

## Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Access onto Chalkstone Way		ONE HOUR	✓	391	100.000
B - Chalkstone Way (E)		ONE HOUR	✓	405	100.000
C - Millfields Way		ONE HOUR	✓	40	100.000
D - Chalkstone Way (W)		ONE HOUR	✓	425	100.000

## Origin-Destination Data

### Demand (PCU/hr)

		To			
		A - Access onto Chalkstone Way	B - Chalkstone Way (E)	C - Millfields Way	D - Chalkstone Way (W)
From	A - Access onto Chalkstone Way	0	214	0	177
	B - Chalkstone Way (E)	109	0	10	286
	C - Millfields Way	0	20	0	20
	D - Chalkstone Way (W)	85	330	10	0

## Vehicle Mix

### Heavy Vehicle Percentages

		To			
		A - Access onto Chalkstone Way	B - Chalkstone Way (E)	C - Millfields Way	D - Chalkstone Way (W)
From	A - Access onto Chalkstone Way	0	0	0	0
	B - Chalkstone Way (E)	0	0	0	5
	C - Millfields Way	0	0	0	0
	D - Chalkstone Way (W)	0	5	0	0

## Results

### Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A - Access onto Chalkstone Way	0.58	11.39	1.3	B	359	538
B - Chalkstone Way (E)	0.66	16.06	1.9	C	372	557
C - Millfields Way	0.11	9.59	0.1	A	37	55
D - Chalkstone Way (W)	0.46	6.89	0.9	A	390	585

### Main Results for each time segment

#### 07:45 - 08:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A - Access onto Chalkstone Way	294	74	269	839	0.351	292	145	0.0	0.5	6.566	A
B - Chalkstone Way (E)	305	76	140	719	0.424	302	422	0.0	0.7	8.883	A
C - Millfields Way	30	8	427	549	0.055	30	15	0.0	0.1	6.928	A
D - Chalkstone Way (W)	320	80	96	1048	0.305	318	360	0.0	0.5	5.111	A

**08:00 - 08:15**

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A - Access onto Chalkstone Way	352	88	323	799	0.440	351	174	0.5	0.8	8.000	A
B - Chalkstone Way (E)	364	91	168	701	0.519	363	506	0.7	1.1	10.960	B
C - Millfields Way	36	9	512	494	0.073	36	18	0.1	0.1	7.851	A
D - Chalkstone Way (W)	382	96	116	1032	0.370	381	433	0.5	0.6	5.740	A

**08:15 - 08:30**

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A - Access onto Chalkstone Way	430	108	395	747	0.576	428	213	0.8	1.3	11.223	B
B - Chalkstone Way (E)	446	111	205	678	0.658	443	619	1.1	1.9	15.627	C
C - Millfields Way	44	11	626	422	0.104	44	22	0.1	0.1	9.520	A
D - Chalkstone Way (W)	468	117	141	1011	0.463	467	528	0.6	0.9	6.849	A

**08:30 - 08:45**

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A - Access onto Chalkstone Way	430	108	396	746	0.577	430	214	1.3	1.3	11.394	B
B - Chalkstone Way (E)	446	111	206	677	0.659	446	621	1.9	1.9	16.060	C
C - Millfields Way	44	11	630	419	0.105	44	22	0.1	0.1	9.591	A
D - Chalkstone Way (W)	468	117	142	1011	0.463	468	532	0.9	0.9	6.885	A

**08:45 - 09:00**

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A - Access onto Chalkstone Way	352	88	325	798	0.440	354	175	1.3	0.8	8.135	A
B - Chalkstone Way (E)	364	91	169	700	0.520	367	509	1.9	1.1	11.293	B
C - Millfields Way	36	9	518	491	0.073	36	18	0.1	0.1	7.924	A
D - Chalkstone Way (W)	382	96	117	1031	0.371	383	438	0.9	0.6	5.778	A

