

Note / Memo

HaskoningDHV UK Ltd. Transport & Planning

То:	Suffolk County Council
From:	Royal HaskoningDHV
Date:	Friday, 20 March 2020
Copy:	
Our reference:	PB8301-RHD-ZZ-XX-NT-Z-0001
Classification:	Project related

Subject: Pedestrian Crossing Assessment Associated with the Proposed Residential Led Mixed-Use Development at Land near Haverhill, Wilsey Road, Little Wratting, Suffolk (Planning Application Reference DC/19/0834/RM)

1 Introduction

1.1 Overview

- 1.1.1 This Technical Note (TN) has been prepared in association with a reserved matters planning application (planning ref: DC/19/0834/RM) to provide submission of details under outline planning permission (planning ref: DC/15/2151/OUT) for up to 2,500 dwellings on land near Haverhill, Wilsey Road, Little Wratting.
- 1.1.2 This TN responds to consultation comments issued by Suffolk County Council's Highway Development Control Officers to the Planning Case Officer on 29th May 2019. The TN specifically addresses the comment relating to pedestrian crossings of the consultation response, relating to the proposed pedestrian crossing facilities associated with the development proposals. The comment relating to pedestrian crossings states:

"The spine road design indicates several Zebra or Tiger (cycle Zebra) or uncontrolled crossing points. The proposed traffic flows and potential for higher speeds will not enable this type of crossing to operate safely. Given the traffic flows expected through the site formal push button Puffin or Toucan crossings will be required on key pedestrian and cycle desire lines."

- 1.1.3 Three pedestrian crossing points are proposed on the proposed internal highway network. The proposed crossings would facilitate north-south pedestrian and cycle movements and would be provided in the form of Tiger (cycle Zebra) crossings. The locations of the proposed crossings are indicated in **Insert 1.1**.
- 1.1.4 Pedestrian crossing assessments have been undertaken for the three crossing locations in order to determine the most appropriate type of crossing facility. The assessments have been undertaken in accordance with guidance presented in Local Transport Note (LTN) 1/95 *'The Assessment of Pedestrian Crossings'* (Department for Transport, 1995) and takes into consideration various factors such as traffic flows, vehicle speeds, pedestrian demand, carriageway and footway geometry and road safety.
- 1.1.5 This note represents the findings of the pedestrian crossing assessments and preferred crossing arrangements for each location.



Insert 1.1: Proposed Pedestrian Crossing Locations





2 Methodology

2.1 Assessment Procedure

2.1.1 The assessment procedures set out in LRN 1/95 recommend that a 'Site Assessment' and 'Option Assessment' are undertaken, which combine to form the 'Assessment Framework'. All relevant factors included in the framework should be considered when deciding whether to provide a crossing and, if so, the type of facility. The framework should seek to quantify the difficulties experienced by vulnerable road users.

2.2 Site Assessment

2.2.1 The 'Site Assessment' is based on a visit undertaken by an experienced traffic engineer and includes the collection of information, photographs, maps, records of any representations. LTN 1/95 states that *"in the case of roads not yet built, or where future development is likely, the information should be estimated and the basis noted. For existing road the information should be measured".*

2.3 **Options Assessment**

- 2.3.1 A range of options should be considered when considering the provision of pedestrian crossings. These include:
 - Do nothing;
 - Provide traffic management (including informal crossings and/or refuge island);
 - Provide a zebra crossing;
 - Provide a signal-controlled crossing.
- 2.3.2 The choice of pedestrian crossing type will be influenced by factors such as:
 - Difficulty in crossing;
 - Vehicle delays during peak periods;
 - Carriageway capacity;
 - Local representations;
 - Cost (including maintenance);
 - Vehicle speeds.
- 2.3.3 LTN 1/95 also provides guidance on the quantification of the factors listed above.

2.4 Assessment Framework

2.4.1 The 'Assessment Framework' is an appraisal of the effects of each option under consideration. The final decision as to whether to install a crossing and the choice of option will depend on a combination of factors.

2.5 PV² Criteria

2.5.1 In addition to the guidance provided in LTN 1/95, the 'PV² Criteria' has also been considered. PV² is an industry recognised quantitative method for assessing the need for new pedestrian



crossing facilities. The criteria are widely used by Local Highway Authorities, including Transport for London (TfL).

