



**Land West of Cambridge Road, Stretham,  
Cambridgeshire**

**East Cambridgeshire District Council Planning  
Application Ref: 23/01338/OUM**

**Third-Party Review on Behalf of ECDC – Highways and Transport**

On behalf of **East Cambridgeshire District Council**



Project Ref: 332611436 | Rev: AA | Date: May 2024

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Registered Office: Buckingham Court Kingsmead Business Park, London Road, High Wycombe, Buckinghamshire, HP11 1JU  
Office Address: 11 Prospect Court, Courteenhall Road, Blisworth, Northampton NN7 3DG  
T: +44 (0)1604 878 300 E: nigel.fern@stantec.com

## Document Control Sheet

**Project Name:** Land West of Cambridge Road, Stretham

**Project Ref:** 332611436

**Report Title:** Third-Party Review on Behalf of ECDC – Highways and Transport

**Date:** May 2024

	Name	Position	Signature	Date
<b>Prepared by:</b>	B Haydon	Assistant Transport Planner	<i>B Haydon</i>	May 2024
<b>Reviewed by:</b>	J Hopkins	Senior Associate	<i>J Hopkins</i>	May 2024
<b>Approved by:</b>	N Fern	Director of Transport Planning	<i>N Fern</i>	May 2024
<b>For and on behalf of Stantec UK Limited</b>				

Revision	Date	Description	Prepared	Reviewed	Approved

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# 1 Introduction

## 1.1 Introduction and Background

- 1.1.1 Stantec UK Ltd (Stantec) has been appointed by East Cambridgeshire District Council (ECDC) to undertake a third-party review of transport and access matters relating to an Outline Planning Application (planning ref. 23/01338/OUM). This application is for 83 affordable residential dwellings, with all matters reserved except access.
- 1.1.2 The site already benefits from an existing extant planning consent, with access to the A10 agreed, for up to 38 affordable residential dwellings (planning ref. 23/0072/OUM), granted in 2023. The site also previously had a successful Appeal decision for 19 affordable residential dwellings, also with access agreed from the A10, granted in 2023.
- 1.1.3 Following a deferral at the Planning Committee, ECDC, as the local planning authority, has requested an independent review of the planning application in terms of the following for the additional 45 dwellings:
- Acceptability of the proposed vehicular access onto the A10;
  - Safety measures required to serve the development, specifically pedestrian safety / crossing points; and
  - Transport impacts of the Proposed Development upon the A10 highway network.
- 1.1.4 Due to the extant planning permission for 38 dwellings that the site already benefits from remaining live, this review assesses the impact of the additional 45 dwellings, and not the impacts or acceptability of the already consented 38 dwellings. However, the cumulative impact of the 83 dwellings has been considered and reported in this review.
- 1.1.5 In terms of highways, the following is noted:
- The proposed on and off site highway works remain the same as the previous two planning consents - for 19 affordable dwellings, and 38 affordable dwellings; and
  - Cambridgeshire County Council (CCC) Highways, as the local highway authority and a statutory consultee, has reviewed this application and has offered no technical objections to the proposals.

## 1.2 Material Review

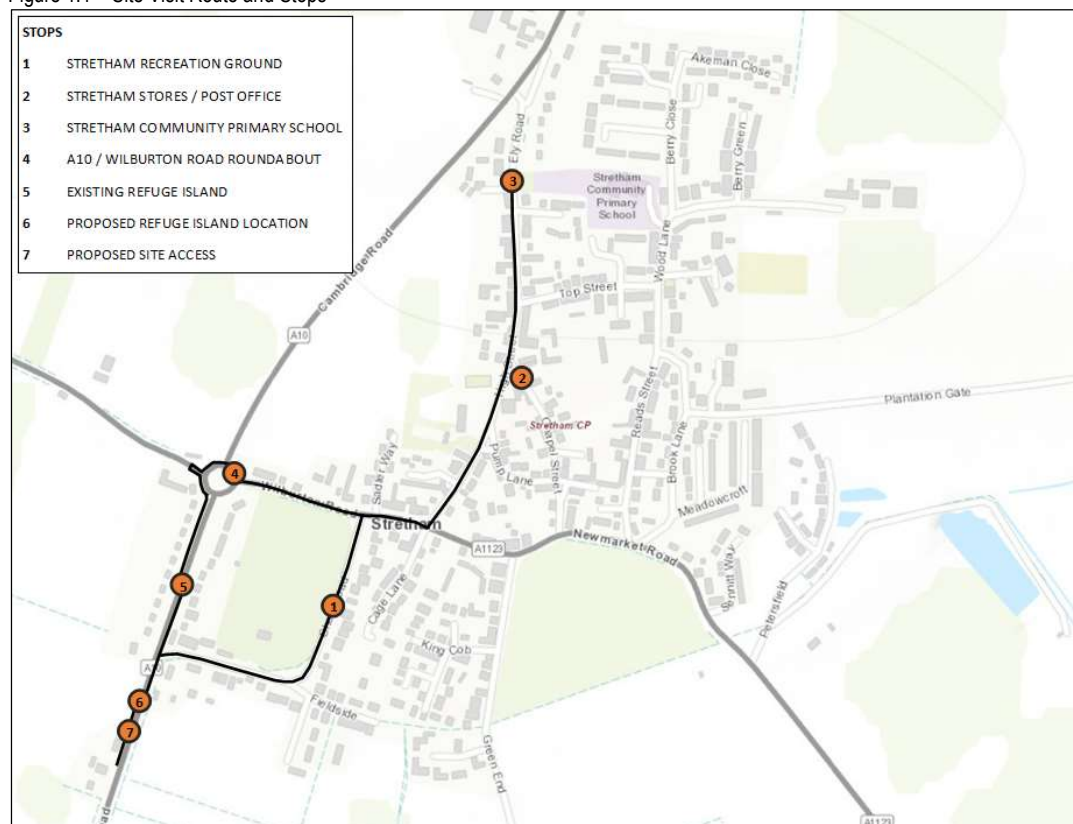
- 1.2.1 As part of this report, the following documents have been reviewed:
- Transport Assessment (Ardent, December 2023);
  - Transport Assessment Comments (Cambridgeshire County Council Highways, February 2024);
  - Road Safety Audit Stage 1 (M & S Traffic, July 2022); and
  - Revised Stage 1 RSA – Designer’s Response (Ardent, August 2022).
- 1.2.2 In addition to the above, the video recording of the Planning Committee (3<sup>rd</sup> April 2024) was also reviewed. It was during this Committee that the Members decided to appoint a third-party highways consultant to review all matters pertaining to transport and access matters.

