APPENDIX A - VER 1 Kirklees Road Safety Audit Procedures – SPD – Internal Audits

KIRKLEES SAFETY AUDIT BRIEF – Internal Audits

Scheme Name	Heckmondwike Bus Station	**Budget Code**	25/65529	**Lead Designer**	SGP Architects
Location	Heckmondwike Bus Hub				
Type of Scheme	**(eg new road scheme / junctions improvements / traffic calming etc.)** New bus station on existing hub site				

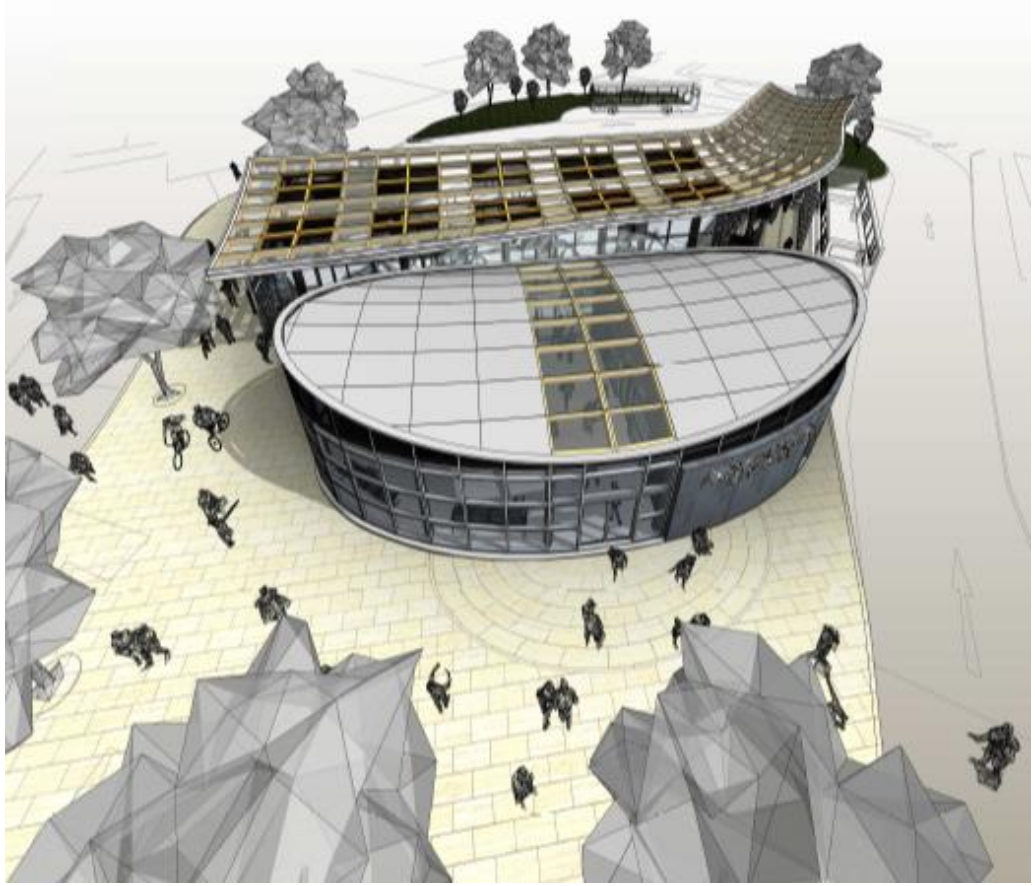
FOR INTERNAL PROCESS ONLY – AUTHORISATION TO PROCEED WITH SCHEME

Audit Requested (highlight as necessary)	**Audit completed**		**Completed audit Logged by Contracts**		**Designers Response completed**		**Exception report required Y/N**	**Exception Report decision made by Ops Manager (see record attached)**		**AUTHORISATION TO PROCEED WITH SCHEME Group Engineer – final decision**		**Logged by Contracts**	
	Print Name	**Date**	**Initial**	**Date**	**Initial**	**Date**	**Y/N**	**Initial**	**Date**	**Initial**	**Date**	**Initial**	**Date**
Stage 1	Dean Barker Jamie Fletcher	15/06/21	AW	15/06/21									
Stage 2													
Stage 1/2 (combined)													
Stage 3													

General Comments/ Design Criteria/ Summary / Details of last audit (if required):

This also includes any departures from standards

Heckmondwike Bus Station *(part of the Transforming Cities Fund programme)*



As part of the Transforming Cities Fund programme, (see adjacent concept design) a transformational bus station is proposed for the current Heckmondwike Bus Hub.

Sitting on the heart of the A638 corridor, the bus hub is currently over capacity at peak times and requires more stands to accommodate bus service, housing and employment growth in the area.

The primary driver for this scheme is to alleviate the existing congestion and lack of interchange facility at the bus hub, whilst also providing a fit for purpose, weatherproof and safe station for citizens of Heckmondwike.

Secondary aims are to accommodate active travel interchange, driver facilities and improve the environment for pedestrians, to create an attractive gateway to Heckmondwike, in order to encourage modal shift towards more sustainable modes and provide local investment and regeneration.

