ATKINS

Member of the SNC-Lavalin Group

Transport Rebuttal of Proof of Evidence Application 21/01028/OUTMAJ

HMP Garth and HMP Wymott, Moss Lane, Ulnes Walton, Leyland

Ministry of Justice

June 2022

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Rebuttal of Proof of Evidence of Kevin Riley, Lynette Morrissey, Paul Parker and Emma Curtis

TOWN AND COUNTRY PLANNING ACT 1990
APPEAL BY THE MINISTRY OF JUSTICE

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1. Introduction

1.1. Background

1.1.1. This Rebuttal relates to issues raised in the Proof of Evidence ("PoE") submitted by Mr Riley (on behalf of Chorley Council), Ms Morrissey (Ulnes Walton Action Group), Paul Parker (Ulnes Walton Action Group and Ms Curtis (Ulnes Walton Action Group).

1.1.2. It has been prepared and submitted in respect of an appeal proposal for the following development:

> *"Hybrid planning application seeking: Outline planning permission (with all matters reserved except for means of access, parking and landscaping) for a new prison (up to 74,531.71 sqm GEA) (Class C2A) within a secure perimeter fence following demolition of existing buildings and structures and together with associated engineering works; Outline planning permission for a replacement boiler house (with all matters reserved except for access); and Full planning permission for a replacement bowling green and club house (Class F2(c)) on land adjacent to HMP Garth and HMP Wymott, Leyland"*

1.1.3. I have focussed my evidence within this Rebuttal on the matters where I consider Rebuttal evidence would most assist the Inquiry. However, this should not be taken as a concession that I accept the other parts of the PoE submitted by Mr Riley, Ms Morrissey, and Ms Curtis which I do not comment on here.

1.2. Rebuttal structure

1.2.1. This Rebuttal uses the following structure:

a. Chapter 2 provides evidence in response to the PoE submitted by Mr Riley;
b. Chapter 3 provides evidence in response to the PoE submitted by Ms Morrissey;
c. Chapter 4 provides evidence in response to the PoE submitted by Ms Curtis; and
d. Chapter 5 provides evidence in response to the PoE submitted by Mr Parker.

2. Mr Riley (Core Document F3)

2.1. Recorded PIAs

2.1.1. Paragraph 4.2.7 states that "whilst it is noted that the number of recorded PIAs (those reported to the police) do not imply an existing safety issue, for much of 2020, traffic levels were suppressed due to Covid so the number of reported PIAs will be lower than otherwise expected".

2.1.2. I have reviewed the historic accident record between 2014 and 2018 across the same study area as presented within the Transport Assessment (TA) for GW2 (Core Document A35). The analysis demonstrates that there was a total of 10 PIAs recorded (see below Table 2-1). This is not materially different to the 9 PIAs reported within my PoE. I therefore do not agree with Mr Riley that the PIAs in my Proof have been under-reported.

Table 2-1 - PIA Comparison

	2014	2015	2016	2017	2018	2019	2020	Total
	4	1	1	2	2	0	4	
5-year period considered during planning								9
Pre-COVID Period								10

Source: Crash Map Data (2022)

2.2. Visitor trip generation

2.2.1. Paragraph 5.1.4 within Mr Riley's PoE states that "*the visitor traffic flows derived are under-estimated*" because the analysis within the TA for GW2 (Core Document A35) assumes that visiting periods occur Monday to Saturday. Mr Riley has misinterpreted the analysis within our TA. The assumptions relating to visiting periods are outlined within Appendix F of the TA (Core Document 35) and clearly state that visiting periods will occur Monday to Sunday. This is in line with the existing visiting periods for other prisons, including HMP Wymott, where the Government website confirms that there is a Sunday visiting period[1]. Therefore, Mr Riley's suggestion that the number of visitor trips per day could be 132 vehicles is inappropriate.

2.2.2. It is my opinion that the visitor trip assumptions presented in the TA are very robust, and certainly not an underestimation as suggested by Mr Riley within Paragraph 5.1.6. The TA (Core Document A35)

[1] https://www.gov.uk/guidance/wymott-prison

for GW2 has assumed that every inmate will be permitted two visits per month in line with Government Guidance[2]. The analysis within the TA has also assumed that every inmate will receive a 100% uptake in their permitted number of visits, and that every visitor trip will made by private car. The assumptions were agreed with Lancashire County Council (LCC), as the Local Highway Authority, to ensure we robustly tested the impacts on the local highway network.

2.2.3. However, the Ministry of Justice (MoJ) has confirmed that:

a. Whilst most prisoners in Category C resettlement prisons are entitled to two visits per month, take-up is usually much lower;
b. Looking at four similar Category C resettlement prisons, HMPs Risley, Lancaster Farms, Onley and Rochester, take up of the visit entitlement was not higher than 50% in 2019; and
c. During Covid restrictions, changes were introduced which allow prisoners to have their visits with friends and family via a video link. Following its success, this will be rolled out as a permanent feature across the Prison estate, which could further reduce demand for the number of 'in-person' visits. It is highly unlikely that every inmate will take up their permitted number of visits. In some cases, the observed take up is often less than 50%.

2.2.4. The visitor trip generation will not be 132 vehicles per day (as suggested by Mr Riley), and the 114 visitor trips assumed in the TA is itself an overestimation.

2.3. Percentage impact approach

2.3.1. In Paragraph 6.1.1, Mr Riley has calculated the percentage change in traffic on the surrounding highway network using the raw survey data contained within Appendix A of the TA for GW2 (Core Document A35). Mr Riley has made a comparison between a '2021 Baseline' scenario and a '2021 Baseline + Development' scenario. This approach is inappropriate because the forecast opening year (when the TA was produced) was 2025, therefore My Riley's approach would result in a higher percentage impact because he has not considered background traffic growth.

2.3.2. In addition, it is not clear if Mr Riley has applied a COVID-19 factor to the raw survey data to account for the reduction in traffic during the survey period due to the Pandemic (please refer to Section 7.2.1.1 within the TA which sets out the agreed approach to COVID-19). If Mr Riley has not applied a COVID-19 factor, then his analysis would result in overly inflated percentage impacts because the '2021 Baseline' traffic flows would be lower than those assessed within the TA.