- 1.2.3 No additional traffic surveys have been commissioned as part of this independent review. Reference has been made to the submitted survey material and evidence.
- 1.2.4 Any conclusions and recommendations made by Stantec will be based on evidence-based analyses, and with reference to local and national policy and guidance.

### 1.3 Site Visit (Tuesday 30<sup>th</sup> April 2024)

- 1.3.1 A site visit was conducted by Nigel Fern and Beth Haydon of Stantec on 30<sup>th</sup> April 2024 between 10:30 and 11:30 to assess the existing conditions, levels of infrastructure and general highway network conditions.
- 1.3.2 The site visit took the form of an on-foot assessment around Stretham village to observe:
- local facilities and amenities;
  - the A10 / Wilburton Road roundabout;
  - A10 / Short Road priority T junction;
  - A10 Cambridge Road; and
  - the Proposed Development site.
- 1.3.3 The weather during the site visit was dry and sunny.
- 1.3.4 The walking route taken and stops made are shown on **Figure 1.1**.

Figure 1.1 – Site Visit Route and Stops



### Stop 1

- 1.3.5 The first stop on the site visit was to Stretham Recreation Ground, providing a key destination for recreational activity for local residents, providing sports facilities such as a football pitch and basketball court, a playpark and picnic areas.

### Stop 2

- 1.3.6 The second stop on the site visit was the local convenience store and post office, which were observed to be within acceptable walking distance of the proposed site.

### Stop 3

- 1.3.7 The third stop on the site visit was to Stretham Community Primary School. The school caters for children from 4 to 11 years of age, and also has a pre-school, Tiddlywinks, on site. The school currently has approximately 180 students organised into 7 classes. It is likely that any primary school aged children living in the Proposed Development would attend this school. The school is within acceptable walking distance of the site - 1,100m walking distance – national guidance provided below.

Figure 1.2 – Suggested Acceptable Walking Distance

Table 3.2: Suggested Acceptable Walking Distance.

	Town centres (m)	Commuting/School Sight-seeing (m)	Elsewhere (m)
Desirable	200	500	400
Acceptable	400	1000	800
Preferred maximum	800	2000	1200

Source - Guidelines for Providing For Journeys on Foot, IHT, 2000

### Stop 4

- 1.3.8 The A10 / Wilburton Road Roundabout was the fourth stop on the site visit and was used to cross onto the western verge of A10 Cambridge Road. This roundabout experiences high levels of traffic with limited, uncontrolled, pedestrian crossing facilities.

### Stop 5

- 1.3.9 The fifth stop on the site visit was the existing pedestrian refuge island crossing south of the A10 / Wilburton Road Roundabout. This gave an insight into the potential conditions crossing the A10 at an existing refuge island.

### Stop 6

- 1.3.10 The sixth stop of the site visit was the location of the proposed pedestrian refuge island, to assess the speed and frequency of the traffic that would be experienced here.

### Stop 7

- 1.3.11 Finally, the site visit stopped at the location of the proposed site access, to assess general highway conditions and visibility.
- 1.3.12 The findings of the site visit will be discussed in more detail in the following sections of this report.



## 1.4 Structure of this report

1.4.1 The next sections of this report review the following:

- Review of the submitted traffic survey data;
- Proposed vehicular access onto the A10;
- Pedestrian Safety review; and
- Transport impacts of the Proposed Development upon the A10 highway network.

## 2 Review of Submitted Traffic Survey Data

### 2.1 Introduction

2.1.1 As no additional traffic surveys or road traffic collision data have been acquired as part of this independent review, the applicant's submitted survey material has been considered and commented upon.

### 2.2 Existing Traffic Surveys

2.2.1 To support the outline planning application, the following existing traffic surveys were undertaken:

- Manual classified junction turning count at the A10 / Short Road priority T junction (immediately to the north of the proposed site access) on Wednesday 15<sup>th</sup> September 2021 during the AM and PM peaks only; and
- Manual speed survey on the A10 on Tuesday 14<sup>th</sup> and Wednesday 15<sup>th</sup> September 2021 on the approach to the proposed site access.

2.2.2 Stantec's observations are as follows:

- i) The surveys were undertaken by Trafficsense, an independent traffic data collection company;
- ii) Although the survey data is from 2021 - over 2½ years old - it is representative still as data up to 3 years old are generally accepted;
- iii) The surveys in September 2021 were outside of any Covid-19 lockdown restrictions;
- iv) A Wednesday in September is classed as a neutral survey month, hence the timing is appropriate;
- v) The survey counted traffic on one day only (Wednesday 15<sup>th</sup> September), and was used as the evidence base for the rest of the assessment. The traffic survey data strategy did not include for any Automatic Traffic Counts (ATCs). ATCs are used to record the number of vehicles travelling in both directions along a road, and typically collect data for a longer period than a Junction Turning Count (JTC) - for example, 1 - 2 weeks, recording vehicle movements every hour. This continuous ATC data, when collected in the same week of a JTC, can be used to validate that the day on which the JTC was undertaken is representative of typical network conditions;
- vi) The JTC count included for movements only, but did not include queueing data on the A10 to understand better the peak period congestion conditions on this part of the A10;
- vii) The speed survey was completed as per the appropriate National Highways' Design Manual for Roads and Bridges (DMRB) guidance. The existing speed limit in this location is 40mph, and the recorded speeds were as follows (dry weather conditions):
  - Northbound: average speed of 37.6mph, 85<sup>th</sup> percentile dry weather speed of 43.2mph; and
  - Southbound: average speed of 37.4mph, 85<sup>th</sup> percentile dry weather speed of 43.1mph.

2.2.3 Stantec comment as follows:

- i) Without the support of ATC data, Stantec cannot make further comment whether the one day traffic survey is representative of typical network conditions. Notwithstanding, it is unlikely that further ATC data would materially change the conclusions.
- ii) Observed existing vehicle speeds are appropriate at a location subject to a 40mph speed limit, and do not highlight a current vehicle speeding issue.

## **2.3 Road Traffic Collision Data**

2.3.1 Road traffic collision data were supplied as part of the planning application documentation, for a 5 year period to 2023. This reflects the standard road safety review approach.

2.3.2 There were no recorded collisions within 120m of the proposed site access (120m being the appropriate forward visibility splay for a junction located within a section of road subject to a 40mph speed limit).

