



Supplementary Environmental Information

A160 Killingholme Humber Port Access, Stage 1 Road Safety Audit

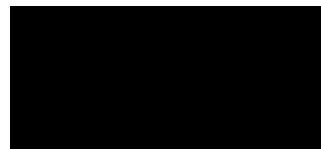
Supplementary Report EX 15.3

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A160 Killingholme Humber Port Access, Stage 1 Road Safety Audit

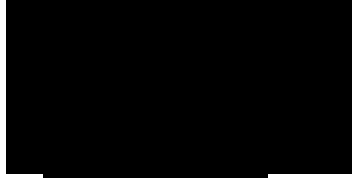


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A160 Killingholme Humber Port Access, Stage 1 Road Safety Audit

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-	Draft Issue	12/03/10
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Table of Contents

Introduction.....1

Site Description2

Items Resulting from the Stage 1 Road Safety Audit3

The Audit Team Statement8

Appendix A – Documents Submitted to the Audit Team.....9

Introduction

This report results from a Stage 1 Road Safety Audit carried out on the improvement of five junctions between the A160 and the A180 (T) and the Humber Port. The audit was carried out at the request of the Design Organisation: AECOM on behalf of Able UK Ltd.

The report indicates each of the problems identified together with recommendations to solve or mitigate them, the Audit Team Statement and a schedule of documents reviewed.

The members of the Audit Team were:

- Stuart Kay
Principal Engineer, AECOM
- Robert Major
Senior Engineer, AECOM

There were no other personnel involved in this audit.

The audit took place at AECOM's Newcastle office during March 2010. The audit comprised an examination of the documents provided by the designers (see Appendix A). In addition to examining the documents supplied, the Audit Team visited the sites of the proposed measures on Friday 5th March 2010. Weather conditions during the site visit were cold / sunny with a dry highway surface.

The terms of reference of the audit are as described in Road Safety Audit Standard HD 19/03 in the Design Manual for Roads and Bridges (DMRB). The advice issued in the DMRB applies to trunk road and motorway highway improvement schemes. However, it has been used in this report to define the scope of this audit.

The team has examined and reported only on the road safety implications of the measures as presented and has not specifically examined or verified the compliance of the designs to any other criteria.

No departures from standards have been notified to the Audit Team on the proposals.

All traffic sign and road marking diagram number references are made to The Traffic Signs Regulations and General Directions, 2002 (TSRGD) as amended.

Site Description

The purpose of the scheme is to enhance the route along the Humber Road A160, from the A180 (T), to accommodate the additional traffic generated by the proposed storage facility at Killingholme which is part of the Humber Port complex.

The A160 is a single carriageway from the A180 (T), at the western extents of the scheme, until its junction with Top Road / Habrough Road where it becomes a dual carriageway. At its junction with the A1173 it again becomes a single carriageway until it reaches Rosper Road which is the eastern limits of the scheme. The surrounding environment, through which the A160 passes, is predominantly rural with occasional commercial / industrial development

Humber Road (A160) carries a very high proportion of heavy goods traffic which includes vehicles registered outside of the UK. There is a system of street lighting on the route although this was not observed during the hours of darkness. There are limited facilities for pedestrians on Humber Road and its associated junctions and there appears to be no demand for such as observed during the site visit. There are also no facilities for cyclists. Parking on the route is regulated either by the use of 24 hour Waiting or Clearway restrictions.

Weather conditions during the site visit on Friday the 5th March 2010 were cold and sunny with a dry highway surface. The audit was undertaken during the hours of 13:00 to 15:30.

Scheme Objectives:

The proposed development is a port related storage facility located at Killingholme, on the Humber Estuary, in North Lincolnshire. As part of a Transport Assessment a number of junctions were identified as requiring measures to address the impact of development generated trips. This scheme covers the five junctions which have been identified for improvement including;

- A180 (T) / A160 – Merge Improvement / Westbound Entry Slip Road Widening;
- A160 / A1077 Ulceby Road – Localised junction widening to major road to provide right-turn reservoir;
- A160 / Habrough Road / Top Road Roundabout - Widening of the A160 carriageway, on the approach to and exit from the roundabout, on the western arm;
- A160 Humber Road / Eastfield Road – Carriageway widening to Eastfield Road (north of A160) to provide dedicated left-turn lane into Humber Road; and
- A160 Humber Road / Rosper Road – Installation of traffic signals on a three arm priority junction.