2.5.2 PV² considers the pedestrian flow across a 100m length of road, centred on the proposed crossing site (P) and the number of vehicles in both directions (vehicles/hour) (V). A controlled crossing facility is normally justified where the calculated value of PV² is equal to or greater than 1 x 10⁸ on an undivided road or 2 x 10⁸ on a carriageway incorporating a staggered crossing.



3 Site 1 – Northern Crossing

3.1 Overview

3.1.1 The proposed northern pedestrian crossing is located on the northern section of the main spine road, in close proximity to the Zone A1 parcel of land and the internal roundabout. The crossing would form part of the shared pedestrian and cycle route, proposed to route along a north-south alignment through the development site. The crossing would connect Zone A1 and the northern access to the shared route, providing a route south towards the proposed local centre and school.

3.2 Site Assessment

3.2.1 The results of the Site Assessment for the northern pedestrian crossing are presented in **Appendix A** and summarised in **Table 3.1**.

Characteristic	Data and Comments
Location	The proposed northern pedestrian crossing is located on the northern section of the main spine road, in close proximity to the Zone A1 parcel of land and the internal roundabout.
Highway Facilities	Footways are proposed to both sides of the crossing. Footways are proposed to be 2.0m in width to the north-west and 3.0m to north-east. To the south, footways would be 2.0m in width.
Visibility	Visibility on the approach to the site is very good to the west. To the east the crossing is located within 40m of the internal roundabout, however, vehicle speeds are anticipated to be lower as vehicles approach from the roundabout.
Complexity	No accesses are located within 50m of the crossing. The crossing falls along the desire line for the proposed school, playground and local centre and would serve Zone 1A of the development.
Crossing Traffic	The whole development is proposed and, therefore, there is no existing crossing demand. Following the introduction of the proposed development, it is considered that the highest levels of crossing demand would occur before and after school hours. Forecasts of the demand have been developed from trip generation forecasts presented in the original Transport Assessment for the development. Trips have been split proportionally amongst the zones of the development and assumptions regarding routing have been made. The assessment concludes that up to 70 pedestrians could use the crossing in the AM peak and 22 in the PM peak.
Vehicles	Traffic flows have been derived from the trip generation forecasts presented in the original Transport Assessment for the development. The trip generation has been split proportionally amongst the various zones based on the number of units. Assumptions have been made with regards to the routing of vehicles through the development. The assessment has concluded that a two-way flow of 212 vehicles in the AM peak hour and 140 in the PM peak hour could be expected.
Road Collisions	The crossings and internal roads are yet to be implemented. There is, therefore, no existing personal injury collision history.

Table 3.1: Site Assessment - Northern Crossing



3.3 Option Assessment

3.3.1 **Table 3.2** presents the pedestrian crossing options for the northern crossing.

Table 3.2: Northern Crossing - Option Assessment

Factor	Do Nothing	Informal Crossing	Refuge Island	Zebra	Signal Controlled Crossing
Difficulty of Crossing / Average Wait in Seconds	Minimal difficulty, crossing within a second or two	Minimal difficulty, crossing within a second or two	Minimal difficulty, crossing within a second or two	1 to 3 seconds for all groups	1 to 3 seconds after the end of vehicle minimum green period
Vehicle Delay in peak periods	None	None	None	1 stop/minute of 8 seconds	1 stop/minute of 15 seconds
Road Capacity	Not reduced	Not reduced	Not reduced	13% reduction	25% reduction
Vehicle Speeds	Vehicle speeds are within the Posted Speed Limit	Vehicle speeds are within the Posted Speed Limit	Vehicle speeds are within the Posted Speed Limit	LTN 1/95 states that "Zebra crossings should not be installed on roads with an 85 percentile speed of 35 mph"	LTN 1/95 states that "Caution should be exercised where pedestrian flows are generally light or light for long periods of the day. Drivers who become accustomed to not being stopped at the crossing may begin to ignore its existence, with dangerous consequences."