2.3.3. In paragraph 6.2.12, Mr Riley suggests that the road safety measures which would be delivered by the Appellant are located on sections of the local highway network which see the lowest development impact, and at paragraph 6.2.13 he goes on to suggest that this is a disproportionate approach to mitigation.

[2] https://www.gov.uk/staying-in-touch-with-someone-in-prison/visiting-someone-in-prison

2.3.4. There is a simple explanation for the location of the highway mitigation scheme. The northern section of Ulnes Walton Lane/School Lane is busier than the southern section (see Table 1-1 in TA, (Core Document A35)), and carries a higher number of cyclists. It also has a denser residential area with a wider variety of users. This is the location which will therefore benefit most from the agreed mitigation.

2.4. Link flow capacity

2.4.1. In Paragraph 6.1.2, Mr Riley refers to his percentage impact calculations, which I have demonstrated as overly inflated (Section 2.3 of this report).

2.4.2. As a general comment, I would caution against using percentage impacts to assess development proposals. Percentage impact analysis of development proposals highlights large impacts on lightly trafficked roads, but minor impacts on congested and heavily used roads.

2.4.3. A far better approach would be to assess the existing capacity of each road. To provide this context, I have undertaken an assessment using DMRB TA 79/99 Traffic Capacity of Urban Roads.

2.4.4. TA 79/99 provides highway link capacities for single carriageways based on the type of road and the existing carriageway width. This allows the link capacity of a road to be identified and compared against the forecast traffic flows to determine the scale of the impact.

2.4.5. I have provided a copy of TA 79/99 in Appendix A of this Rebuttal. Table 1 (within TA 79/99) provides a summary of the different types of urban roads and the features that distinguish them, Table 2 (within TA 79/99) provides a summary of the one-way hourly flows in each direction for the capacity of Urban Roads.

2.4.6. Table 2-2 provides a summary of the assessment (overleaf). Please note, I have referenced the heaviest traffic flow by direction for the AM and PM peak periods and I have compared this to the one-way hourly link flow capacity. The table provides data for the links identified by Mr Riley (para 6.1.3) which have ‘increases in traffic of 24%, 48% and 322%’.

2.4.7. Whilst some of the roads within the study area are inter-urban or rural, I consider that this analysis still provides an accurate reflection on whether the roads within the study area are congested.

Table 2-2 - Assessment of link flow capacity (one-way, busiest direction)

Road Name	Mr Riley's % Impact	TA 79/99 Hourly Capacity	2025 Opening Year without Development		2025 Opening Year with Development		TA 79/99 Spare Hourly Capacity	
			AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak
Moss Lane (South of Proposed Prison Access)	+322%	900	44	58	217	283	683	617
Moss Lane (South of Existing HMP Garth and HMP Wymott Access)	+48%	900	498	188	700	440	200	460
Ulnes Walton Lane (South of Moss Lane)	+24%	1020	329	209	442	350	578	670

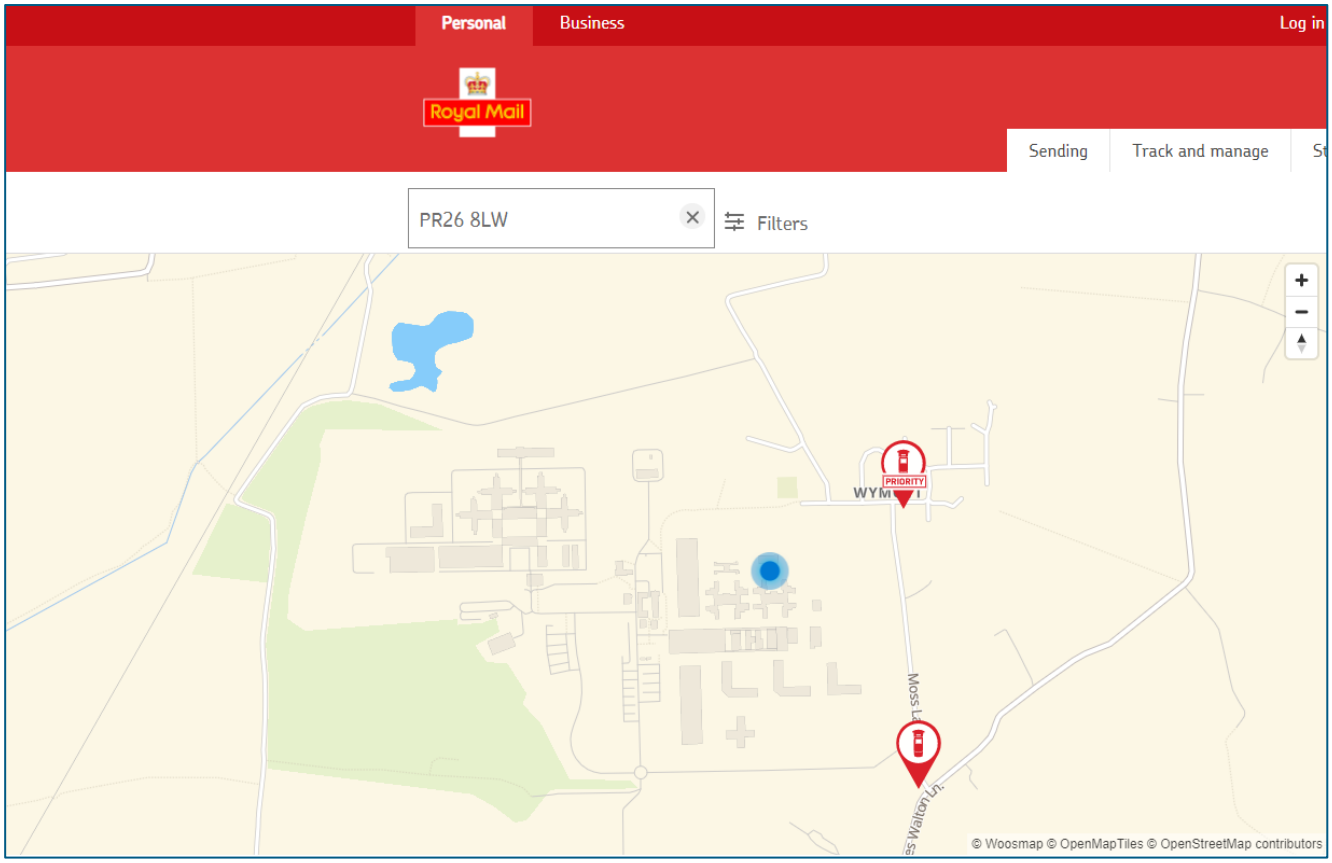
2.4.8. Table 2-2 demonstrates that none of the roads within the study area will be approaching their highway link capacity during the AM and PM Peak periods and will remain uncongested following the additional traffic generated by GW2.