**09:00 - 09:15**

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A - Access onto Chalkstone Way	294	74	272	837	0.352	295	147	0.8	0.5	6.658	A
B - Chalkstone Way (E)	305	76	141	718	0.425	306	426	1.1	0.8	9.089	A
C - Millfields Way	30	8	433	546	0.055	30	15	0.1	0.1	6.989	A
D - Chalkstone Way (W)	320	80	98	1047	0.306	321	365	0.6	0.5	5.153	A

# Mini Roundabout HL-19 - 2029R +NW2+NE2, PM

## Data Errors and Warnings

Severity	Area	Item	Description
Warning	Mini-roundabout		Mini-roundabout appears to have unbalanced flows and may behave like a priority junction; treat results with caution. See User Guide for details.[Arms B and D have 75% of the total flow for the roundabout for one or more time segments]

## Junction Network

### Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	Southern Access on to Chalkstone Way	Mini-roundabout	A,B,C,D	9.31	A

### Junction Network Options

Driving side	Lighting	Road surface	In London	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	Normal/unknown		39	B - Chalkstone Way (E)

## Traffic Demand

### Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D2	2029R +NW2+NE2	PM	ONE HOUR	16:45	18:15	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

### Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Access onto Chalkstone Way		ONE HOUR	✓	249	100.000
B - Chalkstone Way (E)		ONE HOUR	✓	381	100.000
C - Millfields Way		ONE HOUR	✓	20	100.000
D - Chalkstone Way (W)		ONE HOUR	✓	451	100.000

## Origin-Destination Data

### Demand (PCU/hr)

		To			
		A - Access onto Chalkstone Way	B - Chalkstone Way (E)	C - Millfields Way	D - Chalkstone Way (W)
From	A - Access onto Chalkstone Way	0	139	0	110
	B - Chalkstone Way (E)	204	0	20	157
	C - Millfields Way	0	10	0	10
	D - Chalkstone Way (W)	168	263	20	0

## Vehicle Mix

### Heavy Vehicle Percentages

		To			
		A - Access onto Chalkstone Way	B - Chalkstone Way (E)	C - Millfields Way	D - Chalkstone Way (W)
From	A - Access onto Chalkstone Way	1	0	0	0
	B - Chalkstone Way (E)	0	0	0	2
	C - Millfields Way	0	0	0	0
	D - Chalkstone Way (W)	0	2	0	0

## Results

### Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A - Access onto Chalkstone Way	0.34	6.85	0.5	A	228	343
B - Chalkstone Way (E)	0.59	12.20	1.4	B	350	524
C - Millfields Way	0.04	7.68	0.0	A	18	28
D - Chalkstone Way (W)	0.53	8.30	1.1	A	414	621

### Main Results for each time segment

#### 16:45 - 17:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A - Access onto Chalkstone Way	187	47	219	875	0.214	186	278	0.0	0.3	5.227	A
B - Chalkstone Way (E)	287	72	97	745	0.385	284	308	0.0	0.6	7.830	A
C - Millfields Way	15	4	352	597	0.025	15	30	0.0	0.0	6.183	A
D - Chalkstone Way (W)	340	85	160	996	0.341	337	207	0.0	0.5	5.511	A

#### 17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A - Access onto Chalkstone Way	224	56	263	843	0.265	223	334	0.3	0.4	5.806	A
B - Chalkstone Way (E)	343	86	117	733	0.467	342	370	0.6	0.9	9.241	A
C - Millfields Way	18	4	422	552	0.033	18	36	0.0	0.0	6.739	A
D - Chalkstone Way (W)	405	101	192	970	0.418	405	248	0.5	0.7	6.427	A

#### 17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A - Access onto Chalkstone Way	274	69	322	801	0.342	274	408	0.4	0.5	6.821	A
B - Chalkstone Way (E)	419	105	143	717	0.585	417	452	0.9	1.4	12.039	B
C - Millfields Way	22	6	516	492	0.045	22	44	0.0	0.0	7.661	A
D - Chalkstone Way (W)	497	124	234	936	0.531	495	304	0.7	1.1	8.231	A

#### 17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A - Access onto Chalkstone Way	274	69	323	800	0.343	274	410	0.5	0.5	6.847	A
B - Chalkstone Way (E)	419	105	143	717	0.585	419	454	1.4	1.4	12.202	B
C - Millfields Way	22	6	518	490	0.045	22	44	0.0	0.0	7.684	A
D - Chalkstone Way (W)	497	124	236	935	0.531	497	305	1.1	1.1	8.303	A