2.3.3 There was a pedestrian injury collision (Slight injury) on the A10 outside 18 Cambridge Road at the existing pedestrian crossing near the existing bus stops, some 175m north of the proposed site access - albeit this incident was more than 5 years ago, in November 2017. From a further review of CrashMap, a pedestrian using the crossing was struck by a motor cyclist.

2.3.4 The Transport Assessment concluded that there are no existing highway safety issues locally. Stantec agrees with this comment as:

- The one incident does not represent a road safety issue; and
- This incident was outside of the 5 year period considered.

## 3 Proposed Vehicular Site Access Review

### 3.1 Introduction

3.1.1 Stantec has reviewed the proposed vehicular site access to the A10, in terms of both design and future operation for 83 dwellings. This section considers:

- a site access design review; and
- a junction capacity assessment review.

### 3.2 Site Access Design Review

3.2.1 The proposed site access junction form for the Proposed Development onto the A10 Cambridge Road as shown on Ardent drawing 2003310-004 Rev B is a simple priority T-junction.

3.2.2 The Local Highway Authority, Cambridgeshire County Council Highways, has approved this layout for the 83 dwelling planning application, and it has undergone a Stage 1 Road Safety Audit process.

3.2.3 In terms of the overall design layout, Stantec concurs that the proposed site access design is in accordance with CCC requirements in terms of the access road width, kerbed radii, and vehicle swept paths. Further detail is provided of the visibility splay review.

3.2.4 The existing street lighting on the A10 stops before the proposed site access. Stantec recommends that the existing street lighting is extended past the proposed site access, as part of the detailed design process.

#### **Visibility splays to the left and right out of the site access**

3.2.5 The appropriate visibility splay for a priority junction within a section of road subject to a 40mph speed limit is 2.4m x 120m.

3.2.6 From observation, Stantec concurs that visibility to the left of the minor arm appears achievable – subject to existing vegetation being cut back. This is shown in **Figure 3.1**, a photo taken 2.4m back from the main A10 carriageway kerbline, as per the design standards, and mimics the position of a driver arriving at the junction to exit the Proposed Development.

Figure 3.1 – Proposed Vehicular Site Access – Left Visibility Along A10 Cambridge Road



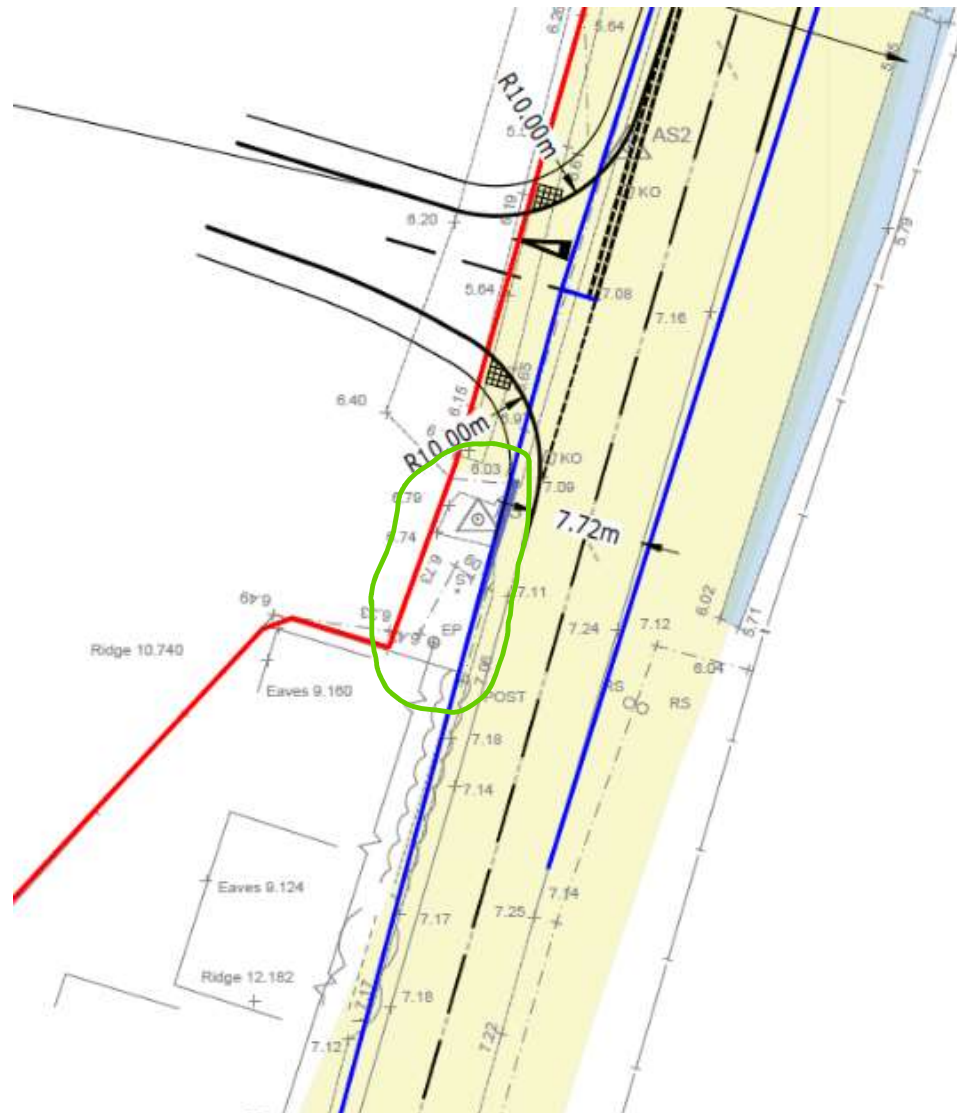
- 3.2.7 Stantec questions whether the 120m visibility splay can be achieved to the right of the proposed site access. The splay is obstructed by further existing vegetation intruding into the highway - as shown in **Figure 3.2** - as well as third-party land. The photo in Figure 3.2 has also been taken 2.4m back from the main carriageway kerbline to mimic the position of a driver waiting to turn.

Figure 3.2 – Proposed Vehicular Site Access – Right Visibility Along A10 (photo position marginally south of the proposed access point due to dense vegetation cover)



3.2.8 Whilst Stantec accepts vegetation within the highway may be removed to increase visibility, the site access drawing (2006310-004 Rev B – Proposed Site Access Arrangements – Priority 'T' Junction) does not provide sufficient detail to confirm that the right visibility splay can be provided without potentially needing third-party land, as well as the construction of the footway kerb line (adopted public highway been shown as shaded yellow). The area of land in question is circled green below in **Figure 3.3**, and does not appear to be within public highway or the development red line boundary.