3.4 PV² Criteria

3.4.1 Based on the forecast pedestrian and vehicle flows presented in **Section 3.2** the following results can be derived:

AM Peak Hour P = c.70 V = c.210 $PV^2 = 3,087,000$

PM Peak Hour

P = c.20 V = c.140 PV² = 329,000

- 3.4.2 The result of the PV² calculation is less than 10⁸, therefore, a controlled crossing would not be justified based on this methodology.
- 3.4.3 The PV² calculation and derivation of pedestrian and traffic flows can be found in **Appendix E**.



3.5 Appraisal

- 3.5.1 It is considered that an informal pedestrian crossing, comprising dropped kerbs and tactile paving would provide an adequate level of provision, based on the forecast pedestrian and traffic flows.
- 3.5.2 A zebra crossing has been proposed to account for the likely high proportion of school children using the proposed crossing in the AM peak hour.



4 Site 2 – Central Crossing

4.1 Overview

- 4.1.1 The proposed crossing is located on the central section of the spine road, located between Zone B1 and Zone D1. The crossing is located on the desire line for pedestrians accessing the proposed school and local centre from Zones A1 and A2.
- 4.1.2 The proposed crossing connects the northern portion of the internal shared pedestrian and cycle route with the southern section, facilitating north-south pedestrian and cycle movements.

4.2 Site Assessment

4.2.1 The results of the Site Assessment for the central pedestrian crossing are presented in **Appendix B** and summarised in **Table 4.1**.

Characteristic	Data and Comments
Location	The proposed crossing is located on the central section of the spine road, located between Zone B1 and Zone D1. The crossing is located on the desire line for pedestrians accessing the proposed school and local centre from Zones A1 and A2.
Highway Facilities	Footways are proposed to both sides of the crossing. Footways are proposed to be 3.0m in width to the north. To the south, footways would be 3.0m in width.
Visibility	Visibility in both directions is good for both pedestrians and vehicles. Visibility of greater than 200m is achievable to the east and 150m to the west.
Complexity	The access to the proposed school is located approximately 50m to the west of the proposed crossing. The crossing falls along the desire line for the proposed school, playground and local centre trips.
Crossing Traffic	The whole development is proposed and, therefore, there is no existing crossing demand. Following the introduction of the proposed development, it is considered that the highest levels of crossing demand would occur before and after school hours. Forecasts of the demand have been developed from trip generation forecasts presented in the original Transport Assessment for the development. Trips have been split proportionally amongst the zones of the development and assumptions regarding routing have been made. The assessment concludes that up to 336 pedestrians could use the crossing in the AM peak and 94 in the PM peak.
Vehicles	Traffic flows have been derived from the trip generation forecasts presented in the original Transport Assessment for the development. The trip generation has been split proportionally amongst the various zones based on the number of units. Assumptions have been made with regards to the routing of vehicles through the development. The assessment has concluded that a two-way flow of 82 vehicles in the AM peak hour and 35 in the PM peak hour could be expected.
Road Collisions	The crossings and internal roads are yet to be implemented. There is, therefore, no existing personal injury collision history.

Table 4.1: Site Assessment - Central Crossing



4.3 **Option Assessment**

4.3.1 **Table 4.2** presents the pedestrian crossing options for the central crossing.

Table 4.2: Central Crossing - Option Assessment

Factor	Do Nothing	Informal Crossing	Refuge Island	Zebra	Signal Controlled Crossing
Difficulty of Crossing / Average Wait in Seconds	Minimal difficulty, crossing within a second or two	Minimal difficulty, crossing within a second or two	Minimal difficulty, crossing within a second or two	1 to 3 seconds for all groups	1 to 3 seconds after end of vehicle minimum green period
Vehicle Delay in peak periods	None	None	None	1 stop/minute of 8 seconds	1 stop/minute of 15 seconds
Road Capacity	Not reduced	Not reduced	Not reduced	13% reduction	25% reduction
Vehicle Speeds	Vehicle speeds are within the Posted Speed Limit	Vehicle speeds are within the Posted Speed Limit	Vehicle speeds are within the Posted Speed Limit	LTN 1/95 states that "Zebra crossings should not be installed on roads with an 85 percentile speed of 35 mph"	LTN 1/95 states that "Caution should be exercised where pedestrian flows are generally light or light for long periods of the day. Drivers who become accustomed to not being stopped at the crossing may begin to ignore its existence, with dangerous consequences."