**17:45 - 18:00**

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A - Access onto Chalkstone Way	224	56	264	842	0.266	224	336	0.5	0.4	5.835	A
B - Chalkstone Way (E)	343	86	117	733	0.467	345	372	1.4	0.9	9.393	A
C - Millfields Way	18	4	426	550	0.033	18	36	0.0	0.0	6.770	A
D - Chalkstone Way (W)	405	101	193	969	0.418	407	250	1.1	0.7	6.497	A

**18:00 - 18:15**

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A - Access onto Chalkstone Way	187	47	221	874	0.215	188	281	0.4	0.3	5.253	A
B - Chalkstone Way (E)	287	72	98	745	0.385	288	311	0.9	0.6	7.958	A
C - Millfields Way	15	4	356	595	0.025	15	30	0.0	0.0	6.213	A
D - Chalkstone Way (W)	340	85	162	995	0.341	340	209	0.7	0.5	5.571	A

# APPENDIX 4

## DESIGNER'S RESPONSE TO ROAD SAFETY AUDITS FOR ACCESS STRATEGY OFF CHALKSTONE WAY

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# Great Wilsey Park, Haverhill

## Designers Response to Road Safety Audits for Access Strategy off Chalkstone Way

20<sup>th</sup> April 2017

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### 1 Introduction

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Brookbanks Consulting Limited is appointed by Hallam Land Management and Mrs. Pelly to provide transportation advice for a proposed mixed-use development on land at Great Wilsey Park in Haverhill, Suffolk. This has included the production of a Transport Assessment that has assessed the potential implications. A range of highway interventions has been subsequently identified.

For the Outline Planning Application, a Traffic Signals Access off Chalkstone Way was offered with the Transport Assessment. The Planning Application subsequently received consent in March 2017.

As part of the ongoing design strategy, it has been proposed that an alternative access junction can be implemented to the south of the development, being a compact roundabout at the existing mini-roundabout site between Chalkstone Way and Millfields Way. This is shown below in Figure 1a:

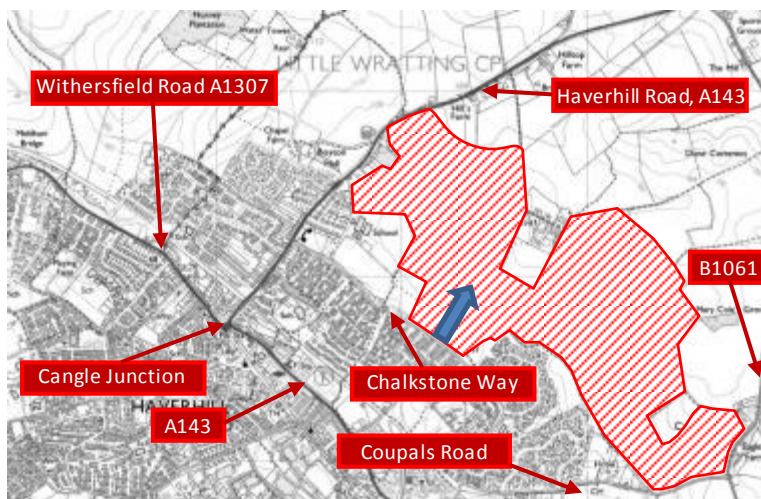


Figure 1a: Proposed Junction Locations

This alternative access option, at the request of Suffolk County Council, has been subject to a Stage 1 Road Safety Audit. This note sets out the findings of the audit together with a designers response.

### 2 Designers Response

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The Designers Response should be read in conjunction with the Road Safety Audit (ref R/462/3) as attached in Appendix A and revised Drawing No: 10173-HL-19B as attached in Appendix B.