Figure 3.3 – Site Access – Proposed T-Junction



3.2.9 Stantec recommends the Applicant is required to provide further detail of the highway boundary for review to determine whether an appropriate visibility can be achieved without third party land.

3.2.10 Stantec also recommend that the existing street lighting is extended past the proposed site access, as part of the detailed design process.

### 3.3 Site Access Capacity (at peak times)

- 3.3.1 The form and principle of access to the A10 reflects the forecast number of vehicles entering and leaving proposed site - in the network peak periods, and during the day. A junction capacity assessment has been undertaken using the industry-standard computer model (JUNCTIONS 10) by the applicant.
- 3.3.2 Junction capacity assessment results for both the permitted 38 dwellings and the proposed full 83 dwellings are provided within the submitted Transport Assessment, a summary is provided for completeness in **Table 3.1** below.

Table 3.1 – Proposed Vehicular Site Access – Junction Capacity Assessment Results

Assessment Year and Manoeuvre	Base Case (Background growth + Waterbeach Barracks + 115 houses at Wilburton + previously consented 38 houses on application site)						Development Case (Base + additional 45 houses on application site)					
	Weekday am peak			Weekday pm peak			Weekday am peak			Weekday pm peak		
	RFC	Queue (vehs)	Delay (secs)	RFC	Queue (vehs)	Delay (secs)	RFC	Queue (vehs)	Delay (secs)	RFC	Queue (vehs)	Delay (secs)
<b>2027</b>												
B-C Left turn out of site access	0.03	0.0	7.39	0.01	0.0	7.84	0.06	0.1	7.74	0.02	0.0	7.98
B-A Right turn out of site access	0.05	0.0	18.10	0.02	0.0	16.88	0.10	0.1	19.25	0.04	0.0	17.65
C-AB A10 southbound ahead + right turn	0.02	0.0	3.26	0.04	0.0	4.17	0.03	0.0	3.28	0.09	0.1	4.27
<b>Junction Delay (secs/veh)</b>	<b>0.18</b>			<b>0.13</b>			<b>0.37</b>			<b>0.29</b>		
<b>Network Residual Capacity</b>	<b>45%</b>			<b>64%</b>			<b>44%</b>			<b>58%</b>		
<b>2032</b>												
B-C Left turn out of site access	0.03	0.0	7.49	0.01	0.0	7.98	0.06	0.1	7.85	0.02	0.0	8.13
B-A Right turn out of site access	0.05	0.1	19.07	0.02	0.0	17.76	0.11	0.1	20.35	0.04	0.0	18.62
C-AB A10 southbound ahead + right turn	0.02	0.0	3.23	0.04	0.1	4.15	0.03	0.0	3.25	0.09	0.2	4.25
<b>Junction Delay (secs/veh)</b>	<b>0.18</b>			<b>0.13</b>			<b>0.38</b>			<b>0.29</b>		
<b>Network Residual Capacity</b>	<b>41%</b>			<b>59%</b>			<b>40%</b>			<b>54%</b>		

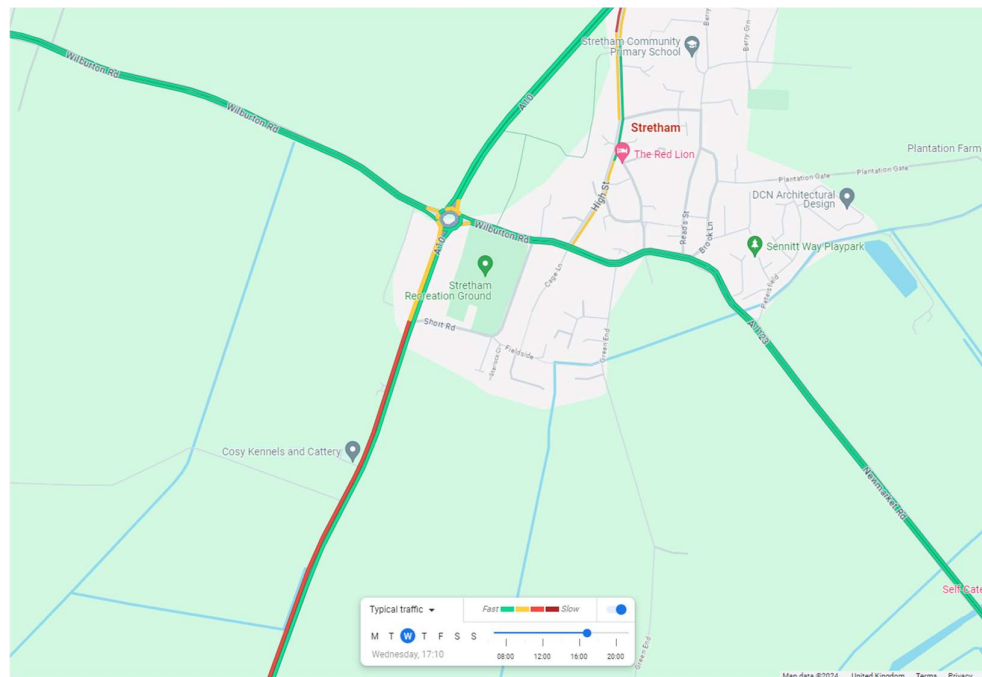
- 3.3.3 The “RFC” - Ratio of Flow to Capacity - provides a measure of the forecast utilised capacity of an individual movement at a junction. RFC values of 0.85 (i.e., at 85% capacity) was generally considered to represent a junction operating at practical capacity: a RFC above this value represents a junction beginning to become congested.
- 3.3.4 **Table 3.1** shows that in the 2032 future year scenario, the site access is forecast to operate with low RFCs and low levels of delay. A maximum RFC of 0.11 in the AM peak and 0.09 in the PM peak fall well within the 0.85 RFC.
- 3.3.5 When comparing conditions for the consented scheme for 38 dwellings against the same scheme with the additional 45 dwellings, there is only an additional delay of 1 second for vehicles leaving the site, with minimal increases in RFC. The forecast average delay leaving the site would be 20 seconds in the AM peak, and 19 seconds in the PM peak.
- 3.3.6 With respect to the right turn in movement:
- The delay entering the site from the north is 3 – 4 seconds – this delay is minimal, and is acceptable.