2.5. Post Box

2.5.1. Paragraph 6.2.6 states that "the proposals do not mitigate the impact on users to the post box at the junction of Moss Lane/Ulnes Walton Lane, which is also an important local service for residents at the north of Moss Lane".

2.5.2. Mr Riley has not recognised that there is an existing post box located within Wymott Village (on Willow Road) which is more convenient for residents and Royal Mail has identified it as a 'Priority' post box[3]. Figure 2-1 outlines the location of the post boxes located close to GW2.

Figure 2-1 – Nearby Post Boxes



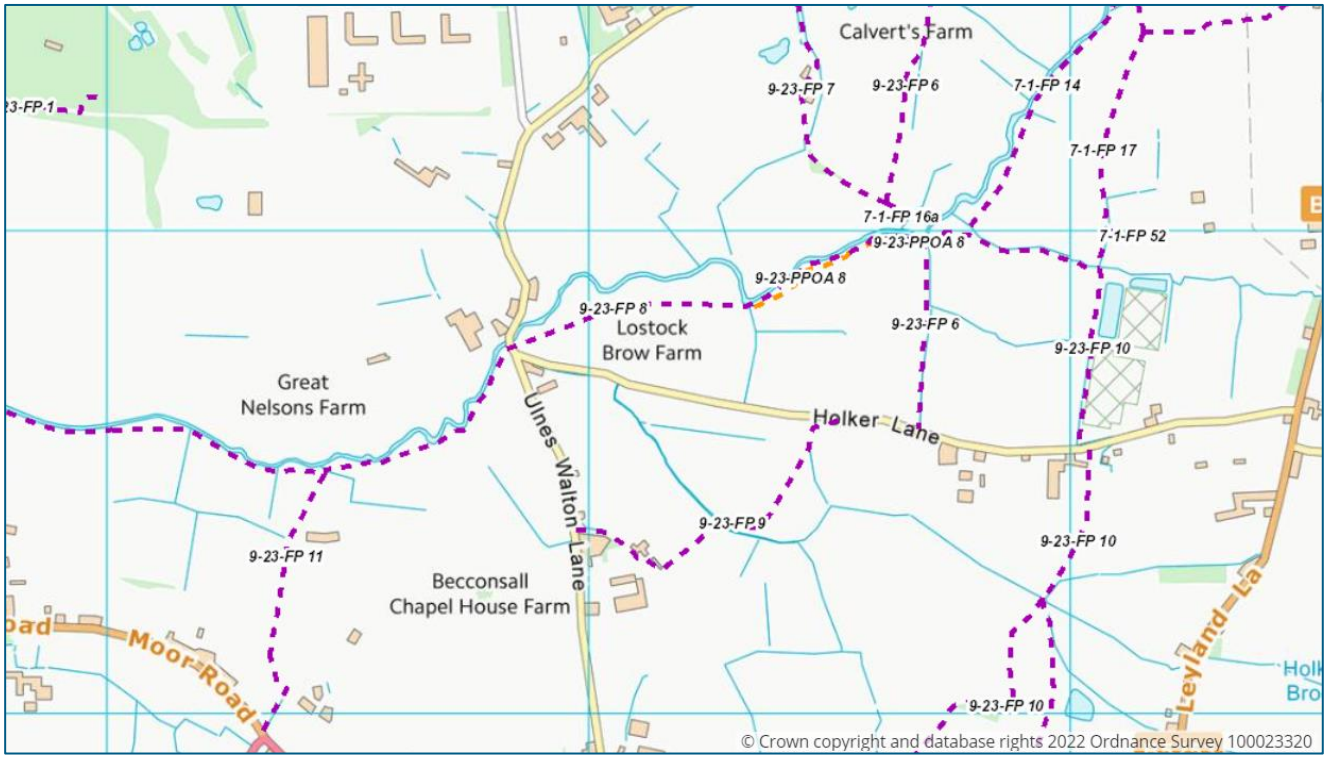
[3] https://www.royalmail.com/services-near-you/postbox/moss-lane-pr26-8lw/000PR26471

2.6. PRoW

2.6.1. Paragraph 6.2.11 states that the "increase in traffic of 24% on Ulnes Walton Lane south of Moss Lane will also impact on PRoW routes FP9 and FP8. The combined lack of formal crossing facilities at these locations and the forecast increases in traffic will expose PRoW users to a greater number of vehicles and will increase waiting time to cross the road. This often leads to impatience and risk-taking behaviour, ultimately increasing the risk of accidents".

2.6.2. For context, Figure 2-2 provides an extract from Lancashire County Council's online interactive PRoW map[4]. It outlines the location of FP9 and FP8 which Mr Riley refers to within his PoE.