The alternative solution to access the site from the south has been designed as a compact roundabout consisting of four arms with localised improvements to Chalkstone Way and Millfields Way, as indicated below in Figure 2a:

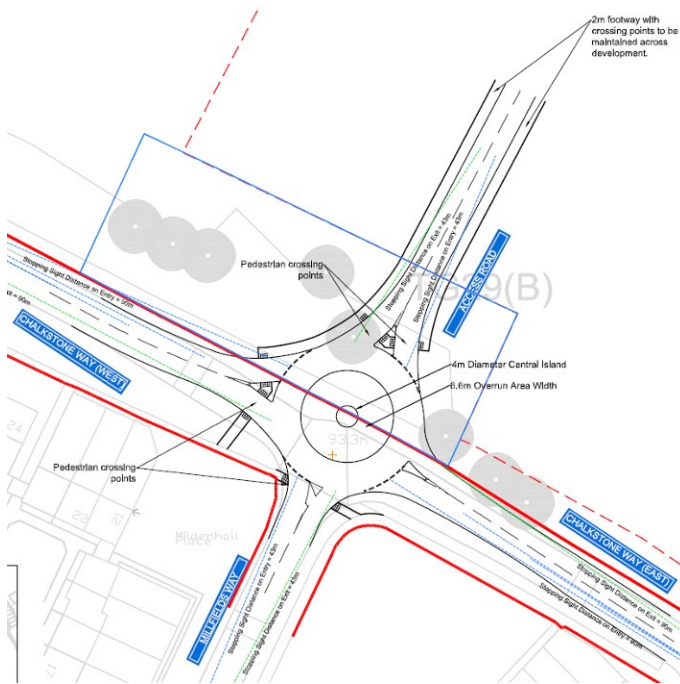


Figure 2a: Alternative Chalkstone Way Access

### Stage 1 Road Safety Audit Problems:

#### **Problem 1: Inadequate deflection on vehicle paths**

**Location:** Eastern and northern arm approaches to the roundabout.

**Summary:** The design layout of the roundabout is such that there is potential for failure to give way on entry resulting in straight-ahead collisions with roadside furniture or side-impact or shunt type collisions.

For the roundabout entry from the east (Chalkstone Way) the entry path curvature is in the region of 140m and for the roundabout entry from the north the entry path curvature is in the region of 100m, both using the over-run area edge as the vehicle path guide. Such potential approach paths give inadequate entry path curvature to fully-prevent traffic from entering the roundabout at too high a speed or having to resort to late-braking (DMRB standard TD16 also refers).

The drawings do not show any traffic calming measures on the development Access Road. Whilst the Auditors do acknowledge that Chalkstone Way is a traffic-calmed road the situation could be hazardous to cyclists, particularly in view of the wide overall circulatory carriageway width as associated with all compact roundabout layouts that are designed to accommodate specific large/long vehicle types, not all of which type might use the subject roundabout and approach roads.

The recommendations are that:

- The roundabout should be re-designed to ensure that vehicle entry paths have radii tighter than 70m radius (such re-design might involve the provision of a larger roundabout); and
- Traffic calming should be applied to the development Access Road.

**Designer's Response:** *The Auditors comment about the deflection has been duly noted but is to be challenged. Using TD16 Guidance, the Designer cannot achieve the Auditors quoted under-provision for deflection.*

*However, and in positive response, the roundabout approach arms have been verified as compliant with TD16 and have received minor realignment to achieve the optimal deflection.*



*The matter of traffic calming measures for the development access road is duly noted. However, this is a matter of detail and as such will be addressed at the Reserved Matters stage and subject to the Stage 2 Road Safety Audit.*

#### **Problem 2: NMUs**

**Location:** NMU paths to/from the development.

**Summary:** Inadequate provision of NMU facilities could lead to NMU conflicts and/or NMUs using non-designated routes or making crossings of roads at inadvisable locations with risks of slips, trips and falls injuries.

The footway from the development ends at the north-western quadrant with pedestrians having to cross Chalkstone Way to gain access to the existing footway along the southern side of Chalkstone Way. Not far west of the proposed roundabout is the Westfield Primary Academy school so the Auditors would expect some NMU demand between the development (the Access Road roundabout) and the school which is not catered for in the current proposals unless such trips cross and re-cross Chalkstone Way.