4.4 PV² Criteria

4.4.1 Based on the forecast pedestrian and vehicle flows presented in **Section 4.2** the following results can be derived:

AM Peak Hour P = c.340 V = c.80 $PV^2 = 2,176,000$

PM Peak Hour P = c.90

V = c.30V = c.40 $PV^2 = 144,000$

- 4.4.2 The result of the PV² calculation is less than 10⁸, therefore, a controlled crossing would not be justified based on this methodology.
- 4.4.3 The PV² calculation and derivation of pedestrian and traffic flows can be found in **Appendix E**.



4.5 Appraisal

- 4.5.1 It is considered that an informal pedestrian crossing, comprising dropped kerbs and tactile paving would provide an adequate level of provision, based on the forecast pedestrian and traffic flows.
- 4.5.2 A zebra crossing has been proposed to account for the likely high proportion of school children using the proposed crossing in the AM peak hour.



5 Site 3 – Southern Crossing

5.1 Overview

5.1.1 The proposed crossing is located on the main spine road to the south of Zone A7 and to the north of Zone A8. The crossing links the internal shared pedestrian and cycle route with the eastern access point and provides a route north from Zone A8 towards the proposed school and local centre.

5.2 Site Assessment

5.2.1 The results of the Site Assessment for the southern pedestrian crossing are presented in **Appendix C** and summarised in **Table 5.1**.

Characteristic	Data and Comments
Location	The proposed crossing is located on the main spine road to the south of Zone A7 and to the north of Zone A8.
Highway Facilities	Footways are proposed to both sides of the crossing. Footways are proposed to be 3.0m in width to the north. To the south, footways would be 3.0m in width.
Visibility	Visibility is good in both directions for both pedestrians and cyclists. Visibility of greater than 200m is achievable to the west and 100m to the east.
Complexity	The access to the proposed school is located within 50m of the crossing. The crossing falls along the desire line for the proposed school, playground and local centre trips.
Crossing Traffic	The whole development is proposed and, therefore, there is no existing crossing demand. Following the introduction of the proposed development, it is considered that the highest levels of crossing demand would occur before and after school hours. Forecasts of the demand have been developed from trip generation forecasts presented in the original Transport Assessment for the development. Trips have been split proportionally amongst the zones of the development and assumptions regarding routing have been made. The assessment concludes that up to 361 pedestrians could use the crossing in the AM peak and 108 in the PM peak.
Vehicles	Traffic flows have been derived from the trip generation forecasts presented in the original Transport Assessment for the development. The trip generation has been split proportionally amongst the various zones based on the number of units. Assumptions have been made with regards to the routing of vehicles through the development. The assessment has concluded that a two-way flow of 75 vehicles in the AM peak hour and 37 in the PM peak hour could be expected.
Road Collisions	The crossings and internal roads are yet to be implemented. There is, therefore, no existing personal injury collision history.



5.3 Option Assessment

5.3.1 **Table 5.2** presents the pedestrian crossing options for the southern crossing.

Table 5.2: Southern Crossing - Option Assessment

Factor	Do Nothing	Informal Crossing	Refuge Island	Zebra	Signal Controlled Crossing
Difficulty of Crossing / Average Wait in Seconds	Minimal difficulty, crossing within a second or two	Minimal difficulty, crossing within a second or two	Minimal difficulty, crossing within a second or two	1 to 3 seconds for all groups	1 to 3 seconds after end of vehicle minimum green period
Vehicle Delay in peak periods	None	None	None	1 stop/minute of 8 seconds	1 stop/minute of 15 seconds
Road Capacity	Not reduced	Not reduced	Not reduced	13% reduction	25% reduction
Vehicle Speeds	Vehicle speeds are within the Posted Speed Limit	Vehicle speeds are within the Posted Speed Limit	Vehicle speeds are within the Posted Speed Limit	LTN 1/95 states that "Zebra crossings should not be installed on roads with an 85 percentile speed of 35 mph"	LTN 1/95 states that "Caution should be exercised where pedestrian flows are generally light or light for long periods of the day. Drivers who become accustomed to not being stopped at the crossing may begin to ignore its existence, with dangerous consequences."