- The Stage 1 Road Safety Audit queried the absence of a right turn lane on the A10, and if the development should increase in size, the lack of a protected right turn facility could lead to rear end shunts (Problem 3.3.2).
  - The Designers' Response identified that the simple priority T junction form was agreed with CCC Highways for the larger scheme.
- 3.3.7 Stantec has reviewed the likely development vehicular trip generation, and the modelling results above. Based on the DMRB CD 123 'Geometric design of at-grade priority and signal-controlled junctions' (which applies to trunk roads), Stantec concurs that the proposed 83 dwellings does not require a ghost island right turn lane access form on the A10 (and also particularly within a 40mph speed limit).
- 3.3.8 Therefore, these results are well-within acceptable criteria, and it can be concluded that the site access form would perform within capacity and would suitably serve further development.
- 3.3.9 However, as noted in Chapter 2 of this report, no ATC data were collected for a longer period to validate that the day on which the survey was undertaken is representative of a typical network day. Nevertheless, given the modelling results above, and the site access shown to be operating well-within capacity, additional survey data is unlikely to make a material difference to the conclusions already reached.

#### Other capacity issues

- 3.3.10 The CCC Highways Officer response referred to the A10 / A1123 roundabout peak period congestion leading to queueing traffic on the A10 extending to the proposed site access which could prevent vehicles from exiting / entering the site.
- 3.3.11 The Google Maps typical PM Peak traffic conditions shown in Figure 3.4 shows this.

Figure 3.4 – Google Maps Typical Traffic Conditions





- 3.3.12 As conditions at the A10 / A1123 Roundabout were not assessed as part of this Transport Assessment, Stantec is unable to comment further.
- 3.3.13 Notwithstanding,
- A development of 83 dwellings would typically generate circa. 50 two-way vehicle trips in the PM peak;
  - The Transport Assessment identified that 59% would assign northwards – this equates to 1 additional trip every 2 minutes; and
  - Whilst a development of this scale would impact conditions by a marginal amount, it is not reasonable for the developer to be expected to resolve these capacity issues.
- 3.3.14 As queues of these levels could affect the ability for vehicles to exit and enter the Proposed Development at peak times, Stantec recommends that 'KEEP CLEAR' road markings are provided across the site access frontage during the detailed design stage, to maintain access in / out of the site at peak times.

## 4 Pedestrian Safety Review

### 4.1 Introduction

- 4.1.1 This section includes a review of design and safety matters relating to the pedestrian proposals included in the outline planning application.
- 4.1.2 These proposals include for an uncontrolled pedestrian crossing across the A10 in the form of a pedestrian refuge island, south of the junction with Short Road, and a 2 metre wide footway with no service margin connecting the site to the proposed crossing and onwards to the village of Stretham.
- 4.1.3 This pedestrian provision was previously accepted and agreed by CCC for the 38 dwellings.
- 4.1.4 Neither the Transport Assessment response submitted by CCC Highways, nor the Road Safety Audit Stage 1 identified any concerns regarding the suitability of the proposed pedestrian provision.
- 4.1.5 No technical evidence is contained within the submitted Transport Assessment supporting the chosen pedestrian crossing type.
- 4.1.6 Given the location of the Proposed Development on the western side of the A10, all future resident pedestrians would need to cross the A10 to access Stretham, the local facilities/amenities, primary school, play areas, and the southbound bus stop on the A10.

### 4.2 Pedestrian Facilities Design

- 4.2.1 The proposed footway connecting to the site is 2m wide, with no service margin (protection from the carriageway).
- 4.2.2 The pedestrian refuge island has a width of 2m, therefore exceeds the minimum 1.8 metre width for pushchair users identified in CIHT's 'Designing for Walking' (2015). This width is also the same width as the footway, maintaining consistency with this route.
- 4.2.3 There are no obstructions within the standard visibility of the pedestrian crossing.
- 4.2.4 Tactile paving is proposed on the refuge island to ensure the crossing is accessible to visually impaired users.
- 4.2.5 The proposed pedestrian refuge island would be within the existing network of street lighting on the A10. However, it is recommended that the street lighting is extended past the proposed site access.

### 4.3 Review of Transport Assessment Person Trip Generation

- 4.3.1 The predicted pedestrian generation of the Proposed Development provided in the Transport Assessment has been reviewed.
- 4.3.2 Trip rates were obtained from the TRICS database to inform this assessment. Whilst the 'Houses Privately Owned' sub-category was used instead of 'Affordable / Local Authority Houses / Flats', this is reasonable due to the limited survey data available for the latter sub-category, albeit noting that levels of car ownership in privately owned houses are generally higher than in affordable housing.

- 4.3.3 The Transport Assessment used the latest available Census 2011 journey to work mode split data to estimate the likely number of residents walking and cycling to and from the proposed development. For 83 dwellings, the report forecasts 4 two-way pedestrian trips and 3 two-way pedestrian trips in the AM and PM peak hours respectively - this would be 2 and 1 pedestrians respectively for the extant consent of 38 dwellings. Stantec considers these forecasts are considerably low as:
- The Census data are for journeys to work only – it does not consider other journey purposes like trips to education, retail, and leisure more commonly made by non-car modes; and
  - The Proposed Development is entirely for affordable housing, generally with lower access to cars.
- 4.3.4 As such, Stantec has provided an alternative assessment.
- 4.3.5 According to the Office for National Statistics (ONS), 89% of all privately owned households owned at least one car in 2018, whilst this percentage drops to 46% in affordable housing. This suggests that the number of private car trips generated by the Proposed Development will be lower than predicted, whilst the number of trips via public transport and sustainable active travel modes such as walking and cycling will be higher.
- 4.3.6 Additionally, affordable housing is likely to accommodate higher numbers of school-aged children than private houses - the Department for Education's 'National Pupil Yields from Housing Development' statistics stating that for the 2021 / 22 academic year the average number of primary school age children per household for the entire country was 0.250, rising to 0.336 in affordable homes. This trend is mimicked in the demand for secondary school spaces, with the national average being 0.130 rising to 0.189 in affordable homes.
- 4.3.7 Using these data, it is estimated that the 83 units would accommodate around 28 primary school aged children and 16 secondary school aged children living at the Proposed Development, based on 100% affordable housing provision.
- 4.3.8 It is expected that the majority – if not all - of these primary school pupils would attend the Stretham Community Primary School, which is a 1.1km walk from the Proposed Development: this is an acceptable walking distance. Combined with the lower levels of car ownership associated with affordable housing, the majority of these primary education trips would be made on foot. A worse-case scenario would be all 28 primary school pupils travelling to school on foot, with each one accompanied by an adult. There could be circa 50 one-way pedestrian movements in the AM peak.
- 4.3.9 There is no secondary education within Stretham, with children from the village generally attending schools in Ely. The bus stops to the north of the Proposed Development would facilitate the travel of children to secondary schools outside of the village. This would further increase the number of pedestrian movements, possibly by a further 16 children.
- 4.3.10 The Transport Assessment reported a total of 30 two-way pedestrian and 6 two-way cycle movements in a weekday 12-hour period. For the reasons set out above, this prediction fails to take into account the characteristics of the site being 100% affordable housing, with lower levels of private car ownership and increased numbers of children residing there, and is below the likely number of pedestrian trips.
- 4.3.11 All of the above assessment is based on the total 83 dwellings, acknowledging that 38 dwellings already has extant planning consent with this proposed provision.

