

# Derby City Council Local Plan Part 1: Core Strategy Examination

## Potential Residential Development at Rykneld Road, Derby

<b>Project:</b>	P15-308 Rykneld Road, Derby
<b>Subject:</b>	Appendix 5: Indicative Site Access Assessment Methodology Description
<b>Date:</b>	29 <sup>th</sup> March 2016
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### 1. Alternative Development Proposals

#### Traffic Flow Implications

To understand the likely traffic implications of the change in use, Rodgers Leask has obtained outputs from the Derby Area Transport Model (DATM), which were presented in the Transport Assessment (TA) produced by BWB in support of the extant planning permission 01/11/00023 (Rykneld Rd). The DATM model includes the site as detailed in the outline planning application (i.e. with the B1(a) - Office element) and flows from the DATM model presented in the BWB TA were taken as a starting point.

#### Derivation of Base Flows

It should be noted that strategic traffic models are complex iterative pieces of software and when such a method of assessment is used the changes to traffic flows can be quite dramatic, as such the only way to understand a traffic model is to have the actual model so that traffic flows can be traced.

When the DATM model is run a reassignment process takes place and therefore there are some discrepancies between the traffic flows at some of the junctions within the model area. To ensure a robust approach has been undertaken where these discrepancies occur the worst case flow has been used.

The B1(a) - Office development flows were then taken out of the DATM model flows. The B1(a) - Office flows taken out of the model were as detailed in Appendix F of the BWB TA (MVA DATM Report) and are summarised below:

**Table 1: B1 Office 85<sup>th</sup> Percentile Vehicle Trips (from DATM)**

Extant Development Proposal: B1 Office - 2.4ha (15,000m <sup>2</sup> GFA)	AM Peak			PM Peak		
	Arr	Dep	Total	Arr	Dep	Total
Office Trip Rates	1.595	0.299	1.894	0.195	1.257	1.452
Office Trip Generation	239	45	284	29	189	218

Source: MVA Consultancy's Rykneld Rd Development Testing Report, presented in Appendix F of approved BWB TA

Once the B1(a) - Office flows have been taken out of the DATM model this effectively becomes the proposed residential sites base scenario which has been used in the indicative site access capacity assessment.

At this point, it should be noted that DCC has advised that the allocated employment land is envisaged to be split 50:50 between B1(a) – Office and B1(c) – Light Industry land use categories.

However, the approved BWB TA did not differentiate between types of B1 usage within the 15,000m<sup>2</sup> GFA of employment land and we have therefore chosen to remain consistent with the DATM based trip rates they presented in their TA. On that basis the indicative site access assessment flows calculations are based on the assumption that B1(a) – Office trip rates only are applied.

It is noted that the B1(c) – Light Industrial trip rates are lower than B1(a) Office trip rates; nevertheless, they are still higher than C3 – Residential trip rates so the potential change in use from B1 employment land to residential land would still result in a net trip reduction regardless of the proportion of B1(a) and B1(c) employment area.

### Application of Residential Trips

Once the B1(a) – Office trips had been identified and removed, the assessment base flows were determined. Residential development flows were then added in order to determine the capacity assessment flows as described in the following paragraphs.

The standard 85<sup>th</sup> percentile residential vehicle trip rates used within DATM have been applied to a potential development quantum of 80 dwellings and produce the following:

**Table 2: C3 Residential 85<sup>th</sup> Percentile Vehicle Trip Generation (from DATM)**

Alternative Development Proposal: C3 Residential (Private): 80 dwells.	AM Peak			PM Peak		
	Arr	Dep	Total	Arr	Dep	Total
Residential Trip Rates	0.177	0.523	0.700	0.463	0.296	0.759
Residential Trip Generation	14	42	56	37	24	61

Source: MVA Consultancy's Derby Urban Area Potential Core Strategy TIA report (2012)

The trip generation summarised above was distributed onto the local highway network based on Rykneld Road directional traffic flow movements observed in October 2015.

It should be noted that a brief AM peak period traffic survey was undertaken to compare with modelled data presented in the BWB TA. The flows gathered during this survey were overall higher than the modelled flows.

**Table 3: Traffic Flow Comparison**

Flows without proposal	AM Northbound	AM Southbound
Modelled flows (as assessed)	586	750
2015 Survey flows	507	891

Disregarding the above difference in Rykneld Road traffic flows, for the purpose of the indicative site access capacity assessment the “worst case” higher flows have been utilised.

### Site Access Junction Model

The proposed residential site access is to be located approximately 150m south of the Rykneld Road / Hollybrook Way roundabout, and will take the form of a standard T-junction.

The capacity of the indicative site access junction has been undertaken using the Department of Transport TRL programs PICADY 5. PICADY is recognised as “industry standard” traffic modelling software packages used for assessing the capacity of all forms of priority controlled junctions.

For priority controlled junctions assessed in PICADY a Ratio of Flow to Capacity (RFC) value of 0.85 (85%) or less typically demonstrate that a junction arm or turning movement is operating “within capacity” and is therefore unlikely to experience regular queuing. RFC values between 0.85 and 1.00 represent variable operation, meaning that the junction is likely to experience intermittent periods of congestion and increased queue lengths but still operates within theoretical capacity.

RFC values greater than 1.00 (100%) represent overloaded conditions i.e. the junction operates “over capacity”. When conditions reach this level of congestion queues are noted to build over time as vehicles are arriving at the junction at a greater rate than they are departing.

A summary of the PICADY results can be found below in Table 4 and the full output of the model can be found in the appendix to this Technical Note.

**Table 4: Indicative Site Access PICADY Model Results**

Junction Arm / Traffic Movement	AM Peak		PM Peak	
	RFC	Queue	RFC	Queue
Arm B to C (Site Access to Rykneld Road (S))	0.065	0.1	0.035	0.0
Arm B to A (Site Access to Rykneld Road (N))	0.093	0.1	0.056	0.1
Arm C to B (Rykneld Road (S) to Site Access)	0.021	0.0	0.055	0.1

Table 4 above indicates that the proposed site access will operate well within capacity with none of the traffic movements shown to experience any discernible delay or queuing.

It is acknowledged the above findings are purely indicative and would be subject to more thorough assessment work in line with pre-planning scoping discussions with DCC – should a formal planning application in support of a residential development on the Poyser family’s land off Rykneld Road. However, it is considered that this body of work indicates that a viable access could be delivered to serve such a development.