The Auditors note that the project Transport Assessment is 'strong' on sustainable travel although the Auditors acknowledge that the scheme is at an early stage of preparation.

The recommendation is that the footway along the western side of the development Access Road should be continued on to the school entrance not far west of the proposed roundabout with, perhaps, enhancement to shared cyclist/pedestrian status.

***Designer's Response:** The existing footways which run to the south of Chalkstone Way are 2m which is adequate width for pedestrians, they have been considered and incorporated into the design. All internal NMU routes are incorporated within the parameters plan and road hierarchy, which will be developed in detail as part of the detailed application. The footways shown replicate the existing footway alongside Chalkstone Way. Due to design constraints posed by third party land ownership issues, it is not viable to continue the footway west along the north side of Chalkstone Way to the proposed development.*

#### **Problem 3: Bus stop location**

**Location:** Chalkstone Way west of the roundabout.

**Summary:** Stationary buses blocking entry to the roundabout could cause risks of frustrated following vehicle drivers overtaking when unsighted and colliding with traffic exiting the roundabout or even driving the wrong way around the roundabout.

The existing bus stop west of the roundabout is located only approx. 25m ahead of the roundabout 'Give Way' line and the drawing has no indications of bus stop relocation.

The recommendation is that the bus stop should be relocated further west, sufficiently away from the roundabout.

***BCL Response:** It is difficult to deduce from either DMRB, Manual for Streets or Local Transport Notes where a bus stop should be positioned in relationship to a roundabout. However, it is known from TD 16/07 that a pedestrian crossing should not be positioned between 20m or 60m on entry to a roundabout. Given that a stationary bus would encourage a motorist to stop just like a pedestrian crossing would, the same principle shall be applied here. Therefore, the bus stop is advised to be relocated to be 60m west of the roundabout.*

#### **Problem 4: Speed cushion feature**

**Location:** Chalkstone Way immediately west of the roundabout.

**Summary:** Proximity of feature to roundabout entry/exit would be a potential frustration to drivers causing potential rash decision-making or encourage pedestrians to cross the road where no formal crossings is intended and which could surprise drivers and lead to vehicle/pedestrian conflicts.

There is an existing speed cushion arrangement immediately west of the roundabout located only approx. 15m ahead of the roundabout 'Give Way' line and the drawing has no indications of its removal. With a roundabout so close the speed cushion

arrangement would appear superfluous and could safely be removed – however, ‘Problem 1’ relates in respect of speed control on the roundabout approaches.

The recommendation is that the speed cushion arrangement should be relocated a short distance further west.

*Designer’s Response: It is difficult to deduce from either DMRB, Manual for Streets or Local Transport Notes where a speed cushion should be positioned in relationship to a roundabout. However, it is known from TD 16/07 that a pedestrian crossing should not be positioned between 20m or 60m on entry to a roundabout. Given that a speed cushion would encourage a motorist to slow down just like a pedestrian crossing would, the same principle shall be applied here. Therefore, the speed cushion is advised to be relocated to be 20m west of the roundabout.*

### 3 Conclusions and Limitations

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The technical note has addressed the Road Safety Audit (Stage 1) concerning the design for the alternative site access from Chalkstone Way for the development at Great Wilsey Park at Haverhill.

The designer’s responses highlighted above are limited to the general availability of background information and the planned usage of the site.

Third party information has been used in the preparation of this report, which Brookbanks Consulting Ltd, by necessity assumes is correct at the time of writing. While all reasonable checks have been made on data sources and the accuracy of data, Brookbanks Consulting Ltd accepts no liability for same.

Brookbanks Consulting Ltd excludes third party rights for the information contained in the report.