5.4 PV² Criteria

5.4.1 Based on the forecast pedestrian and vehicle flows presented in **Section 5.2** the following results can be derived:

AM Peak Hour P = c.370 V = c.80 $PV^2 = 2,368,000$

PM Peak Hour

P = c.110 V = c.40 PV² = 176,000

- 5.4.2 The result of the PV² calculation is less than 10⁸, therefore, a controlled crossing would not be justified based on this methodology.
- 5.4.3 The PV² calculation and derivation of pedestrian and traffic flows can be found in **Appendix E**.



5.5 Appraisal

- 5.5.1 It is considered that an informal pedestrian crossing, comprising dropped kerbs and tactile paving would provide an adequate level of provision, based on the forecast pedestrian and traffic flows.
- 5.5.2 A zebra crossing has been proposed to account for the likely high proportion of school children using the proposed crossing in the AM peak hour.



6 Site 4 – South East Crossing

6.1 Overview

6.1.1 The proposed crossing is located on the main spine road between the two sections of Zone A7. The crossing links the internal shared pedestrian and cycle route with the eastern access point and provides a route north from Zone A8 towards the proposed school and local centre.

6.2 Site Assessment

6.2.1 The results of the Site Assessment for the south east pedestrian crossing are presented in **Appendix D** and summarised in **Table 6.1**.

Characteristic	Data and Comments
Location	The proposed crossing is located on the main spine road between the two sections of Zone A7
Highway Facilities	Footways are proposed to both sides of the crossing. Footways are proposed to be 3.0m in width to the west. To the east, footways would be 3.0m in width.
Visibility	Visibility is good in both directions for both pedestrians and cyclists. Visibility of greater than 200m is achievable to the west and 35m to the east.
Complexity	The access to the road through Zone A8 is located 50m to the west of the crossing.
Crossing Traffic	The whole development is proposed and, therefore, there is no existing crossing demand. Following the introduction of the proposed development, it is considered that the highest levels of crossing demand would occur before and after school hours. Forecasts of the demand have been developed from trip generation forecasts presented in the original Transport Assessment for the development. Trips have been split proportionally amongst the zones of the development and assumptions regarding routing have been made. The assessment concludes that up to 50 pedestrians could use the crossing in the AM peak and 11 in the PM peak.
Vehicles	Traffic flows have been derived from the trip generation forecasts presented in the original Transport Assessment for the development. The trip generation has been split proportionally amongst the various zones based on the number of units. Assumptions have been made with regards to the routing of vehicles through the development. The assessment has concluded that a two-way flow of 42 vehicles in the AM peak hour and 25 in the PM peak hour could be expected.
Road Collisions	The crossings and internal roads are yet to be implemented. There is, therefore, no existing personal injury collision history.

Table 6.1: Site Assessment – South East Crossing



6.3 Option Assessment

6.3.1 **Table 6.2** presents the pedestrian crossing options for the south east crossing.

Table 6.2: South East Crossing - Option Assessment

Factor	Do Nothing	Informal Crossing	Refuge Island	Zebra	Signal Controlled Crossing
Difficulty of Crossing / Average Wait in Seconds	Minimal difficulty, crossing within a second or two	Minimal difficulty, crossing within a second or two	Minimal difficulty, crossing within a second or two	1 to 3 seconds for all groups	1 to 3 seconds after end of vehicle minimum green period
Vehicle Delay in peak periods	None	None	None	1 stop/minute of 8 seconds	1 stop/minute of 15 seconds
Road Capacity	Not reduced	Not reduced	Not reduced	13% reduction	25% reduction
Vehicle Speeds	Vehicle speeds are within the Posted Speed Limit	Vehicle speeds are within the Posted Speed Limit	Vehicle speeds are within the Posted Speed Limit	LTN 1/95 states that "Zebra crossings should not be installed on roads with an 85 percentile speed of 35 mph"	LTN 1/95 states that "Caution should be exercised where pedestrian flows are generally light or light for long periods of the day. Drivers who become accustomed to not being stopped at the crossing may begin to ignore its existence, with dangerous consequences."