## 4.4 Pedestrian Crossing Guidance Review

- 4.4.1 To determine the suitability of the proposed uncontrolled pedestrian refuge island crossing, a review of national guidance has been carried out. The type of crossing facility required is a response to many factors, and should be reviewed on a site by site basis including:
- Numbers of people wishing to cross at any one time;
  - Speed and volume of traffic;
  - Crossing distance;
  - Confidence of the people crossing;
  - Age of the people crossing;
  - Physical or visual considerations of the people crossing;
  - Perception of danger; and
  - Time of day
- 4.4.2 The decision making of the type of crossing chosen is clearly subjective, and professionals will have differing views and conclusions.
- 4.4.3 There is no definitive national or local threshold for determining the type of crossing provision required based on levels of pedestrians, traffic flows, or vehicle speeds - e.g., when a crossing must be a controlled. Due to this, this review will refer to several relevant national guidance documents that advise the suitability of crossing types to provide a more evidence-base analysis. These include:
- i) Designing for Walking (Chartered Institute of Highways and Transportation) - March 2015;
  - ii) Local Transport Note 1/20 Cycle Infrastructure Design (Department for Transport) – December 2020; and
  - iii) ADPV<sup>2</sup> Crossing Assessment.

### Designing for Walking (Chartered Institute of Highways and Transportation)

- 4.4.4 CIHT's 'Designing for Walking' March 2015 provides guidance on implementing pedestrian facilities including crossings.
- 4.4.5 **Table 4.1** shows guidance provided on suitability of pedestrian crossing provision based on levels of traffic flow and the speed of the road. This document does not advise what level of flow is "low", "medium" or "high" though. The provided two-way peak hour counts of 1,500-1,650 vehicles per hour suggest a daily flow of around 15,500 vehicles, which is considered to be a High flow.

Table 4.1 – Designing for Walking – Pedestrian Crossing Suitability

<i>Crossing Type</i>	<i>Traffic Flow</i>	<i>Traffic Speed</i>				
<b>Refuge/central reservation</b>	High	20	30	35	40	50+
	Medium	20	30	35	40	50+
	Low	20	30	35	40	50+
<b>Signal controlled (stand-alone)</b>	High	20	30	35	40	50+
	Medium	20	30	35	40	50+
	Low	20	30	35	40	50+

Generally Acceptable ■Design With Caution ■Generally Unacceptable ■

4.4.6 The above indicates that:

- The advantages of refuge island facilities allows crossing the road in two stages;
- For the observed speeds of 37mph, the application of a pedestrian refuge island crossing on the A10 should be ‘designed with caution’; but that
- The same guidance identifies that the application of a signal controlled crossing for these speeds is should also be ‘designed with caution’.

**LTN 1/20 Cycle Infrastructure Design (Department for Transport)**

4.4.7 LTN 1/20 provides guidance for local authorities on designing high quality and safe cycle infrastructure. This guidance does focus on cyclists, and a pedestrian equivalent does not exist though. We have still included this in our guidance review as similar principles apply.

4.4.8 **Table 4.2** below taken from LTN 1/20 provides an indication of the suitability of each type of crossing, depending on the speed and volume of traffic and the number of lanes to be crossed in one movement.

Table 4.2 – LTN 1/20 – Cycle Infrastructure Design – Crossing Design Suitability

Speed Limit	Total traffic flow to be crossed (pcu)	Maximum number of lanes to be crossed in one movement	Uncontrolled	Cycle Priority	Parallel	Signal	Grade separated
≥ 60mph	Any	Any	Unsuitable	Unsuitable	Unsuitable	Unsuitable	Suitable
40 mph and 50 mph	> 10000	Any	Unsuitable	Unsuitable	Unsuitable	Unsuitable	Suitable
	6000 to 10000	2 or more	Unsuitable	Unsuitable	Unsuitable	Unsuitable	Suitable
	0-6000	2	Unsuitable	Unsuitable	Unsuitable	Unsuitable	Suitable
	0-10000	1	Unsuitable	Unsuitable	Unsuitable	Unsuitable	Suitable
≤ 30mph	> 8000	> 2	Unsuitable	Unsuitable	Unsuitable	Unsuitable	Suitable
	> 8000	2	Unsuitable	Unsuitable	Unsuitable	Unsuitable	Suitable
	4000-8000	2	Unsuitable	Unsuitable	Unsuitable	Unsuitable	Suitable
	0-4000	2	Unsuitable	Unsuitable	Unsuitable	Unsuitable	Suitable
	0-4000	1	Unsuitable	Unsuitable	Unsuitable	Unsuitable	Suitable

- Provision suitable for most people
- Provision not suitable for all people and will exclude some potential users and/or have safety concerns
- Provision suitable for few people and will exclude most potential users and/or have safety concerns

- Notes:
1. If the actual 85<sup>th</sup> percentile speed is more than 10% above the speed limit the next highest speed limit should be applied
  2. The recommended provision assumes that the peak hour motor traffic flow is no more than 10% of the 24 hour flow

4.4.9 The guidance above shows that to cross two lanes on a 40mph road, an uncontrolled pedestrian crossing would be 'suitable for few people and will exclude most potential users and / or have safety concerns'.

4.4.10 Based on the guidance in LTN 1/20, the only crossing provision 'suitable for most people' on a road with a 40mph speed limit is a signal controlled or grade-separated crossing.