## Appendix A – Road Safety Auditor’s Report

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**Great Wilsey Park development, Haverhill, Suffolk :  
Chalkstone Way roundabout**

**Road Safety Audit  
Stage 1**

## Document Control Sheet



Client: Brookbanks Consulting Ltd.  
(for Hallam Land Management Ltd. and Mrs. Pelly)

Title: Great Wilsey Park development, Haverhill, Suffolk :  
Chalkstone Way roundabout

Topic: Road Safety Audit                      Stage 1

Report No: R 462/3

### STATUS AND APPROVAL SCHEDULE

1	Final	For issue	 T. R. Head 13/04/2017	 N. G. Calder 13/04/2017
Issue No.	Status	Description of Amendment	Prepared by Sign & Date	Checked by Sign & Date

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## 1 INTRODUCTION

### 1.1 The Audit Team

- 1.1.1 The Audit Team Leader was T. R. Head, BSc(Hons), CEng, MICE, FCIHT, MSoRSA, FConsE, Managing Director of Head Murray Associates Ltd. and holder of EC Directive 2008/96/EC Certificate of Competency for audit work on the TERN and UK motorways and trunk roads (CIHT SoRSA certificate No. 21), with Team Member N. G. Calder, BSc(Hons), CEng, MICE, MCIHT, MSoRSA, Highway Safety Consultant of CJ Safety Audit and holder of EC Directive 2008/96/EC Certificate of Competency (CIHT SoRSA certificate No. 23).
- 1.1.2 The terms of reference of the audit are as described in HD 19/15.
- 1.1.3 The Audit Team was approved by Suzanne Buck (Transport Policy Specialist) on behalf of Suffolk County Council, the local highway authority responsible for 'local', non-trunk, roads in the area of the subject proposals.
- 1.1.4 The Audit Team is instructed by Brookbanks Consulting Ltd. (the Designer of the highway works). Whilst there is no formal comprehensive Audit Brief for the work the Auditors are satisfied that sufficient information has been provided to enable execution of a sound Road Safety Audit.

### 1.2 Objective

- 1.2.1 This report is the result of a Stage 1 Road Safety Audit carried out on certain proposed highway improvement works associated with a large development area on the northeastern edge of Haverhill, Suffolk and known as the "Great Wilsey Park development". The works that are the subject of this audit comprise the connection of a development Access to the existing Chalkstone Way road at its junction with Millfields Way with conversion of the existing junction to a 'compact roundabout' layout.
- 1.2.2 The general location of the initiating development site, within its area setting, is shown at Figure 462/3/1 at the rear of this report. Figure 462/3/2 is an illustrative Masterplan layout for the initiating development indicating the subject junction and Figure 462/3/3 is a picture of the area of the proposed junction as it currently exists. Other works connected with the "Great Wilsey Park development" at other locations around the area have been, or are to be, the subjects of other audit activities.
- 1.2.3 The Audit's objective is to identify any aspects of the proposed works, as outlined on the supplied proposals drawings prepared by Brookbanks Consulting Ltd., that could give rise to road safety problems and to suggest modifications that would improve the safety of the resultant scheme. It should be noted that a Road Safety Audit is not a design audit nor is it a technical approval check/confirmation of the proposals.
- 1.2.4 The design organisation for the scheme is Brookbanks Consulting Ltd., 6150 Knights Court, Solihull Parkway, Birmingham Business Park, Birmingham B37 7WY. The design organisation's Project Engineer is Lee Witts and the scheme Project Director is Paul Boileau.
- 1.2.5 The audit report is prepared for the benefit of the works Designer (Brookbanks Consulting Ltd.), the project developer and the local highway authority responsible for non-trunk roads in Suffolk (Suffolk County Council) that would be deemed to be the Overseeing Organisation and the Audit



Team recommends that the Designer should ensure that each of the aforementioned parties is sent a copy of this report.

