Hexham Bus Station
Road Safety Review

Northumberland County Council

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1 Introduction & Background

1.1 Overview

This document is prepared in response to an invitation to tender, by Northumberland County Council who was seeking a consultant to complete Road Safety Reviews at Hexham Bus Station

1.2 Background

AECOM undertook a bus station option assessment process for Northumberland County Council in May 2014 which provided a review of eight options for locations for the bus station in Hexham, including the existing bus station site and a larger footprint bus station using the existing site.

The option assessment report included a technical note reviewing the existing issues and constraints with the bus station in its current form. The conclusion within the technical note was:

"It is evident that a number of arrangements and improvements have been made to the existing site to improve the pedestrian environment. It is apparent that there is little scope for further mitigation; and it is anticipated that additional land take, to increase the width of the site, would be required to address the highlighted concerns."

Northumberland County Council has requested that an independent road safety expert undertakes a review of the existing bus station site to verify the claim in the technical note that there is little scope for further mitigation specifically in terms of road safety. The Council have stated that they cannot buy additional land in order to increase the width of the site. In addition they have stated that, given that the area within the bus station is not public highway, they are unable to change the access rights to the bus station

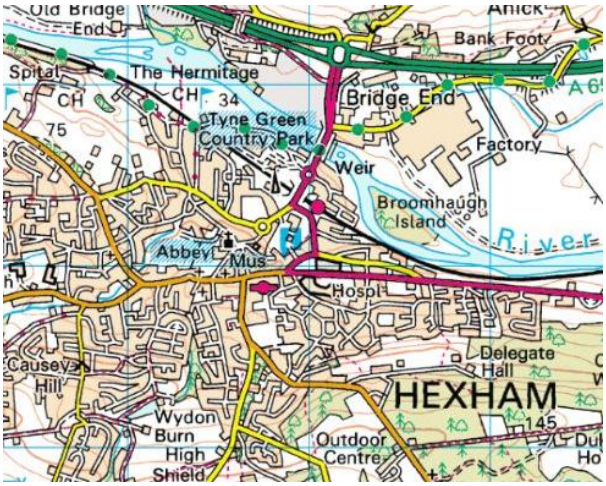

Figure 1 Location of the Bus Station

2 Review of Individual Existing Issues in the Bus Station

2.1 Introduction

Following an instruction to proceed with the road safety review a site visit was completed on Wednesday 24th September 2014, between 12 noon and 2pm, the weather was sunny with scattered cloud and the road surface was dry. A copy of the proposed arrangement was taken to site and Haydn Vernals introduced himself to a staff member at the site, who highlighted some specific operational aspects of the site. Haydn also took the opportunity to talk briefly with two bus drivers who regularly use the bus station.

This site review looked specifically for hazards that will impact non-motorised users in and adjacent to the bus station site, in particular visibility, crossings and desire routes associated with the bus station site. This review also considered aspects of the site for motorised users, in particular bus operations, including but not limited to, low speed manoeuvring, visibility from vehicles, reversing hazards, kerbside alignment and turning. Following the site visit, a copy of the technical report prepared in May 2014 was also reviewed and additional comments relating to that and the proposed extension are included in a later chapter.

This section of the review considers individual existing road safety issues identified through the desktop study and the subsequent site visit to the bus station.

2.2 Pedestrians

Crossings between Priestpopple and bus station island

Description: Two informal crossings are in place between the southern footway of the B6305 Priestpopple and the central island area of the bus station. These crossings are formed using a non prescribed continuous road marking, with a pedestrian symbol and text each end indicating which way pedestrians should look for oncoming traffic.

Road Safety Implications:

- The non prescribed marking introduces ambiguity into who has priority at the crossing. From discussions with staff on site at the bus station, it was inferred that bus drivers had been instructed to give way to pedestrians on the crossing, however the markings on site infer no particular priority and could easily be misunderstood by drivers unfamiliar with the site and in particular drivers of other vehicles (non buses) that have not been fully briefed on the operational nature of the pedestrian crossings.

Potential Mitigation:

- Provide a clear indication of priority that is recognisable to all road users, this may be achieved by either removing the current informal crossings to make it clear that priority is to vehicles or by introducing formal zebra crossings between the footways on Priestpopple and the central bus station island to make it clear that priority is to pedestrians.

Low kerbs and tactile paving

Description: A large area of footway to the northern end of the bus station had no kerb check. In addition, tactile paving was not evident at on the central pedestrian crossings or bus boarding points.