Figure 2-2 – LCC PRoW Map



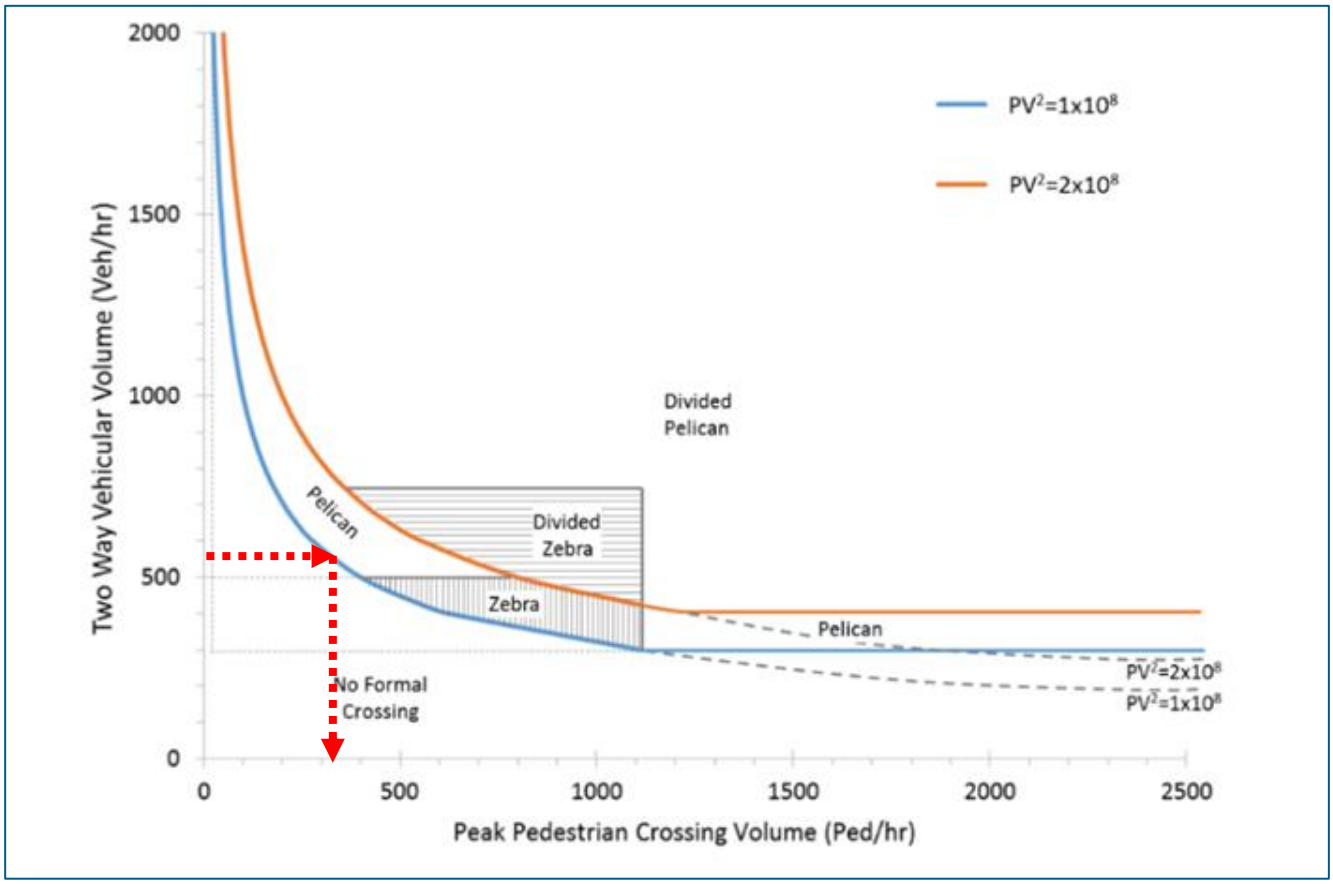
2.6.3. Mr Riley's Proof has not included any evidence to quantify the demand for PRoW routes FP9 or FP8; neither has Mr Riley included any analysis to demonstrate that the existing crossing situation would not be appropriate once GW2 is constructed.

2.6.4. DMRB TA 52/87 was the predecessor of the current LTN 1/95 guidance. Whilst I acknowledge that TA 52/87 has been withdrawn, it outlined the threshold values for a PV^2 assessment which provides a proxy for the number of PRoW users required per hour to justify a formal pedestrian crossing (where V is the two-way hourly flow of vehicles and P is the number of pedestrians crossing 50m either side of the site).

2.6.5. Figure 2-3 (overleaf) outlines the PV^2 thresholds contained within TA 52/87.

[4] https://www.lancashire.gov.uk/roads-parking-and-travel/public-rights-of-way/public-rights-of-way-map/

Figure 2-3 - PV² Thresholds (TA 52/87)



2.6.6. Typically, a PV² assessment considers an average of the four highest PV² values per day. However, based on the AM Peak traffic flow along Ulnes Walton Lane during the '2025 + Development' scenario (549 vehicles), the peak crossing demand would need to be equal to approximately 330 pedestrians per hour to justify a formal pedestrian crossing (according to the PV² thresholds contained within Figure 2-5).

2.6.7. As stated, Mr Riley's Proof has not included any evidence to quantify the demand for PRoW routes FP9 or FP8, however, I do not believe, given the rural location, that the demand would be equal to 330 pedestrians per hour. Therefore, as per the PV² assessment, the existing crossing provision remains appropriate given the forecast hourly traffic flow.

2.7. Road Condition

2.7.1. Mr Riley at Paragraph 4.1.4 has stated that "It is likely that these recorded speeds are suppressed by the poor road condition, and that if the road surface was improved, speeds would be higher". There is no evidence or research which backs up this assumption. I do not believe that the current condition of the road is sufficiently destressed that it prohibits vehicle speeds.

2.7.2. Mr Riley again refers to this point at 6.2.2, where he suggests that the resurfacing of the road (as part of the traffic calming measures) will further exacerbate vehicle speeds. The proposals for Moss Lane include horizontal traffic calming and additional signage, which are widely accepted across highway

engineering as effective measures in controlling speeds. Further, new surface treatment will reduce noise from tyres and enhance the skid resistance, improving braking performance for vehicles.