## 2 STAGE 1 AUDIT

### 2.1 Background

- 2.1.1 The initiating development to which the subject works relate is a large expansion of Haverhill on its northeastern side, to include up to 2,500 No. houses, two primary schools and local centres. The overall “Great Wilsey Park development” development covers a large parcel of land south of the A143 county principal road and east of the existing eastern edge of Haverhill. The “Great Wilsey Park development” will have vehicular accesses to the A143 and Chalkstone Way. There will be another new minor junction provided off Coupals Road to access a small country park area at the southern end of the development. There is another proposed large development area to the north of Haverhill that is expected to be carried out in conjunction with an A143 northern bypass of the town, though that development is expected to be progressed by others.
- 2.1.2 The “Great Wilsey Park development” is projected as being constructed in phases and the designs and traffic analyses for the development have shown, amongst other things, a need for a junction in the general location of the proposed works on Chalkstone Way. Proposals for development-related works comprise the provision of a ‘compact roundabout’ junction with the two major arms being Chalkstone Way and two minor arms being Millfields Way and the new Access Road for the development.
- 2.1.3 Chalkstone Way is on a public bus service route and would be described as a ‘residential collector’ road.
- 2.1.4 The local planning authority for the “Great Wilsey Park development”, and the proposed junction area, is St. Edmundsbury District Council, however, the local highway authority for local roads in and around Haverhill is Suffolk County Council.
- 2.1.5 An earlier Stage 1 RSA was carried out on previous development access highway works proposals on Chalkstone Way in January 2016 by the same Audit Team that has prepared this Audit Report. The previous, now superseded, works and the Stage 1 RSA and its recommendations (that suggested investigation of a junction type as now proposed) have been discussed between the Designer and the local authorities – those discussions have led to the current scheme which is now being treated as an entirely new scheme under this audit.

### 2.2 Supplied data

- 2.2.1 Information supplied for this audit by Brookbanks Consulting Ltd. comprises:
- Summary Audit Brief – basic scheme information e-mail of 3 April 2017 from Brookbanks Consulting to Head Murray Associates Ltd. ;
  - “Great Wilsey Park, Haverhill, Suffolk – Transport Assessment” document ref. 10173/TA/01 Issue 7 dated 7 September 2016, including its Appendices (with general layout drawings, indicative traffic flows, PIC collisions information, selected junction operation assessments/summaries and Designer Responses to earlier Road Safety Audits) ;
  - ARCADY 9 assessment computer output (dated 5 April 2017) for the Chalkstone Way Roundabout ; and
  - Brookbanks Consulting drawing “Great Wilsey Park, Haverhill, Suffolk : Proposed Access Strategy Roundabout off Chalkstone Way” drawing ref. 10173-HL-19 Rev.A.

- 2.2.2 The Transport Assessment and drawings suggest that off-site highway works on, or affecting, the existing highway network would be designed to DfT DMRB standards/guidance.
- 2.2.3 The Transport Assessment Appendix F and summary text within the body of the TA set out the traffic volume forecasts applicable to the subject junction area (and, indeed, elsewhere). The Transport Assessment also confirms that the development will be designed with sustainable travel provisions as a high priority.
- 2.2.4 From the project Transport Assessment, the Auditors note that current traffic flow on Chalkstone Way can be expected to be around 5,000 AADF (two-way flow). The project Assessment Year is 2029 at which date it is forecast that the full “Great Wilsey Park development” will generate appreciable additional traffic flows along Chalkstone Way.
- 2.2.5 The reported roundabout performance assessments are taken at face value by the Auditors. The assessments indicate that at year 2029, with the “Great Wilsey Park development” completed, typical peak hour queues on each Chalkstone Way arm of the roundabout, or any other arm, will be nominal only at even AM and PM peak periods.
- 2.2.6 The Design Speed(s) of the works are not set out in the supplied drawings/information – there are no drawing or other indications of any speed limit changes so it is taken that intended speed limits will remain as per existing speed limits and that the development Access Road will also be subject to a 30mph (or lower) speed limit.
- 2.2.7 The project Transport Assessment gives only limited Personal Injury Collision(PIC) data (referred to in the Transport Assessment under its former PIA nomenclature), for selected roads in/around Haverhill, for the five-year period from October 2009 to September 2014 inclusive – however, the study roads do not include Chalkstone Way. Overall, the collision analyses for the general Haverhill area concluded that there was no significant trend in collision numbers and no overall pattern to the PICs or risks that would be materially increased through delivery of the project.
- 2.2.8 In the absence of PIC data for Chalkstone Way the Auditors made their own interrogation of the “Crashmap” website and noted that in the same five-year time period there were three collisions at the Wrating Road(A143)/Chalkstone Way junction (one ‘Serious’ severity, two ‘Slight’ severity), four collisions along the approx. 2.3km length of Chalkstone Way (all ‘Slight’ severity but none at the Millfields Way junction) and one collision at the Sturmer Road(A143)/Chalkstone Way junction (‘Slight’ severity). The Sturmer Road/Chalkstone Way junction is a mini-roundabout but the Wrating Road/Chalkstone Way junction is a simple priority junction where Chalkstone Way is the minor arm and Wrating Road is on an appreciable north to south downgrade.
- 2.2.9 Over the more recent October 2014 to December 2016 period there were two ‘Slight’ severity PICs along Chalkstone Way (none at the Millfields Way junction) and one ‘Slight’ severity PIC at the Sturmer Road(A143)/Chalkstone Way junction – all occurring in winter months.
- 2.2.10 The summary Audit Brief confirms that there are no Departures from Standards or adopted Relaxations of Standards associated with the proposed works.
- 2.2.11 Not unexpectedly for the current stage of scheme preparation, no detail information has been supplied regarding vertical alignment/contours, drainage, street lighting or detailed signing/markings beyond the preliminary layout illustration of the abovementioned drawing.