**The ADPV<sup>2</sup> Crossing Assessment**

4.4.11 The ADPV<sup>2</sup> Crossing Assessment is a longstanding tool used to assess the suitability of pedestrian crossing provision, and considers the number of accidents (A) over the last 3 years, the difficulty (D) experienced crossing the road, the number of both pedestrians (P) and vehicles (V). It is recent update to the traditional PV<sup>2</sup> assessment introduced originally in 1995.

4.4.12 The thresholds for different crossing provision based on ADPV<sup>2</sup> values is shown in **Table 4.3** below.

Table 4.3 – ADPV<sup>2</sup> Crossing Assessment – Thresholds and Recommendations

Threshold	Recommendation
<20,000,000	Pedestrian Crossing Unlikely to Be Required
20,000,000 – 60,000,000	Pedestrian refuge or Road narrowing
>60,000,000	Recommended for Controlled Pedestrian Crossing

- 4.4.13 Based on the number of pedestrian and cycle trips predicted in the Transport Assessment (5 two-way trips in the AM peak and 4 two-way trips in the PM peak), the ADPV<sup>2</sup> value would be 17,463,788 in the AM peak and 11,836,240 in the PM peak. Both would fall within the threshold recommending that a pedestrian crossing would be unlikely to be required. The analysis is contained in **Appendix A**.
- 4.4.14 However, as detailed in **Section 4.3**, Stantec considers the number of pedestrian trips forecast in the Transport Assessment to be under-reported and should be considerably higher due to the Proposed Development consisting solely of affordable homes and being located in close proximity to a primary school.
- 4.4.15 For reference, due to the vehicle volumes at peak times and crossing width, greater than 18 one-way pedestrian movements in an hour would trigger the recommendation for a controlled crossing. It is noted that the extant planning consent for 38 dwellings would have been likely to have triggered the recommendation for a controlled crossing based on this assessment.
- 4.4.16 The results of this assessment all depends on the likely number of primary school numbers walking to and from the Stretham community primary school. Based on the above analysis, Stantec forecast this to be greater than 18 movements between 0800-1900, therefore recommending a controlled crossing.

### Summary and Conclusion

- 4.4.17 In summary, the above analysis using three different guidance documents is shown in the table below.

Table 4.4 – Summary of guidance assessment

Guidance	Uncontrolled refuge island	Signal Controlled (standalone)
CIHT Designing for Walking	<i>Design with Caution</i>	<i>Generally Acceptable (medium traffic flows) Design with Caution (high traffic flows)</i>
LTN 1/20	<i>Provision suitable for few people and will exclude most potential users and/or have safety concerns</i>	<i>Provision suitable for most people</i>
ADPV <sup>2</sup> Crossing Assessment	<p>Ardent estimate pedestrian/cycle numbers: <i>Pedestrian crossing unlikely to be required</i></p> <p>Stantec estimate pedestrian/cycle numbers: <i>Recommended for controlled pedestrian crossing</i></p>	

## 4.4.18 In conclusion:

- i) There is no technical evidence dictating the chosen pedestrian crossing type;
  - ii) CCC Highways has accepted the provision of an uncontrolled pedestrian refuge crossing, with no reference to a controlled crossing;
  - iii) The Stage 1 Road Safety Audit makes no reference to this provision;
  - iv) The likely forecast number of primary school walking trips is the key factor to consider here, and the three guidance assessments detailed above would appear to suggest a controlled crossing is more suitable in this location given the local factors; and
  - v) Using this guidance, this conclusion may have been reached even for the extant planning permission of 38 dwellings.
- 4.4.19 It is unclear, without further discussions, whether CCC Highways would accept a standalone controlled crossing in this location away from a roundabout (although the principle of controlled crossings on the A10 within a 40mph speed limit is already accepted further south of the proposed site at Waterbeach and the Cambridge Research Park).
- 4.4.20 It is therefore recommended that the Applicant and ECDC liaise further with CCC Highways on this matter.

## 4.5 Review of the footway provision

- 4.5.1 The proposals are for the existing footway to be extended to the proposed access with a 2m wide footway, with no service margin. This would connect to the proposed crossing facility.
- 4.5.2 This pedestrian provision, previously accepted and agreed by CCC for the 38 dwellings, is reviewed.

### **Environmental Assessment of Traffic and Movement (Institute of Environmental Management and Assessment, July 2023)**

- 4.5.3 Though the IEMA guidelines are more broadly for the assessment of traffic and movement associated with development subject to environmental assessments, they also provide useful guidance on non-motorised user amenity.
- 4.5.4 As part of an Environmental Statement for a new development, the Fear and Intimidation category likely to be experienced by pedestrians is dependent upon:
- The total volume of traffic (24 hour and 18 hour);
  - The vehicle heavy composition;
  - The average speed these vehicles are passing; and
  - The proximity of traffic to people – and / or the feeling of the inherent lack of protection created by factors such as a narrow pavement median, a narrow path or a constraint (such as a wall or fence) preventing people stepping further away from moving vehicles.

The levels of Fear and Intimidation are then weighted as either small, moderate, great, or extreme taking the above parameters into account.

- 4.5.5 Stantec would ideally have been able to calculate the levels of Fear and Intimidation as per the standard, but due to the lack of ATC data collected, this was not possible to do so.



- 4.5.6 Stantec has assessed the perceived levels of Fear and Intimidation following the site visit as great to extreme due to the following:
- A high volume of traffic, particularly a high volume of HGVs;
  - The vehicles passing at an average speed of 37mph; and
  - The lack of protection between the footway and the traffic creating a feeling of vulnerability and concern about safety.
- 4.5.7 The proposed pedestrian footway provision does address in part the final point of proximity to the carriageway, however simply widening the footway would mean that a pedestrian may still have to walk close to the carriageway when in groups of more than one or walking past other pedestrians. The levels of Fear and Intimidation would be greatly improved by either:
- The introduction of a service margin strip to separate the footway from the road (0.5m - 1m wide); or
  - Rerouting the widened footway through the site, only emerging at the carriageway at the location of the pedestrian crossing.