3. Ms Morrissey (Core Document G3)

3.1. NPPF

3.1.1. Paragraph 10 within Ms Morrissey's PoE quotes Paragraph 105 within the National Planning Policy Framework (NPPF). I note that Ms Morrissey has not included the concluding sentence from Paragraph 105 which states "*However, opportunities to maximise sustainable transport solutions will vary between urban and rural areas, and this should be taken into account in both plan-making and decision-making".* Clearly the type of development and its location is an important factor.

3.2. Public transport contributions

3.2.1. Paragraph 15 refers to Table 5.6 within the TA for GW2 (Core Document A35) and the agreed s106 contribution of £100,000 per annum for a period of 5 years to fund the enhancement of the existing bus service provision. Ms Morrissey states that "*only eleven arrivals and 13 departures per day will utilise the (bus) service*". This is incorrect. Table 5.6 demonstrates that there will be 24 arrivals and 24 departures per day by bus. This is based on existing travel behaviours for Chorley. The purpose of the s106 contribution is to encourage sustainable travel and increase the number of trips undertaken by bus.

3.3. Trip generation

3.3.1. Paragraph 18 states that GW2 will generate a 50% increase in vehicle movements along Ulnes Walton Lane. This is incorrect. As set out in paragraph 5.3.5 within my PoE, GW2 will generate an additional 587 trips per day (+12%) along Ulnes Walton Lane to the north of Moss Lane, and an additional 745 trips per day (+15%) along Ulnes Walton Lane to the south of Moss Lane.

3.4. A581 Rufford to Euxton Safety Improvements

3.4.1. Paragraph 19 refers to a social media post from Lancashire Constabulary which states that the A581 (between the A59 and Ulnes Walton) is one of the worst stretches of road in the country for motorcycle collisions. As per Paragraph 5.6.6 within my PoE, the MoJ has agreed to provide a s106 contribution to help support the development of a wider corridor scheme along the A581 (to be delivered by LCC). The aim of the 'A581 Rufford to Euxton Safety Improvements' scheme is to provide safety engineering measures and to improve highway capacity on the A581.

4. Ms Curtis (Core Document G2)

4.1. Parking provision

4.1.1. Paragraph 22 within Ms Curtis' PoE states that the proposed car park at GW2 will be 78 spaces short. I understand that Ms Curtis has calculated the proposed ratio between the number of inmates and the number of parking spaces proposed within the TA for the proposed expansion at HMP Hindley (January 2022).

4.1.2. There are no recognised national or local parking standards for Prisons, therefore, as per Section 6.2 within the TA for GW2 (Core Document A35), the proposed parking provision has been calculated based on the number of staff proposed, and the forecast demand from staff and visitors based on the availability of existing public transport provision, and the existing travel characteristics for the area (Chorley).

4.1.3. This approach was agreed with the LCC, as the Local Highway Authority, and ensures that sufficient parking provision is provided to prevent overspill onto the local highway whilst not overproviding.

4.1.4. In addition, as per Paragraph 2.2.3 within this Rebuttal, I have demonstrated that the trip generation assumptions for the visitor demand are very robust and therefore the demand for parking could be lower than forecast.

5. Mr Parker (Core Document G4)

5.1.1. Mr Parker has provided an assessment of two alternative sites, A5 and A6, and he has included this assessment in his Appendix 3 (Core Document G4c). Within G4c Mr Parker has assessed two transport related criteria; “Have a good strategic access to public transport and motorway/trunk road network” and “Accessible for construction without major enhancement of transport infrastructure”

5.1.2. I have provided a review of these assessments, included in Appendix B of this rebuttal. My opinion is that A5 performs relatively poorly from a transport perspective, and that A6 and the Appeal site are comparable. Ms Hulse, within her Proof (Core Document E2) and Rebuttal provides further comment on alternative sites and assessment criteria.

Appendix A - DMRB TA 79/99 Traffic Capacity of Urban Roads.

VOLUME 5 ASSESSMENT AND PREPARATION OF ROAD SCHEMES
SECTION 1 PREPARATION AND IMPLEMENTATION

PART 3

TA 79/99 AMENDMENT NO 1

TRAFFIC CAPACITY OF URBAN ROADS

SUMMARY

Advice Note TA 79/99, published February 1999, was wrongly placed in Section 2 of DMRB Volume 5. All users should arrange for the document TA 79/99 to be inserted in Volume 5, Section 1, Part 3 of DMRB. References within the document to Section 2, Part 2 should also be corrected accordingly.

INSTRUCTIONS FOR USE

1. Remove Advice Note TA 79/99 from Volume 3 of the DMRB.

2. Amend the volume references on all pages of TA 79/99 to read Volume 5, Section 1, Part 3 of DMRB.

3. Remove existing title page and insert amended title page and Note to Users in front of Contents sheet of TA 79/99.

4. Enter the details of the amendment on the Registration of Amendment sheet, sign and date to confirm that the amendment has been incorporated.

Note: A quarterly index with a full set of Volume Contents Pages is available separately from The Stationery Office Ltd.

DESIGN MANUAL FOR ROADS AND BRIDGES

TA 79/99
Incorporating
Amendment No 1
dated May 1999

THE HIGHWAYS AGENCY

THE SCOTTISH OFFICE DEVELOPMENT DEPARTMENT

THE WELSH OFFICE
Y SWYDDFA GYMREIG

THE DEPARTMENT OF THE ENVIRONMENT FOR NORTHERN IRELAND

Traffic Capacity of Urban Roads

Summary: Advice Note TA 79/99, published February 1999, was wrongly placed in Section 2 of DMRB Volume 5.

Note to Users

1. Advice Note TA 79/99 published by the Highways Agency in February 1999 was placed erroneously in DMRB 5.2.2.
2. All users should arrange for the document TA 79/99 to be inserted in Volume 5, Section 1, Part 3 of DMRB. References within the document to Section 2, Part 2 should also be corrected accordingly.