6.4 PV² Criteria

6.4.1 Based on the forecast pedestrian and vehicle flows presented in **Section 6.2** the following results can be derived:

AM Peak Hour P = c.40 V = c.30 $PV^2 = 36,000$

PM Peak Hour

- P = c.10V = c.20 $PV^2 = 4,000$
- 6.4.2 The result of the PV² calculation is less than 10⁸, therefore, a controlled crossing would not be justified based on this methodology.
- 6.4.3 The PV² calculation and derivation of pedestrian and traffic flows can be found in **Appendix E**.



6.5 Appraisal

- 6.5.1 It is considered that an informal pedestrian crossing, comprising dropped kerbs and tactile paving would provide an adequate level of provision, based on the forecast pedestrian and traffic flows.
- 6.5.2 A zebra crossing has been proposed to account for the likely high proportion of school children using the proposed crossing in the AM peak hour.



7 Summary and Conclusions

7.1 Summary

- 7.1.1 This Technical Note (TN) has been prepared in association with a reserved matters planning application (planning ref: DC/19/0834/RM) to provide submission of details under outline planning permission (planning ref: DC/15/2151/OUT) for up to 2,500 dwellings on land near Haverhill, Wilsey Road, Little Wratting.
- 7.1.2 The Note presents the assessments for two proposed crossing facilities located on B4349. The assessments have been undertaken in accordance with guidance presented in Local Transport Note (LTN) 1/95 'The Assessment of Pedestrian Crossings' (Department for Transport, 1995) and takes into consideration various factors such as traffic flows, vehicle speeds, pedestrian demand, carriageway and footway geometry and road safety.
- 7.1.3 The Note also considers the 'PV²' value for each location; an industry recognised quantitative method for assessing the need for new pedestrian crossing facilities.

7.2 Conclusions

- 7.2.1 The assessments have considered various crossing types, including informal, Zebra and signal controlled crossing. The appraisals have demonstrated that informal crossings would provide an appropriate level of provision given the existing and future traffic and pedestrian demand, however, given the high proportion of school children using the crossings in the AM peak, Zebra crossings are proposed at all three crossing locations.
- 7.2.2 In all three locations, the forecast PV² did not exceed the recognised thresholds for requiring a controlled pedestrian crossing. Furthermore, it is considered that there is no overriding need for signal controlled provision in any of the four locations.



Appendix A

Appendix A Site Assessment (Site 1 - Northern Crossing)

SITE ASSESSMENT

SITE CHARCTERISTICS

1.1 Site Location		Northern section of the main spine road in northern access and Zone	close proximity to the A1.
1.2 Carriageway Type		Number of Lanes	Single Two Way 2 (total)
1.3 Carriageway Width			6.2m
1.4 Footway Width		Northern Footway (proposed) Southern Footway (proposed)	2.0m 2.0m
1.5 Refuge Island			No
1.6 Road Lighting Standard		BS5489 classification? Is lighting to above standard? Any re-arrangement necessary? Better lighting standard needed? Supplementary lighting needed?	Yes Yes No No
1.7 Minimum Visibility			
	Pedestrian to vehicle Vehicle to crossing	Eastbound Westbound Eastbound Westbound	35m 170m (to roundabout) 35m 200m (to roundabout)
1.8 Waiting/Loading/Stopping Restrictions			
	At prospective site Within 50 metres of the site		No No
1.9 Public Transport Stopping Points	At prospective site Within 50 metres of the site Relationship to crossing	Eastbound Westbound	No No n/a n/a
1.10 Nearby Junctions			05
Distance to heares	t significant traffic junction	To West	n/a
1.11 Other Pedestrian Crossings			
	Distance to next crossing	To East To West	60m n/a
	Type of crossing		Priority
1.12 School Crossing	Patrol distance if less than 10	00 metres	No

