (delivered in Phase 1)

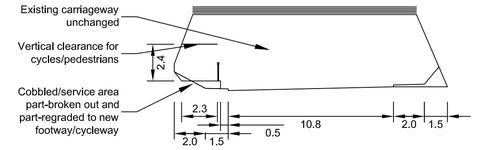
New kerbline taper transition to existing at minimum 1:55 (per CD127, 2.28; delivered in Phase 1)

Existing NH operational equipment in verge to be relocated in detailed design if necessary (delivered in Phase 1)

Existing pedestrian/ cycle route removed (delivered in Phase 1)

Section A

Example section under motorway



Section A

Notes

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- OS Data: © Crown copyright and database rights 2022. Ordnance Survey Licence number 100040148.
- Proposed highway layout subject to further investigations and detailed design.
- See Drawing Reference A13398-T-247 for Phase 1 general arrangement.

Layout

- Existing layout (post-2019 per WSP Drawing: 70038464-WSP-HGN-J28-DR-CH-01_01.AB01)
- Capitol Park improved access (per i-Transport Drawing: ITM10127-GA-007-B)
- LCC M2D2L bus schemes (north arrangement per discussion with LCC at meeting of 15 September 2021 and i-Transport Drawing ITM10127-GA-019A; and south arrangement per LCC Phase 1 Drawing: -LCC-HWT-2B-DR-CH-0001.P01.1)
- New crossings and pedestrian routes to central island.
- Removal of pedestrian routes from peripheral routes under M62.
- Lane reconfiguration to M62 EB offslip to provide safer access to A653 Dewsbury Road (N)
- Additional lane capacity to northern circulatory area
- Additional lane capacity to M62 EB onslip exit
- Additional lane capacity to southeastern circulatory area
- Additional lane capacity to A653 Dewsbury Road (S)

Key

- New pedestrian/cycle route
- Upgraded pedestrian/cycle route
- Existing pedestrian/cycle route removed
- Area of Phase 2 works potentially subject to a Section 106 contribution

M62 J28: A653 Dewsbury Road (N)

Scale: 1:1000 @ A1

Bus lane, bus gate and Topcliffe Lane widening scheme to be delivered by the Applicant for Capitol Park in agreement with Leeds City Council

Existing pedestrian/ cycle route removed (delivered in Phase 1)

Continued on Panel B

New toucan crossing point added to provide route to central island (delivered in Phase 1)

Signing and marking strategy to circulatory area and to M62 offslip to be reinforced at detailed design

Additional lane added to offside to provide five lanes to stop line

Upgrade of existing pedestrian/ cycle route to 5m width

Existing crossing point removed (delivered in Phase 1)

New pedestrian/cycle route (5m width) to southern side of circulatory island

New toucan crossing point added to provide route to central island

Existing crossing point removed

Minor change to kerbline to ensure smooth vehicle paths and two lane exit to A650 (W) (delivered in Phase 1)

Upgrade of existing pedestrian/ cycle route to general 5m width (NB: min. 4.0m width where land constrained) (delivered in Phase 1)

Northbound A653 Dewsbury Road approach widened to four lanes (delivered in Phase 1)

Upgrade of existing pedestrian/ cycle route to 5m width

Continued on Panel B

Continued on Panel A

Panel A

Panel B

Panel C

REV	DESCRIPTION	DRN	CHK	APP	DATE
H	Update following Stg1 Road Safety Audit	CJO	SME/GJ	PDS/GJ	16.08.2022
G	Updated to actions of meeting 09.06.2022	CJO	SME/GJ	PDS/GJ	14.06.2022
F	-				
E	Incorporation of Phase 1+ part to Ph 2	CJO	SME	PDS	25.01.2021
D	Extract of Phase 2 from A13398-T-147-D	CJO	SME	PDS	16.12.2021

i-Transport

Pell Frischmann

Project

M62 J28
TINGLEY INTERCHANGE
PHASE 2

Drawing Title

MITIGATION SCHEME
FEASIBILITY DESIGN
GENERAL ARRANGEMENT

	Name	Date
Drawn	CJO	16.12.2021
Designed	CJO	16.12.2021
Checked	SME	16.12.2021
Approved	PDS	16.12.2021

Scale: 1:750/1:1000 @ A1

File No.: A13398-T-245 - M62 J28 Phase 2 - Rev H.dwg

Drawing Status: FEASIBILITY DESIGN

Drawing No.: A13398-T-245

Revision: H

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M62 J28: A653 Dewsbury Road (S)

Scale: 1:1000 @ A1

M62 J28: Main Roundabout

Scale: 1:750 @ A1

Continued on Panel B

Continued on Panel C

Continued on Panel A

Continued on Panel A

New toucan crossing points added to provide routes to central island

Existing tree planting to be curtailed to ensure forward visibility

Existing crossing point removed

Existing subsidiary deflection island markings renewed on existing alignment

Existing lane markings reconfigured to allow slip road Lane 2 to route safely to circulatory Lane 2 towards Leeds.