## 2.3 Audit method

- 2.3.1 The audit was carried out at HMA's office in Leamington Spa, Warwickshire in mid-April 2017.
- 2.3.2 Both members of the Audit Team inspected the works area, both on foot and via 'drive-throughs' on Tuesday 11 April 2017 between around 11.15hrs to 11.45hrs in order to observe the existing conditions/situation and consider safety aspects that may be of consequence when the proposed scheme is operational. For the site inspection the weather was cloudy but dry and road surfaces were dry.
- 2.3.3 The Audit Team took photographs during the Audit site visit.
- 2.3.4 Along the whole length of Chalkstone Way there are numerous, regularly spaced, traffic calming 'cushions' installations, numerous raised 'Zebra crossings' and sideroad junctions are either simple priority junctions where Chalkstone Way is the major road or mini-roundabouts (four in number along Chalkstone Way). At the proposed works site the existing Chalkstone Way is a relatively straight single carriageway that dips to the existing Millfields Way mini-roundabout junction from both directions. Millfields Way is on an appreciable gradient falling away from the Chalkstone Way mini-roundabout that itself is constructed on a north-to-south downslope. Millfields Way is also traffic calmed with regularly-spaced speed cushions. Chalkstone Way and Millfields Way are both urban streets with street lighting and are within an existing 30mph speed limit area, however, the whole road layout effectively constrains traffic speeds to well below 30mph.
- 2.3.5 In the vicinity of the proposed junction there is a paved footway along the southern side of Chalkstone Way plus another path at the back of the wide grassed verge but only a grassed verge along its northern side. A signposted unpaved public footpath to/from fields north of Chalkstone Way connects to the Chalkstone Way verge not far west of the Millfields Way junction. The raised 'Zebra crossing' adjacent to the Westfield Primary Academy school not far west of the proposed junction site combines pedestrian and cyclist crossing facilities, but to a poor quality/layout. The cycleway provisions approaching the crossing are inconsistent with respect to status/signage.
- 2.3.6 For the proposed works the development Access Road will approach the compact roundabout in appreciable cutting where visibility provisions will necessitate additional earthworks. Potential shortcomings in vertical plane visibility to the roundabout 'Give Way' line on the Millfields Way approach should be overcome by the provision of normal central island 'Keep Left' traffic signs.
- 2.3.7 The site inspection was carried out within the school Easter holiday period and at the late-morning site inspection Chalkstone Way was only lightly trafficked and the Audit Team observed cars, a bus, cyclists and pedestrians.
- 2.3.8 This report is structured to consider the existing situation for all users of the area and to consider each element (or geographical area/feature) of the proposed works for use by vehicles, pedestrians, cyclists and other users from a safety aspect.
- 2.3.9 The reader is reminded that a Road Safety Audit is not limited to the new works alone where there are features that are considered by the Audit Team to affect the general safety in the area at, for example, works tie-ins related to the 'base' road network (HD 19/15 para 2.26 refers).