Road Safety Implications:

- Without a kerb check, visually impaired pedestrians may have difficulty in determining the interface between the footway areas and the highway, increasing the risk to visually impaired pedestrians of walking into the highway areas and coming into collision with moving vehicles.
- Tactile paving for pedestrian crossings and bus boarding points improve the conspicuity and provide a guide for visually impaired pedestrians at crossings across the highway and to orientate themselves to the boarding points. The absence of tactile paving increases the risk of visually impaired pedestrians stepping into the highway and coming into collision with moving vehicles.
- The existing tactile paving on the western side of the western crossing is configured to direct pedestrians into the carriageway and has the potential to place a visually impaired pedestrian at risk of coming into collision with moving vehicles.

Potential Mitigation:

- Ensure that interfaces between the footway and highway can be determined by visually impaired pedestrians, this may be achieved by introducing a full height kerb check between the footway and highway.
- Improve the conspicuity of the crossing points for visually impaired pedestrians, this may be achieved by providing tactile paving to crossing points that are in frequent use by pedestrians in and adjacent to the bus station site to reduce the risk of collision between pedestrians and moving vehicles.
- Revise the incorrectly aligned tactile paving on the western side of the western crossing.
- Improve the conspicuity of the boarding points in the bus station, this may be achieved with the use of tactile paving to indicate the interface between bus boarding points and docked buses.

Western footway

Description: A pedestrian route is located to the western edge of the bus station, this is formed from a narrow kerbed footway and an area segregated from the carriageway by road markings. Over running of the segregated area by vehicles entering the site was observed on the day of the review and obstructions to the kerbed footway prevented use by pedestrians.

Road Safety Implications:

- The kerbed footway is narrow and without obstruction would be of limited use for pedestrians, the obstructions effectively make the footpath unusable. As a result, pedestrians accessing the businesses on the western side of the bus station have to make use of the carriageway increasing the risk of collision, especially when walking south, away from Priestpopple.
- An alternative on carriageway segregated route has been provided, however vehicles were observed on the day of the review over running this area both to ease the swept path into the bus station loop and also to pass a stationary bus at the passenger drop off. This segregated area currently forms a primary means of access to businesses on the western side of the bus station, in particular a bicycle repair shop and a former print works, requiring pedestrians and cyclists to walk/cycle in an area that is over run, introducing a risk to these non-motorised users, of coming into collision with moving vehicles, especially when walking south, away from Priestpopple.

Potential Mitigation:

- Reduce the risk to pedestrians and cyclists of collision with vehicles. This may be achieved by the introduction of a kerbed footway along the western edge of the bus station. It is acknowledged that this may have impact on the operation of the bus station and is likely to require the relocation of the drop off stop to elsewhere on Priestpopple or to inside the existing bus station site, which is likely to create additional operational implications.

Priestpopple facing bus stop

Description: Buses and community transport minibuses were observed picking up and dropping off passengers at the curved area of footway between the bus station and Priestpopple. On enquiring with staff/drivers at the bus station, it was confirmed that buses drop off here due to delays caused by accessing and egressing this bus station site

Road Safety Implications:

- A number of scheduled and unscheduled services using a mix of bus and minibus vehicles use an area at the front of the bus station to drop off and pick up passengers. There is no kerb at this location and the highway geometry requires that alighting or boarding passengers step into the carriageway increasing the boarding height to the bus and risk of falls by passengers expecting to step from/to a raised footway.
- In addition, vehicles stationary at this location cause an obstruction to vehicles entering and leaving the main bus station loop, buses were observed taking a slow convoluted path around stationary vehicles, making visibility difficult for drivers exiting the bus station and also causing issues for pedestrians who were observed crossing in front of the exiting buses.

Potential Mitigation:

- Reduce the risks created by the lack of kerb and stationary buses, this may be achieved by investigating options to relocate the area currently used for buses and minibuses to stop to a new location either inside the bus station or adjacent to the bus station, this may include options to place bus stops/stands on the B6305 Priestpopple or in the area currently used as a taxi rank.

2.3 Vehicles and Visibility

Reversing vehicles

Description: An area is available for buses and other vehicles at the southern end of the bus station. This area at the time of the site visit was used in part for short term parking of buses, loading of goods into adjacent businesses and some informal unpaid parking. Access to the area cannot be achieved solely with the use of a forward gear and buses were observed during the site reversing into the short term parking area. In addition, buses were also observed reversing inside the bus station access loop to aid alignment with the boarding points on the central island.

Road Safety Implications:

- Reversing of large vehicles introduces a risk of collision with pedestrians that may be crossing behind a manoeuvring vehicle. Whilst it is acknowledged that buses will need to reverse into short term parking and that some mitigation has been provided in the current arrangement, a risk remains that a pedestrian could be crossing behind a reversing bus.
- Buses reversing inside the bus station loop to aid alignment to the boarding points create a significant risk in that there is an informal pedestrian route on the periphery of the bus station loop, which provides access to businesses on the western and south western sides of the bus station.
- Cars and small goods vehicles accessing the parking area adjacent to the bicycle repair shop currently have to reverse out into the path of vehicles entering the bus station and in particular turn in reverse gear such that they approach the area fronting the bicycle repair shop. This turning whilst reversing action reduces visibility for the driver which in turn increases the risk of collision with pedestrians using the segregated on carriageway, in particular pedestrians stood outside the shop who may be otherwise distracted in the act of dismounting/mounting cycles.