Design principles for Huddersfield Southern Gateways:

- Aesthetically pleasing building structure
- Large canopy over stands
- Uplift in stands from 4 to 6
- Provide layover bay
- No adaptation to current access / egress arrangement

The proposed scheme will be modelled by WSP in TRANSYT to ensure that the arrangement at the junction is optimal.

The proposed speed limit for the scheme area is not going to change within this scheme.

Please do not hesitate to get in touch for any enquiries.

Do you perceive any safety problems? YES
The parking bays to the north of the site are currently remaining in situ due to a request from elected members. A proposed mitigation to the pedestrian desire line which may form is through barriers (planters or guard rail) and reversing cameras and screens for the buses. Removal of these bays is the other option.

List of drawings supplied for Audit purposes (including version number)
192654-SGP-STE-00-A-021001_Proposed Site Layout-P.2 **192654-SGP-STE-00-A-021002_Proposed Site Layout with bus trackin** **192654-SGP-STE-00-A-021003_Proposed Site Layout with HGV trackin** **192654-SGP-HEK-ZZ-DR-A-021301-P.1-Elevations** **192654-SGP-HEK-ZZ-M3-A-021901-P.1-3D Perspective Views**

All audit briefs need to be submitted to the Audit team at the following email address **RoadSafetyAudits@Kirklees.gov.uk**

ROAD SAFETY AUDIT PROBLEMS

Problem 1

Currently pedestrians can cross in relative safety between the footway bordering the north-eastern side of South George Street and the footway bordering its south-western side (i.e., to/from the periphery of the bus station), only having to consider traffic moving in one direction around the one-way system. However, under the proposed layout there would be no footway routes around the northern periphery of the station. To mitigate for this, the proposals include guardrail along much of the outer verge of South George Street to block pedestrian crossing desire lines to and from the bus station. However, due to the retention of four existing parking bays there would be gaps in the rails where pedestrians could freely walk through. The proposed carriageway area of the bus station adjoining the parking bays would be extremely hazardous for pedestrians to negotiate, with buses manoeuvring in multiple directions, including reversing. There would be a high risk of pedestrians being injured if they attempted to walk through this area.

It also seems highly likely that significant numbers of pedestrian will want to execute these movements. Most passengers using the bus station living in areas to the north of the site would be likely to walk via George Street. Also, pedestrians heading to and from some retail destinations south of the site may also choose to take a direct path through the centre of the bus station.

Recommendation 1

The parking bays should be removed, and the guardrail made continuous across the entire north-eastern section of South George Street.

Designer's Response 1

The revised Proposed Site Plan (20233-SGP-HEK-ZZ-DR-A-021001 P8) shows that the four parking bays to the north of the site have been removed and replaced with a raised planted area, as part of the landscape strategy for the site. A continuous guardrail (1100mm high) is now proposed between the dentist car park and eastern edge of the proposed raised planted area. A continuous guardrail is also proposed along the eastern side of the site on Royle Fold between the dentist car park and the pedestrian crossing at the entrance to Royle Fold, with the footway widened to retain the effective width.

The proposed raised planted area to the north extends west towards the footway on South George Street and there is a separate landscaped area located along the western side of the site between the crossing point for the drivers route to the layover bay and the signal controlled crossing point. There is also an additional landscaped island between South George Street and the bus apron that will discourage pedestrian movements. The drivers route to the layover bay has a 1200mm high railing coded access gate, along with a retaining wall either side of the gate to discourage pedestrian movements.

In combination these proposals will direct pedestrian movements to the perimeter of the site and prevent pedestrians taking a direct path through the centre of the bus station.

RSA Team Comments 1

TBC

Problem 2

The scheme proposes an unorthodox and potentially hazardous layout and manoeuvring system for buses (it is assumed) to maximise capacity. The layout would necessitate buses reversing from the front of the bays and turning, before turning again and leaving the site forwards. These manoeuvres would be difficult to execute safely, and drivers would need to see clearly in all directions across the rear/sides of their vehicles. Looking at the vehicle swept path movements provided for audit, it seems highly likely that this system could only operate safely if only one bus were permitted to execute an exit manoeuvre at any given time, and only then if no other buses were entering the site at the same time.

Whilst it is acknowledged that cameras would be provided, it is not clear how far these could mitigate safety concerns. The VDUs proposed at the front of the bays may only be clearly visible to bus drivers when they commence reversing (depending upon size and drivers' sight), and without restrictions on conflicting movements in place, they would only be of limited benefit. The further back buses reversed, the less visible the screens would be, and the most hazardous conflicts would occur towards the rear of the parallel bays where other buses entered the site.

Recommendation 2

Safe methods of operation and associated safety measures should form an integral part of the detailed design process and submitted for audit at RSA Stage 2.

