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Eaton Road, Appleton

Technical Note 1;
Feasibility Transportation and Access Advice

1. INTRODUCTION

- 1.1 cTc is instructed by William Gow to provide preliminary feasibility advice in regard to access and transport matters concerning a potential residential development of land adjacent to Eaton Road in Appleton.
- 1.2 In order to provide this advice, cTc has reviewed local infrastructure initially using on-line mapping and photographs, which identified a need to obtain data on traffic speeds as well as, to a lesser extent, traffic volumes using Eaton Road. In order to provide this, a bespoke classified Automatic Traffic Counter (ATC) survey was commissioned and the resultant data is discussed below. These survey results are provided as Appendix A.
- 1.3 In addition, cTc has visited the site in order to measure relevant highway geometry and review land uses available locally, within the village of Appleton.

2. SITE LOCATION AND THE VILLAGE OF APPLETON

- 2.1 The site comprises agricultural land, located adjacent and to the west side of Eaton Road on the northern edge of the village. Eaton Road forms the site's eastern boundary, whilst the southern boundary abuts adjacent residential properties, to the west is agricultural land and to the north are farm buildings also comprising Appleton Christmas Barn.
- 2.2 Appleton is a mid-sized village and offers numerous facilities characteristic of such. These include;
- a community shop;

- a farm shop;
- a village hall;
- Appleton C of E school;
- St Lawrence's Church;
- Appleton Chapel;
- The Plough public house; and,
- leisure facilities including tennis courts and a children's play area.

2.3 It is clear that many daily needs are provided for within the village. For other functions including major retail and secondary education it is necessary to travel to nearby urban areas including predominantly Abingdon and Oxford, which are located approximately 6 and 8 miles distant, respectively.

3. SITE ACCESS OPPORTUNITIES AND CONSTRAINTS

3.1 The site frontage onto Eaton Road is particularly straight and flat, hence provides a high standard of visibility. South of the site frontage, Eaton Road continues straight for a short distance, before turning to the west with buildings on the inside of the bend providing a visibility constraint. To the north, adjacent to Appleton Christmas Barn, Eaton Road turns gently to the east, once again presenting a visibility constraint.

3.2 Eaton Road is provided to a carriageway width of 5.9m adjacent to the site frontage. A footway is provided on the eastern side to a width typically between 1.6m and 1.8m. A grass verge is also provided between this footway and the adjacent carriageway and this is of typical width around 2.0m. No footway is provided on the site side of Eaton Road, although a grass verge is present. No street lighting is provided, although this is typical of a village location such as Appleton.

3.3 The agricultural field has an existing access onto Eaton Road, which is located on its south-eastern corner. An access at this location will maximise connectivity with the village and **cTc** recommends that residential development of this site should best be accessed from a location near to its current access and available visibility splays have been measured from this existing access. The available visibility splays are quoted below;

- to the right (towards the village) – 2.4m x 157m;
- to the left (towards the Christmas Barn) – 2.4m x 237m.

3.4 The above visibility splays are very large, however, in order to verify that these meet safe design standards, the classified ATC referred above identifies traffic speeds as quoted in Table 3.1, below, which inform the definition of safe visibility splays.

Table 3.1; Summary of Classified ATC Data, Eaton Road, Appleton

Period	Flow*		Mean Speed**		85 th %ile Speed**	
	N'bound	S'bound	N'bound	S'bound	N'bound	S'bound
AM Peak	60	21	34.6	39.8	48.5	46.7
Combined Interpeak hrs***	20	19	35.0	36.8	52.0	45.6
PM Peak	19	23	35.1	34.6	53.0	44.8
24hr	13	10	35.5	37.4	54.3	46.7

* Five day average (vehicles per hour)

** Kilometres per hour, weighted by traffic flow

*** Average hourly values during the interpeak period

- 3.5 Manual for Streets (MfS) includes discussion on the braking abilities of modern vehicles, including a summary of research into Stopping Sight Distance. This research identified a regression equation which enables calculation of appropriate Stopping Sight Distance for a given vehicular speed and therefore a calculation of visibility splays which are required to design a safe highways access. That regression equation is quoted below.

$$SSD = vt + \frac{v^2}{(2(d + 0.1a))}$$

v = 85th percentile speed (km/h)

t = reaction time = 1.5s

d = deceleration = 4.41ms⁻²

a = gradient = 0%

- 3.6 Applying the above regression equation to the interpeak hour 85th percentile speeds calculated from the ATC survey and summarised in the Table above produces the following Stopping Sight Distances;

- For northbound traffic - 45.3m; and,
- For southbound traffic - 37.2m.

- 3.7 In order to identify appropriate junction visibility splays, the above values are subject to an adjustment to allow for average bonnet length (2.4m), resulting in the following visibility splays;

- To the right - 2.4m x 47.7m; and,
- To the left - 2.4m x 39.6m.

- 3.8 Comparing the above requirements with the achieved visibility splays, identified in Paragraph 3.3, above, confirms that the visibility splays achieved from the existing agricultural field access significantly exceed the calculated safe requirements.

4. SUSTAINABILITY

- 4.1 As identified in Paragraph 2.2 above, although a rural village, Appleton benefits from various facilities generating regular travel, including education, leisure and local retail. Notwithstanding this, it is clear that further regular visits will be required to more major facilities unavailable in the local rural environment.
- 4.2 Footways on Eaton Road serve safe and convenient pedestrian access into the village and very low traffic volumes on local roads facilitate safe and convenient cycle use to reach locations further afield.
- 4.3 Adjacent to the site frontage on Eaton Road are located bus stops serving both directions of travel. Bus services provide connections to nearby urban areas, including Oxford.
- 4.4 The above offers a choice of means of travel for facilities generating regular visits. Development of further housing at Appleton will provide a greater pool of demand for these services, hence helping to sustain the vital services provided to Oxford's rural hinterland. The benefits offered to residents of the proposed development by such opportunities could be emphasised through a Residential Travel Plan, supporting the proposed development of this land.

5. SUMMARY AND CONCLUSIONS

- 5.1 The above review describes the location of this site, which is promoted for residential development. Of particular significance are;
- a footway adjacent to Eaton Road, catering for safe and convenient pedestrian access to the village centre and the facilities available there;
 - low traffic volumes, enabling safe and pleasant travel within and nearby the village by bicycle;
 - bus services are available offering access to nearby major urban areas; and,
 - straight and level alignment of Eaton Road, providing excellent levels of visibility, considerably over and above the Manual for Streets requirements, defined in light of existing observed traffic speeds.
- 5.2 Immediately abutting the existing northern edge of the village, this site presents an ideal opportunity for residential development and meets all transport criteria.

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APPENDIX A

ATC SURVEY REPORT