Potential Mitigation:

- Ensure that the risk to pedestrians coming into collision with reversing buses is reduced or removed. This may be achieved by stipulating the use of a banks man whilst reversing or by removing the requirement for buses to reverse by providing a parking facility that can be access solely with the use of a forward gear, which given the constraints of the existing site, we expect that this would be remote to the existing bus station site.
- Reduce the risk of collision with pedestrians created by buses reversing inside the bus station loop. Previous reports indicate that there has been investigations into vehicle swept paths in this area and that whilst a degree of driver miscalculation and other obstructions may increase the times that drivers have to reverse, it is recognised that that the current bus station site has limited scope for accommodating driver miscalculation and other obstructions, especially when other vehicles are loading/waiting in the bus station. As such, whilst it easy to suggest that the need for reversing is removed, it is acknowledged that the possibility of buses reversing cannot be completely prevented at this location and collisions involving reversing vehicles would still be possible.
- Reduce the risk to pedestrians stood outside or accessing the bicycle shop to injury by manoeuvring vehicles, this may be achieved by reorganising the parking arrangements to remove the necessity to reverse near the shop entrance.

Visibility past stationary buses

Description: When crossing from the central island toward the east, visibility into the bus station is restricted by stationary buses.

Road Safety Implications:

- Reduced visibility when crossing in front of stationary buses increases the risk of collision between pedestrians and moving vehicles. During the site visit, a significant number of non-public service vehicles were observed using the bus station as a u-turn facility increasing the risk to pedestrians crossing at this location who may not expect a non-public service vehicle to be using the bus station and passing a stationary bus whilst they are crossing.

Potential Mitigation:

- Reduce the risk of collision by removing as many unnecessary vehicles as possible. This may require the introduction of access restrictions to the bus station that accommodates the needs of businesses for loading. It is acknowledged that access rights for the loading or unloading of vehicle at any time cannot be completely removed without a public enquiry and that the outcome of any public enquiry is beyond the control of the council so may not deliver the required restriction. Notwithstanding that, access could be restricted using a “motor vehicles prohibited with an exception for buses and loading by goods vehicles” restriction, placed such that the sign is within the adopted highway frontage to ensure enforcement of the moving traffic offence by the police is possible. The supplementary plate for this restriction is not prescribed in the Traffic Signs Regulations and General Directions and will require approval for use on the highway by the Department for Transport. This sign solution has been granted approval previously in other districts but that does not guarantee approval here.
- Reduce the risk of collision by improving visibility around stationary buses. The introduction of pedestrian build-outs from the central island to provide a safe place for pedestrians to observe if it is safe to cross and for drivers using the bus station to observe pedestrians crossing in front of stationary buses. A full depth build-out may not be necessary with careful consideration of vehicle speeds and visibility using Table 7.1 in Manual for Streets which provides a useful indication of stopping sight distances for low speed traffic. This could be used to establish a workable inter-visibility distance between drivers and pedestrians waiting to cross at this location.

2.4 General

Illumination and CCTV

Description: Provision of illumination and CCTV in the bus station site.

Road Safety Implications:

- Although not observed in the dark, the positioning, age and mix of street lighting in the bus station, luminaires under the bus station canopy and illumination in the immediate vicinity from businesses has the potential to affect the conspicuity of pedestrians in the dark, increasing the risk of collision between pedestrians and moving vehicles.
- Whilst not specifically providing a road safety improvement, incidents that occur inside and adjacent to the bus station cannot currently be observed either during or after the event. These incidents may include collisions inside the bus station, behavioural issues of the public and drivers and any criminal activity. In addition, the use of CCTV could be used with the appropriate approvals from the DfT for enforcement.

Potential Mitigation:

- Investigate the illumination levels in and around the bus station and if appropriate, improve the level of illumination in the areas used by the public.
- Investigate the introduction of a comprehensive CCTV system

3 Additional Comments

3.1 Introduction

Following the site visit and desktop review of the existing site, comments raised in the technical report and issues identified from the feasibility stage drawings are outlined below.

3.2 Previous Technical Note – Issues not observed in September 2014

Delivery Vehicle Access

Description: The Technical Note prepared in May 2014 highlighted an issue with delivery vehicles servicing the businesses to the west of the bus station.

This was not directly observed during the site visit on the 24th September 2014 – Photograph from May 2014 Technical Note.