REGISTRATION OF AMENDMENTS

Amend No	Page No	Signature & Date of incorporation of amendments	Amend No	Page No	Signature & Date of incorporation of amendments

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VOLUME 5 ASSESSMENT AND PREPARATION OF ROAD SCHEMES
SECTION 2 PREPARATION AND IMPLEMENTATION

PART 2

TA 79/99

TRAFFIC CAPACITY OF URBAN ROADS

Contents

Chapter

1. Introduction

2. General Principles

3. Determination of Urban Road Capacity

4. Assessment Procedure

5. Enquiries

1. INTRODUCTION

General

1.1 Traffic flows on urban trunk roads in Greater and Outer London has been analysed to assess the capacities that can be achieved for different road types and widths. From this information the main features that affect capacity have been defined and the results presented in tabular form.

1.2 This document supersedes section 5 and Appendix 2 of TD 20/85 "Traffic Flows and Carriageway Width Assessment". TD 20/85 is now entirely superseded by both this document and TA 46/97. TD 20/85 is hereby withdrawn.

1.3 For **rural** roads reference should be made to TA 46/97 "Traffic Flow Ranges for Use in the Assessment of New Rural Roads".

Scope

1.4 This Advice Note gives the maximum hourly vehicle capacity for various types of Urban Trunk Road. All capacities quoted are for traffic compositions including up to 15% heavy vehicles; corrections are provided for higher proportions.

1.5 The capacities may be used as starting points in the design and assessment of new urban trunk road links. They may also be used as a guide to the capacity of existing urban roads, and for assessing the likely effect on capacity of proposed changes to specific road features including carriageway width.

1.6 It should be borne in mind that the assessment of carriageway width is not based solely on peak hour travel demand.
Cost and environmental impact should also be taken into account. A judgement may therefore have to be made between adopting reduced width of carriageway, weighed against any adverse effects incurred by providing for a higher level of demand.

Implementation

1.7 This Advice Note should be used forthwith for all schemes for the construction of urban trunk roads including improvements, with the approval of the Overseeing Organisation. The exceptions are schemes currently being prepared where this would result in significant additional expense or delay progress.

Definitions

1.8 Urban Motorway
A motorway with a speed limit of 60 mph or less within a built up area.

1.9 Urban All-Purpose Road (UAP)
An all-purpose road within a built up area, either a single carriageway with a speed limit of 40 mph or less or a dual carriageway with a speed limit of 60 mph or less.

1.10 Capacity
For the purposes of this Advice Note, capacity is defined as the maximum sustainable flow of traffic passing in 1 hour, under favourable road and traffic conditions.

2. GENERAL PRINCIPLES

Application of Capacity values

2.1 The guidance in this document should be used flexibly. In some circumstances, the use of a reduced width of carriageway will result in significant savings or environmental benefits, which outweigh the disbenefits of congestion during peak periods.

2.2 The capacity of urban roads can be affected by a wide range of factors that may not always be accurately predicted by the road features identified. For this reason capacity flows may be up to 10% more or less than the values given in this document.

Features Affecting Capacity

2.3 The potential capacity of a link will not be reached if either the capacity of junctions along the link or the capacity of the adjoining network is lower than the link in question. The flow on an urban road may also be affected by turning movements restricting the mainline capacity. Such constraints should be identified at an early stage.

2.4 Urban roads normally have higher flows in the morning and evening peaks than at other times of day. Improving features that affect the capacity would help prevent congestion during these periods.

2.5 The flows given in the tables are the maximum that typical urban roads can carry consistently in an hour. The principal factors that may affect flow levels on urban roads are given in Table 1.
For motorways the prime determinant is the carriageway width, but for all-purpose roads flow is also affected by the speed limit, the frequency of side roads, the degree of parking and loading, the frequency of at grade pedestrian crossings, bus stops, and accesses.

2.6 The capacity of the lower width roads will be significantly reduced by parking and temporary width restrictions caused by such activities as maintenance and Statutory Undertakers' Works. The lowest widths are unlikely to be suitable for bus routes or for significant volumes of heavy goods vehicles.

2.7 Roads in Category UAP3 and UAP4 may carry high proportions of local traffic, resulting in an increase in turning movements at junctions and accesses.

2.8 Capacity will also be affected by prevailing weather and night conditions. The capacities shown are for “favourable” daylight conditions.

Feature	ROAD TYPE				
	Urban Motorway	Urban All-purpose			
	UM	UAP1	UAP2	UAP3	UAP4
General Description	Through route with grade separated junctions, hardshoulders or hardstrips, and motorway restrictions.	High standard single/dual carriageway road carrying predominantly through traffic with limited access.	Good standard single/dual carriageway road with frontage access and more than two side roads per km.	Variable standard road carrying mixed traffic with frontage access, side roads, bus stops and at-grade pedestrian crossings.	Busy high street carrying predominantly local traffic with frontage activity including loading and unloading.
Speed Limit	60mph or less	40 to 60 mph for dual, & generally 40mph for single carriageway	Generally 40 mph	30 mph to 40 mph	30mph
Side Roads	None	0 to 2 per km	more than 2 per km	more than 2 per km	more than 2 per km
Access to roadside development	None. Grade separated for major only.	limited access	access to residential properties	frontage access	unlimited access to houses, shops & businesses
Parking and loading	none	restricted	restricted	unrestricted	unrestricted
Pedestrian crossings	grade separated	mostly grade separated	some at-grade	some at-grade	frequent at-grade
Bus stops	none	in lay-bys	at kerbside	at kerbside	at kerbside

Table 1 Types of Urban roads and the features that distinguish them

3. DETERMINATION OF URBAN ROAD CAPACITY

3.1 Table 1 sets out the types of Urban Roads and the features that distinguish between them and affect their traffic capacity. Tables 2 & 3 give the flow capacity for each road type described in Table 1.

3.2 Table 4 gives the adjustments when the proportion of heavy vehicles in a one way flow exceeds 15%. A heavy vehicle is defined in this context as OGV1, OGV2 or Buses and Coaches as given in the COBA Manual (DMRB 13.1 Part 4, Chapter 8).

3.3 The flows for road type UM in Table 2 apply to urban motorways where junctions are closely spaced giving weaving lengths of less than 1 kilometre. Urban motorways with layout and junction spacing similar to rural motorways can carry higher flows and TA46/97 "Traffic Flow Ranges for Use in the Assessment of New Rural Roads" will be more applicable.