This could include strict site operating methods supported by appropriate driver education, training and sign-up, preventing more than one bus leaving the site at any given time. This could be supported by technology, for example, live vehicle detection used to feed a red/green 'traffic light' system incorporated into the VDUs, informing drivers when it was safe to commence reversing. Furthermore, a conventional traffic signal arrangement could be linked to this system, with buses (and other traffic) held on a red light at the north-eastern end of Royle Fold, to prevent them entering the site whilst other buses were reversing.

Designer's Response 2

The revised Proposed Site Plan (20233-SGP-HEK-ZZ-DR-A-021001 P8) shows a reversing camera system will be installed at each Drive-In-Reverse-Out (DIRO) stand so drivers can view what's behind them as they reverse. This comprises a reversing camera screen at the front of each stand and reversing cameras located at the rear of the layover bay.

All drivers will follow appropriate operating procedures, including those set out in 'Guidance for the safe design and operation of bus stations and interchanges' (2011). The guidance includes the following operating procedures relating to reversing vehicles from a DIRO stand:

- Drivers of vehicles reversing from any part of the bus station, other than a stand, should give way to drivers of those vehicles reversing from a stand. When moving in a straight line and two buses attempt to reverse simultaneously the vehicle on the right is given priority to avoid simultaneous movements;
- Where conflict may arise between vehicles, the driver of the vehicle at the rear should yield and leave sufficient space for the vehicle in front;
- Drivers should look for vehicles which are about to, or have started moving and give them priority. Similarly any person on the bus station carriageway should also be given priority;
- When approaching the required stand, check it is clear and proceed via the drive through lane. Do not cut across the rear of other stands. Remain in the drive through lane until you reach the turning point for the stand, whilst watching for pedestrians and reversing vehicles. Turn into the stand. Approach the stand slowing to avoid late braking and align the vehicle tight and square to the kerb;
- Reversing the bus when clear, should be reversed straight from the departure stands, the vehicle wheels be positioned so reversing movement can only be in a straight line. Scan both rear view mirrors and any reversing camera monitor and any reversing aid. The driver should reverse until the rear of the vehicle is at the edge of the line marking the running lane if available. The forward manoeuvre can then be commenced, so that the bus can proceed and immediately rejoin the drive through lane; and
- Reversing aids and audio alarms should be used.

Based on the above, all buses entering the bus stands would be required to give to reversing bus before they enter the bus apron from South George Street. There is sufficient stacking space for a minimum of three buses that could wait on South George Street / Royle Fold in the event that a platoon of buses arrive while buses in the bus stands are reversing. If two buses attempted to reverse simultaneously, then the vehicle on the right would be given priority to avoid simultaneous movements.

Based on the operational procedures set out above, it is considered that the manoeuvres within the bus station could be completed in a safe manner, which would avoid conflict movements being undertaken simultaneously.

RSA Team Comments 2

TBC

Problem 3

The proposed layout includes cycle parking alongside the main building. It is not clear how cyclists could safely access this parking area.

The parking area could only be accessed from the wider area via footways, and currently there are no off-carriageway cycle routes around the periphery of the site which could be linked to it. Cyclists attempting access could only do so by riding through pedestrian-only footways and/or crossings in contravention of the law, placing themselves and pedestrians at risk.

Furthermore, within the site itself, the location of the cycle parking would only be accessible by travelling along the front of the building between the main waiting and retail areas, and the bus stands. Passengers would be walking across this route constantly, and if cyclists elected to ride along it, cycle-pedestrian conflict potential would be very high. Cyclists would be highly unlikely to dismount and walk, even if instructed to do so by signing / order.

There are also no links to the parking area for any cyclists arriving here on-carriageway. If cyclists attempted to travel with buses on-carriageway, it would be inherently dangerous.

It was also noted that the door into the Drivers WC swings out close to the end cycle stand, which could prove hazardous if cyclists were there at the same time as someone emerged with no line of sight (assuming the door will have to opaque for a WC).

Recommendation 3

If cycle parking is to be provided as part of the proposed facilities, then safe access to it must also be provided. Currently there are no facilities proposed for cyclists other than the parking area, and therefore the RSA Team cannot offer specific recommendations that could alleviate the safety concerns. The Designers should fully consider proposals for cycle access and provide details via the Design Response for the RSA Team to consider and comment upon.

Designer's Response 3

The revised Proposed Site Plan (20233-SGP-HEK-ZZ-DR-A-021001 P8) shows the proposed cycle parking will replace the existing cycle parking and result in one additional stand, increasing the number of Sheffield stands from 5 to 6. There are no proposed changes to the cycle network in the vicinity of the site either as part of the proposed scheme or complementary A638 TCF schemes.

Cyclists would be required to dismount and walk with their cycle, which is a continuation of the existing arrangements. There are no recorded collisions in the vicinity of the site involving cyclists and the scheme is not anticipated to result in a significant increase in cycle movements. It is considered that there are no significant changes to how the site is currently accessed by cyclists.

In relation to the major operators entrance and doors opening in to the highway steel barriers are now proposed to guide pedestrian and cycle movements away from the opening of the door, which in turn, should ensure that no pedestrians or cyclists would be in the vicinity of the door when opened. This is also applicable to the Switch Room. Access to the Plant room is now by an inward opening door.