Road Safety Implications:

- Vehicles loading from inside the bus station block the segregated pedestrian route increasing the risk to pedestrians who will have to walk into the carriageway area and increasing the potential for collisions in the entry area of the bus station. The observation made in the May 2014 Technical Note regarding kerb over running is likely to be linked to this issue in that no kerb over running was observed in the site visit completed in September 2014

Potential Mitigation:

- Reduce the risk to pedestrians and for collisions in the entry area to the bus station by relocating where possible the loading of vehicles in the bus station and limited unnecessary access to loading only. This may require the introduction of access restrictions in the bus station (covered earlier in this report). In addition restrictions on loading in locations that have an influence on pedestrian routes and vehicle swept paths is recommended, however it is acknowledged that to do this, the highway areas in the bus station would need to become adopted highway to enable enforcement, however, it is understood that adoption may not be possible for a variety of legal complexities relating to ownership. It is acknowledged also, that it will be impractical to remove access for loading to businesses inside the bus station, limiting the potential road safety benefits of this mitigation over what could be achieved in a dedicated modern bus station facility.

Loading to Print Works

Description: The Technical Note prepared in May 2014 highlighted an issue with a large vehicle servicing the businesses to the south west of the bus station.

This was not directly observed during the site visit on the 24th September 2014 – Photograph from May 2014 Technical Note.

Road Safety Implications:

- An issue relating to a large vehicle blocking the pedestrian route was highlighted in the May 2014 Technical Note. Although this was not observed in the September 2014 site visit, any future use of the former print works has the potential to create access requirements for loading by larger vehicles. This increases the risk that pedestrians are exposed to manoeuvring by vehicles of any size.

Potential Mitigation:

- Consideration is required on how these premises will be serviced in the future, this may include provision of a servicing lay-by that accommodates delivery vehicles, however it is acknowledged that the size and specific requirements are unknown at this stage. Any change of use would require consideration of servicing via the planning application process.

3.3 Feasibility Stage Proposal

Whilst it is acknowledged that the design is at a very early stage, a number of issues were identified during this review. These comments are made on the basis of the limited information supplied and do not constitute a Stage 1 Road Safety Audit.

Pedestrian Crossings – The supplied drawing suggests a zebra crossing type arrangement, however do not indicate any form of zig-zag road marking on approach. As such, these are not prescribed by the regulations covering the use of zebra crossings increasing the risk of priority ambiguity. Recommend that the pedestrian crossings are either to the regulations or are not provided to remove ambiguity.

Western Footway Area – Whilst it is noted that the proposals indicate a wider footway, no indication is given as to how inappropriate use will be managed in terms of parking and loading activities on and adjacent, the existing parking provision for the former print works and use by businesses for displaying goods for sale. Further consideration is required on the formalisation of the area by adoption to highway to enable the introduction of waiting and loading restrictions.

Crossing Visibility – As discussed earlier in this report, the eastern pedestrian crossing provides limited inter-visibility between pedestrians crossing in a eastbound direction and vehicles exiting the bus station. Recommend that the crossing point is built out to provide sufficient inter-visibility between crossing pedestrians and vehicles. Manual for Streets offers a useful table of appropriate visibilities for low speeds.

Deliveries and Servicing – No loading or access restrictions are indicated on the drawing, linking to earlier comments, restricting the use of the bus station reduces the risk of collision inside the site between pedestrians and moving vehicles and between vehicles manoeuvring into parking/loading areas and passing pedestrians/buses. Recommend that access is restricted to buses and loading by goods vehicles only (as discussed earlier in this report) and that waiting and loading restrictions are introduced. It is acknowledged that this will have impact on the former print works, potentially the bicycle repair shop and with regard to the waiting/loading restrictions, would require the adoption of the bus station highway areas, which may not be possible.

Reversing Vehicles – The proposed design has parking for buses integrated into the bus station. Egress from this parking will require buses to reverse into the area where buses entering the bus station are making a 180 degree turn to access the bus stops. Recommend that bus parking is relocated away from this conflict point, it is recognised that this would be to a location outside of the existing bus station.

4 Summary

4.1 Continued use of the existing site

It is clear that whilst the current bus station facility provides a hub for transport interchange in the town centre;

- The existing facility has significant deficiencies that increase the risk of injuries for pedestrians using the bus station and adjacent business premises. This risk is much higher than would be acceptable in designing a modern bus station.
- These deficiencies are exacerbated by the limitations brought about by the un-adopted status of the bus station, in that access, waiting and loading cannot be completely regulated because of the need to provide servicing access for businesses in the bus station and the legal issues associated with adopting the bus station site.
- Should this current site become the location of choice, improvements to geometry (in particular the width), footways, crossings, vehicle regulation and personal security will be essential to the success of the site.
- It is clear that the existing site has width constraints that result in a compromise against the full benefits that a modern bus station facility could provide on a site less constrained by width, and
- That full mitigation of the health and safety issues outlined in this report cannot be achieved.