3.4 Flows for single carriageways are based upon a 60/40 directional split in the flow. The one-way flows shown in Table 2 represent the busiest flow 60% figure.

3.5 The capacities shown apply to gradients of up to 5-6%. Special consideration should be made for steeper gradients, which would reduce capacity.

3.6 On-road parking reduces the effective road width and disrupts flow, e.g. where parking restrictions are not applied on road type UAP2 the flows are likely to be similar to UAP3 where unrestricted parking applies, see Table 1, Similarly effective parking restrictions can lead to higher flows.

		Two-way Single Carriageway- Busiest direction flow (Assumes a 60/40 directional split)									**Dual Carriageway**			
		Total number of Lanes									Number of Lanes in each direction			
		2				2-3	3	3-4	4	4+	2		3	4
Carriageway width		6.1m	6.75m	7.3m	9.0m	10.0m	12.3m	13.5m	14.6m	18.0m	6.75m	7.3m	11.0m	14.6m
Road type	**UM**	**Not applicable**										4000	5600	7200
	UAP1	1020	1320	1590	1860	2010	2550	2800	3050	3300	3350	3600	5200	*
	UAP2	1020	1260	1470	1550	1650	1700	1900	2100	2700	2950	3200	4800	*
	UAP3	900	1110	1300	1530	1620	*	*	*	*	2300	2600	3300	*
	UAP4	750	900	1140	1320	1410	*	*	*	*	*	*	*	*

Table 2 Capacities of Urban Roads
One-way hourly flows in each direction

Notes
1. Capacities are in vehicles per hour.
2. HGV ≤ 15%
3. (*) Capacities are excluded where the road width is not appropriate for the road type and where there are too few examples to give reliable figures.

Carriageway width		6.1m	6.75m	7.3m	9.0m	10.0m	11.0m
		2 lanes			2-3 lanes		3 lanes
Road type	**UAP1**		2950	3250	3950	4450	4800
	UAP2	1800	2000	2200	2850	3250	3550

Table 3 Capacities of Urban One-Way roads, hourly flows

Notes
1. Capacities are in vehicles per hour.
2. Capacities for one way road types UAP1 at 6.1m width, UAP3 and UAP4 are not shown as there are too few examples to give reliable capacities.
3. Capacities for one-way roads (e.g. UAP2 at 7.3m and 11.0m carriageway widths) are generally less than capacities of dual carriageways in one direction shown in Table 2. The reason is that one-way roads are often of short lengths and form part of a gyratory system between junctions, necessitating high proportion of vehicle weaving and stopping, thereby decreasing the capacities.

Heavy Vehicle Content	**Total reduction in flow level (vehs/hr)**		
	UM and UAP dual carriageway road	**Single carriageway UAP road having width of 10m or wider**	**Single carriageway UAP road having width less than 10m**
	per lane	**per carriageway**	**per carriageway**
15 - 20%	100	100	150
20 - 25%	150	150	225

Table 4 Reduction in flow due to Heavy Vehicle Content

4. ASSESSMENT PROCEDURE

4.1 The capacities given in Tables 2 - 4 provide a guide for the assessment of an appropriate carriageway width and standard. They may be applied to both the design of new urban roads and to the improvement of existing roads. The capacities are intended to help designers make a judgement as to which carriageway standard is likely to provide an acceptable level of service within an urban context when operating close to capacity. The capacities apply to links and take no account of the effects of junctions.

4.2 For improvement options to existing roads the designer should make an appraisal of each of the road features and thereby determine the most appropriate road type given in Table 1. An assessment may then be made of the expected capacity using Tables 2 – 4. It should be calibrated with observed traffic flows to validate the appraisal, taking account of any network constraints that may limit a desirable flow. The effect of link capacity on changes to specific features should then be examined.

4.3 Observations of existing traffic flows should be undertaken by manual classified counts and account taken of hourly, daily and seasonal variations. Reference to continuous automatic traffic count data if available would assist in identifying periods of maximum flow levels and whether traffic levels are operating close to capacity.

4.4 For the design of new urban roads, the carriageway standard options presented herein provide a guide to the desirable standard of carriageway provision given the features of the road and expected traffic levels. They should not be used alone as a design tool, because factors other than peak hour flows should also be considered. They should be regarded as a starting point for more detailed analysis of traffic, economic and environmental aspects.

4.5 For the estimation of future traffic demand levels for urban roads where changes to travel patterns over a wide area are likely to occur, reference should be made to “Traffic Appraisal in Urban Areas” (DMRB Volume 12 Section 2 Part 1).

5. ENQUIRIES

All technical enquiries or comments on this document should be sent in writing as appropriate to:

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Appendix B – Accessibility Assessment of Site A5 and A6

Garth Wymott2 Public Inquiry Alternative Site Appraisal

Sites A5 and A6

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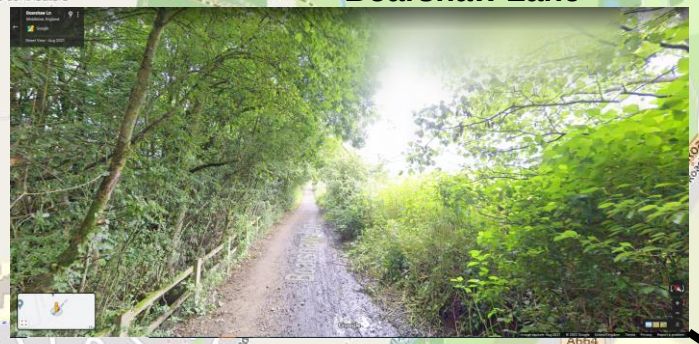
Selection requirements		Criteria
Have a good strategic access to public transport and motorway/trunk road network	Road (Local)	No major upgrades required = Green Some minor works required = Amber Safe and unsuitable without additional infrastructure = Red
	Road (Strategic)	Motorway located within 15 mins drive = Green Motorway located within 15 to 30 mins drive = Amber Motorway located over 30 mins drive = Red
	Bus	Bus stop with regular service located within 400m = Green Bus stop with regular service located 400m to 1000m = Amber Bus stop with infrequent service located within 400m = Amber Bus stop located over 1000m from site = Red Bus stop with infrequent service located 400m to 1000m = Red
	Rail	Station located within 2 miles = Green Station located within 2 to 5 miles = Amber Station located over 5 miles = Red