## 4.6 Conclusions and Recommendations

- 4.6.1 It is unclear, without further discussions, whether CCC Highways would accept a standalone controlled crossing in this location away from a roundabout (although the principle of providing controlled crossings on the A10 within a 40mph speed limit is already accepted further south of the proposed site at Waterbeach and the Cambridge Research Park). It is therefore recommended that the applicant and ECDC liaise further with CCC Highways on this matter.
- 4.6.2 It is recommended that the levels of Fear and Intimidation experienced along the footway be reduced by either:
- Seeking the introduction of a service margin strip to separate the footway from the road (0.5m - 1m wide); or
  - By re-routing the widened footway through the site, only emerging at the carriageway at the location of the pedestrian crossing.

## 5 Transport Impacts of the Proposed Development

### 5.1 Introduction

5.1.1 Stantec have been asked to review the transport impacts of the Proposed Development on the A10 and surrounding highway network as part of this report.

### 5.2 Transport Impact on the A10

5.2.1 A summary of the additional traffic using the A10 as a result of the Proposed Development is shown in **Table 5.1** below. This only assesses the difference between the already consented 38 dwellings and the outline planning application for 83 dwellings.

Table 5.1 – A10 / Wilburton Road Roundabout – Traffic Impacts

Year and Link	Weekday am peak hour				Weekday pm peak hour			
	Base Case (Background + 38 houses)	Development Case (Background + 83 houses)	Increase (+45 dwellings)		Base Case (Background + 38 houses)	Development Case (Background + 83 houses)	Increase (+45 dwellings)	
<b>2027</b>								
A10 north of access	1599	1616	17	1.0%	1465	1480	16	1.1%
A10 south of access	1596	1610	24	1.5%	1462	1474	23	1.6%
<b>2032</b>								
A10 north of access	1643	1659	17	1.0%	1512	1527	16	1.0%
A10 south of access	1640	1653	24	1.5%	1509	1521	23	1.5%

5.2.2 The results show that the increase in flow experienced in both AM and PM peaks in both the 2027 and 2032 scenarios are less than 2%, which is well within daily variation.

5.2.3 Stantec conclude that this impact would be imperceptible on an already highly used road, and so this impact on the A10 is minimal.

## 6 Conclusions and Recommendations

### 6.1 Conclusions

6.1.1 This report has been prepared by Stantec UK Ltd to advise East Cambridgeshire District Council of an independent third-party review of transport and access matters relating to an Outline Planning Application (planning ref. 23/01338/OUM). This application is for 83 affordable residential dwellings, with all matters reserved except access.

6.1.2 Stantec concludes the following:

#### Proposed Vehicular Site Access Review

- i) The proposed site access has been designed to the appropriate design standards.
- ii) The site access drawings do not show clearly the right visibility splay within the highway. This visibility is achievable only with the removal of vegetation which is not all within the highway. The site access proposals should be reviewed to ensure that the construction of the junction is possible and visibility splays are achievable.
- iii) Due to the lack of ATC data collected, it is not possible to validate the day of the junction turning counts to ensure that the data represents a typical network day (although this is unlikely to materially change the conclusions already reached).
- iv) Stantec cannot comment on the validity of the data, only that the junction performs within capacity with the data collected.
- v) That 'KEEP CLEAR' road markings provided across the site access at the detailed design stage would maintain access in / out of the site at peak times when queuing from the A10 / A1123 Roundabout could obstruct the entry.

#### Pedestrian Safety Review

- vi) The proposed refuge island crossing appears to be designed to standard.
- vii) The levels of pedestrian trips associated with a 100% affordable housing development have been under-estimated, and Stantec's assessment should be considered instead.
- viii) Though there is no set threshold for the trigger for an uncontrolled crossing becoming controlled, Stantec believe that the guidance reviewed in this report would appear to suggest a controlled crossing is more suitable in this location given the local factors.
- ix) The proposed footway would still be in close proximity to the carriageway, and pedestrians are likely to experience high levels of Fear and Intimidation as a result of feeling vulnerable to traffic. A footway with a service margin strip to put space between pedestrians and the carriageway would be more appropriate, or alternatively rerouting the footway through the site and only emerging at the pedestrian crossing.

#### Transport Impacts of the Proposed Development

- x) Stantec concludes that the impact of the Proposed Development on the surrounding highway network will be imperceptible in such high levels of traffic, and the percentage increases forecast fall well within daily variation.

## 6.2 Recommendations

### 6.2.1 Stantec recommends the following:

- i) The applicant reviews the site access design to ensure the construction of the access and visibility splay to the right can be achieved without the need for third-party land.
- ii) The existing street lighting on the A10 is extended past the proposed site access at the detailed design stage.
- iii) That 'KEEP CLEAR' road markings are provided across the site access at the detailed design stage to maintain access in/out of the site at peak times.
- iv) Further discussions are held between the developer, ECDC, and the local highway authority to ascertain whether CCC Highways would accept a standalone controlled crossing in this location given the analysis set out in this independent review.
- v) That the footway provision be reviewed, with either:
  - a service margin strip be provided, to decrease the proximity between pedestrians and the carriageway, or
  - the footway being re-routed through the site and emerging at the pedestrian crossing only.

### 6.2.2 The above recommendations would be in line with current policy, in particular NPPF:

- Para 114 (b) – developments proposals should ensure that safe and suitable access to the site can be achieved for all users;
- Para 116 (a) – development should give priority first to pedestrian and cycle movements, both within the scheme and with neighbouring areas;
- Para 116 (c) – create places that are safe, secure and attractive – which minimise the scope for conflicts between pedestrians, cyclists, and vehicles.

## Appendix A - ADPV<sup>2</sup> Calculation



## Appendix 3

Time Period	8-9am	5-6pm
<b>A</b>	1	1
<b>D</b>	1.27	1.27
<b>P</b>	5	4
<b>V</b>	1659	1527
<b>ADPV<sup>2</sup></b>	17,463,788	11,836,240
<b>Recommendation</b>	Ped crossing unlikely required	Ped crossing unlikely required

No accidents involving pedestrians according

Threshold	Recommendation
0	Ped crossing unlikely required
20,000,000	Ped Refuge or Road narrowing
60,000,000	Recommended for Controlled Ped Crossing
60,000,000	Recommended for Controlled Ped Crossing

A	Accident Factor	$1+(N/10)$	
D	Difficulty Factor	$1.2 \times W/7.3$	
P	Ped Movements		
V	Volume of traffic		
N	Number of pedestrain accidents	0	
W	road width	7.72	

Raw Data	
N	0
W	7.72

### Pedestrian Data

Time Period	Pedestrians (age 16+)	Pedestrians (age <16)	Cyclists
8-9am	5	0	0
5-6pm	4	0	0