Items Resulting from the Stage 1 Road Safety Audit

Details of the following items were not submitted for auditing; therefore no specific problems have been identified at this stage:

- Plans showing highway boundaries, access to properties, public rights of way, footpaths and land uses.
- Typical cross sections for new roads and widening schemes.
- Departures and Relaxations from design standards and the Designer's reasons for the Departures and relaxations.
- Speed survey data if available.
- Accident data for the current 3 years period.
- Information on any local circumstances such as adverse weather conditions, land uses such as schools and old people's homes (existing and proposed) and access for emergency vehicles.
- Location of major services.
- Lighting proposals.
- Traffic Signal layout proposals.

The following Problems have been identified from the documents submitted;

GENERAL:

No problems

THE ALIGNMENT:

Problem: 1

Location: Westbound entry slip road to the A180 (T) from the A160.

Drawing: 52409/P/004

Summary: Proposed kerb alignment not consistent with vehicle movement.

Description:

The proposed kerb alignment does not consist of transition curves between straight lengths of kerb to reflect the actual movement / path of vehicles on the carriageway. This may result in highway users over-correcting their movement while travelling along the carriageway and coming into conflict with traffic on the main carriageway.

Recommendation:

Provide suitable transition curves to the kerb alignment at this location.

Capabilities on project:
Transportation

THE JUNCTIONS:

Problem: 2

Location: Proposed central reserve on A160 at junction with Ulceby Road A1077.

Drawing: 52409-P-011

Summary: Inadequate right-turn facility from Ulceby Road to A160.

Description:

The proposed right-turn facility is inadequate in terms of its length and the angle at which vehicles are required to stop in relation to the main carriageway. The length of the reservoir is not of sufficient length to fully accommodate a Heavy Goods Articulated vehicle. This may result in the rear of a long vehicle protruding into the main carriageway while the driver waits to complete the right-turn manoeuvre. This may potentially result in conflict between right-turning vehicles and traffic on the main carriageway. Also the acute angle at which a driver, in a vehicle within the right-turn facility, views the main carriageway may result in this being restricted and potentially lead to drivers emerging from the right-turn reservoir and coming into conflict with vehicles on the main carriageway.

Recommendation:

Amend the design of the central reserve right-turn reservoir to accommodate large vehicles wholly within it and allow a clear view of approaching traffic on the main carriageway.

Problem: 3

Location: Proposed central reserve on A160 at junction with Ulceby Road A1077.

Drawing: 52409-P-011

Summary: Inadequate right-turn facility from A160 into Ulceby Road.

Description:

The right-turn reservoir is of insufficient length to accommodate two long vehicles wholly with it and the entry taper / deceleration lane is too short to allow a motorist to safely reduce the vehicle's speed.

Capabilities on project:
Transportation

Recommendation:

Amend the design of the central reserve right-turn reservoir to accommodate two large vehicles wholly within it and extend the entry taper / deceleration lane to accommodate the safe deceleration of a vehicle entering the right-turn reservoir.

Problem: 4

Location: A160 at Ulceby Road junction

Drawing: 52409-P-011

Summary: Inadequate provision for vehicles leaving and entering the A160

Description:

Within the proposed design of the junction there does not appear to be any provision for vehicles to decelerate off or accelerate onto the A160. This may potentially lead to rear-shunt type accidents due to the differential speed of vehicles particularly the relatively high proportion of HGV's in the traffic's composition.

Recommendation:

Amend the design of the junction to accommodate acceleration and deceleration lanes onto and off the A160.

Problem: 5

Location: The proposed kerblines adjacent to the left-turn from Ulceby Road to the A160.

Drawing: 52409-P-011

Summary: Inadequate kerb radius for left-turn manoeuvre.

Description:

It was observed during the site visit that large vehicles were overrunning the verge to carry out the left-turn manoeuvre. It would appear from the proposed design that this occurrence will be exacerbated by the reduction in the kerb radius at this location and the introduction of a kerbed central island on the A160. This may potentially lead to vehicles being unable to complete the left-turn at the junction and consequently coming into conflict with vehicles on the main carriageway.