Site A5 Transport Appraisal

Indicative site boundary

Existing buildings prohibit access to Touchet Hall Road and associated bus services (no.17)

Boarshaw Lane



Chadderton Fold

Heights Lane

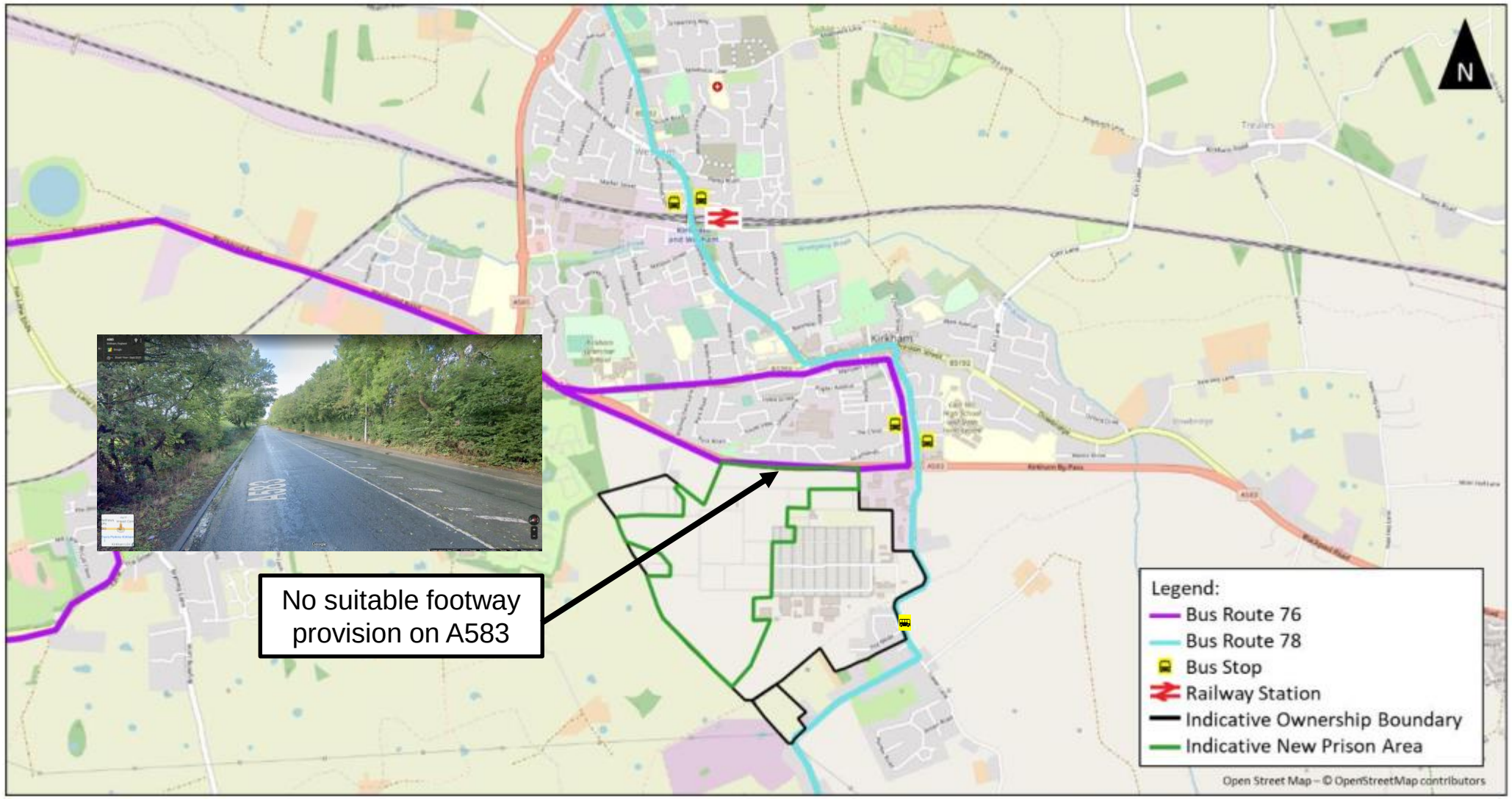
400m

A627(M) J1

Nearest bus stop

Mills Hill Train Station

Site A6 Transport Appraisal



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Summary Appraisal Table

Selection requirements		Wymott & Garth	Kirkham / Fylde (A6)	Oldham (A5)
Have a good strategic access to public transport and motorway/trunk road network	Road (Local)	Existing roads and access points have served HMP Garth and HMP Wymott since 1974	Access could be provided from A583, however, this is a 50mph bypass with no footway provision. Local Highway Authority may have concerns regarding delivery of a new access on a bypass, (as the function of a bypass is to avoid the built-up area and to let through traffic flow without interference from local traffic)	No apparent vehicle access, with nearby roads currently unsuitable as a primary access
	Road (Strategic)	M6 and M65 is located 6 miles (15 mins) from the site	M55 J3 is located 3 miles from site	Good access to M627(M), with J1 located 1.5 miles away
	Bus	Hourly bus service within 400m on Willow Road	Hourly bus service within walking distance.	Hourly bus service from service 402. Services 837, 795 and 831 only provide a daily service. Most of the site is not within 400m walking distance of a bus stop.
	Rail	Croston Station is located 3 miles from the site	Kirkham & Wesham train station is located 1 to 2 miles from site	Mills Hill Train Station is located 1 to 2 miles from site, providing access to Manchester and Rochdale
Accessible for construction without major enhancement of transport infrastructure		No major enhancement would be required.	No major enhancement would be required.	Whilst strategic roads are located nearby, there is no obvious local road which has adequate layout to accommodate HGVs and construction access

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