New bus signal gate added to existing signal arrangement

New bus lane added to nearside

New pedestrian/cycle route (5m width) to western side of circulatory island

New pedestrian/cycle route (5m width) to eastern side of circulatory island

Existing crossing point removed

Existing tree planting within NH ownership to be curtailed to ensure forward visibility

New kerbline taper transition to existing at minimum 1:55 (per CD127, 2.28)

Existing NH operational equipment in verge to be relocated in detailed design if necessary

Existing pedestrian/ cycle route removed

Existing pedestrian/ cycle route removed

Section A

New toucan crossing point added to provide route to central island

Signing and marking strategy to circulatory area and to M62 offlsip to be reinforced at detailed design

Additional lane added to offside to provide five lanes to stop line

Existing crossing point removed

Upgrade of existing pedestrian/ cycle route to 5m width

New pedestrian/cycle route (5m width) to southern side of circulatory island

Existing crossing point removed

New toucan crossing point added to provide route to central island

Minor change to kerbline to ensure smooth vehicle paths and two lane exit to A650 (W)

Upgrade of existing pedestrian/ cycle route to general 5m width (NB: min. 4.0m width where land constrained)

Northbound A653 Dewsbury Road approach widened to four lanes

Upgrade of existing pedestrian/ cycle route to 5m width

Continued on Panel B

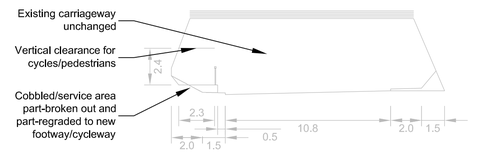
Continued on Panel A

Panel A

Panel B

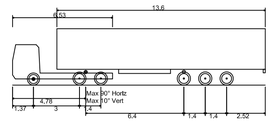
Panel C

Example section under motorway



Section A

Vehicle profile for tracking



Max Legal Length (UK) Articulated Vehicle (16.5m)

Overall Length	16.500m
Overall Width	2.550m
Overall Body Height	3.681m
Min Body Ground Clearance	0.411m
Max Track Width	2.500m
Lock to lock time	6.00s
Kerb to Kerb Turning Radius	6.530m

M62 J28: A653 Dewsbury Road (N)

Scale: 1:1000 @ A1

Extent of bus lane in abeyance pending ongoing design discussions with LCC (65m length indicated)

Potential retaining wall required to support existing cutting slope

New bus lane added to nearside

Existing footway extended to relocated bus stop (3m width)

New bus signal gate added to existing signal arrangement

Existing island reshaped, retaining existing crossings

Additional exit lane for right turners

Existing island removed and signal heads relocated

Central island curtailed to improve right turn vehicle path

Existing pedestrian/ cycle route removed

Notes

- The information contained in this drawing is based on a combination of Ordnance Survey (OS) mapping and survey data provided by others. Pell Frischmann and i-Transport shall not be liable for any inaccuracies or deficiencies.
- Proposed highway layout subject to further investigations and detailed design.
- OS Data: © Crown copyright and database rights 2022. Ordnance Survey Licence number 100040148.
- HGV vehicle tracking undertaken at 65.0kmph forward speed with no dynamic effects modelled. Exception for left turn A650(W) to M62 WB which is undertaken at 32.5kmph.

Layout

- Existing layout (post-2019 per WSP Drawing: 70038464-WSP-HGN-J28-DR-CH-01_01.AB01)
- Capitol Park improved access (per i-Transport Drawing: ITM10127-GA-007-B)
- LCC M2D2L bus schemes (north arrangement per discussion with LCC at meeting of 15 September 2021 and i-Transport Drawing ITM10127-GA-019A; and south arrangement per LCC Phase 1 Drawing: -LCC-HWT-2B-DR-CH-0001.P01.1)
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- Additional lane capacity to southeastern circulatory area
- Additional lane capacity to A653 Dewsbury Road (S)

Key

- New pedestrian/cycle route
- Upgraded pedestrian/cycle route
- Existing pedestrian/cycle route removed

REV	DESCRIPTION	DRN	CHK	APP	DATE
H	Update following Stg1 Road Safety Audit	CJO	SME/GJ	PDS/GJ	16.08.2022
G	Updated to actions of meeting 09.06.2022	CJO	SME/GJ	PDS/GJ	14.06.2022

i-Transport

Pell Frischmann

Project

M62 J28
TINGLEY INTERCHANGE

Drawing Title

MITIGATION SCHEME
FEASIBILITY DESIGN
TRACKING - 16.5m ARTICULATED

	Name	Date	Scale
Drawn	CJO	13.01.2022	1:750/1:1000 @ A1
Designed	CJO	13.01.2022	File No. A13398-T-244 - M62 J28 Tingley - Tracking Rev H.dwg
Checked	SME	13.01.2022	Drawing Status: FEASIBILITY DESIGN
Approved	PDS	13.01.2022	

Drawing No. A13398-T-244

Revision H

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