Capabilities on project:
Transportation

Recommendation:

Amend the design of the kerbline to safely allow vehicles to expedite the left-turn.

Problem: 7

Location: Eastfield Road northside of A160

Drawing: 52409-P-002

Summary: Poor delineation of carriageway space.

Description:

The drawing indicates that the carriageway on the approach to the stop-line, used by vehicles either travelling into Eastfield Road southside or turning right into the A160, to the traffic signals is to be divided into two traffic lanes each of approximately 3metres in width with both of which signed for right-turning traffic. This lane width is too narrow to safely accommodate two large vehicles at the stop-line and in particular allow them to simultaneously turn-right in a safe manner. This may potentially lead to vehicle to vehicle conflict in the form of side impact shunt-type incidents.

Recommendation:

Remove lane marking to create one approach to stop-line.

Problem: 8

Location: Eastfield Road, northside of A160, east side verge

Drawing: 52409-P-002

Summary: Protection of embankment in the highway verge.

Description:

There is a watercourse in the highway verge approximately 2metres below the level of the adjacent carriageway. This may lead to errant vehicles, which leave the carriageway, entering the watercourse and creating a potential danger to motorists. Widening of Eastfield Road brings the carriageway closer to the watercourse.

Capabilities on project:
Transportation

Recommendation:

Provide a vehicle restraint in this highway verge, of sufficient length to help to prevent vehicles entering the watercourse

NON-MOTORISED USER PROVISION:

Problem: 9

Location: The eastbound approach and westbound exit of the western arm of the A160 at it's junction with Habrough Road.

Drawing: 52409-P-003

Summary: Inadequate provision for NMU's.

Description:

There is an existing NMU crossing of the A160, immediately west of the roundabout, linked to a shared highway. It would appear from the drawing that provision has not been made to assist NMU's cross the carriageway or provide warning to motorists of the potential hazard. This may potentially result in conflict between vehicles and NMU's at this location

Recommendation:

Provide dropped kerbs, buff coloured tactile paving; "Look Left" / "Look Right" road markings, as appropriate, to diagram number 1029 to each NMU crossing location: And erect hazard warning signs to diagrams numbered 562 "Other danger ahead" and 563 "Pedestrians crossing" on the westbound approach to the junction.

ROAD SIGNS, CARRIAGEWAY MARKINGS AND STREET LIGHTING:

No Comments

Capabilities on project:
Transportation

The Audit Team Statement

I certify that this Road Safety Audit has been carried out in accordance with Road Safety Audit Standard HD 19/03 of the Design Manual for Roads and Bridges.

We certify that we have examined the drawings and documents listed in Appendix A to this Road Safety Audit Report. The Road Safety Audit has been carried out with the sole purpose of identifying any feature within the proposals that could be removed or modified in order to improve the safety of the scheme. The problems identified have been recorded in this report together with associated recommendations for safety improvements which should be considered for implementation.

No one on the Audit Team has been involved with the design of the measures proposed.

ROAD SAFETY AUDIT TEAM LEADER:

Name: Stuart Kay, IEng AMICE MCIHT MSoRSA

Position: Principal Engineer

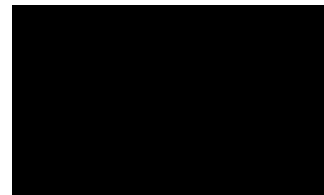
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Signed:



Date: 17/03/10.....

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Position: Senior Engineer

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Enquiries regarding this Road Safety Audit should be made to the Audit Team Leader at the above address or email RoadSafety@AECOM.com

Capabilities on project:
Transportation

Appendix A – Documents Submitted to the Audit Team

The following documents were submitted as part of the Road Safety Audit:

Document No.	Rev.	Description	Date
52409-P-004	-	Proposed Junction Improvements A160 / A180(T)	20/9/07
52409-P-0011	-	Proposed Highway Layout, A160-A1077 Ucleby Road Junction	7/09
52409-P-003	Rev B	Proposed Roundabout Layout	2/3/10
52409-P-002	Rev A	Proposed Signalised Junction Scheme	14/3/10
52409-P-010	-	Proposed Junction Improvements Rosper Road / Humber Road	23/7/09
	-	Road Safety Audit Brief	3/3/10