1.13 Skid Risk

Does surface meet skid requirement	s
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1.14 Surroundings (entrances within 100	0 metres)	
	Hospital/Sheltered Housing/Workshop for Disabled people	No
	School	No
	Post office	No
	Railway/Bus Station	No
	Pedestrian leisure/Shopping area	No
	Sports stadia/entertainment venue	No
	Junction with cycle route	No
	Equestrian centre or junction with Bridle Path	No
	Others (for example Fire Station)	No
CROSSING TRAFFIC INFORMATION		
2.1 Flow and Composition		
		AM - 70
	Pedestrian count	PM - 22
	Prams/pusjchaors	Unknown
	Precent elderly	Unknown
	Unaccompanied young children	Unknown
	severe mobility difficulties	Unknown
	Visually impaired	Unknown
	Crossing cyclists	2.10%
	Equestrians	Unknown
	Others	Unknown
2.2 Time to cross the road		
	Able pedestrians	6.0 seconds
	Elderly nedestrians	9 0 seconds
2.3 Difficulty of Crossing		
	Able pedestrians	Minimal
	Elderly pedestrians	Minor delay
2.4 Latent Crossing Demand		
-	Estimate	Unlikely
VEHICLE TRAFFIC INFORMNATION		
3.1 Flow and composition		
		AM Peak - 212
	Vehicle count	PIVI PEAK - 140
	Cyclists	Negligble
	Heavy goods vehicles	Negligble
	Public service vehicles	Negligble

3.2 Vehicle Speed

85th Percentile Speed Limit

ROAD COLLISIONS

4.1 Mean Personal Injury Collisions (PIC) Frequency

Number per year at site (over 5 years) Number per year at an average local site (over 5 years)

ĺ	Unknown	(not yet constructed)
ĺ	30 mph	

Assumes 1.2m/s for abled and 0.8m/s for elderley

n/a	
<1	



Appendix B

Appendix B Site Assessment (Site 2 - Central Crossing)

SITE ASSESSMENT

SITE CHARCTERISTICS

1.1. Site Location			
		Northern section of the main spine road northern access and Zo	in close proximity to the one A1.
1.2 Carriageway Type		Number of Longo	Single Two Way
		Number of Lanes	2 (total)
1.3 Carriageway Width			6.2m
1.4 Footway Width		Northern Footway (proposed) Southern Footway (proposed)	3.0m 3.0m
1.5 Refuge Island			No
1.6 Road Lighting Standard		BS5489 classification? Is lighting to above standard? Any re-arrangement necessary? Better lighting standard needed? Supplementary lighting needed?	Yes Yes No No No
1.7 Minimum Visibility			
	Pedestrian to vehicle	Eastbound	>200m
	Vehicle to crossing	Westbound Eastbound Westbound	>200m 155m
1.8 Waiting/Loading/Stopping Restrictions			
	At prospective site Within 50 metres of the site		No No
1.9 Public Transport Stopping Points			
	At prospective site		No
	Relationship to crossing	Eastbound Westbound	n/a n/a
1.10 Nearby Junctions			
Distance to nearest	significant traffic junction	To East To West	n/a 155m
1.11 Other Pedestrian Crossings			
	Distance to next crossing	To East	130m
	Type of crossing	TO West	Priority
1.12 School Crossing			
	Patrol distance if less than 10	00 metres	No

Does surface meet skid requiremen	ts
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1.14 Surroundings (entrances within 10	0 metres)	
	Hospital/Sheltered Housing/Workshop for Disabled people	No
	School	Yes
	Post office	No
	Railway/Bus Station	No
	Pedestrian leisure/Shopping area	No
	Sports stadia/entertainment venue	No
	lunction with cycle route	No
	Equestrian centre or junction with Bridle Path	No
	Others (for example Fire Station)	No
	Others (for example File Station)	NO
CROSSING TRAFFIC INFORMATION 2.1 Flow and Composition		
		AM Peak - 336
	Pedestrian count	PM Peak - 94
	Prams/pusjchaors	Unknown
	Precent elderly	Unknown
	Unaccompanied young children	Unknown
	severe mobility difficulties	Unknown
	Visually impaired	Unknown
	Crossing cyclists	2 10%
	Fauestrians	
	Othere	
	Others	OTIKIOWI
2.2 Time to cross the road		
	Able pedestrians	6.0 seconds
	Elderly pedestrians	9.0 seconds
2.3 Difficulty of Crossing		
	Able pedestrians	Minimal
	Elderly, no destricus	
	Eldeny pedestrians	Minor delay
2.4 Latent Crossing Demand		
2.4 Eatent Grossing Bernand	Estimate	Linlikely
	Loundo	Crimitory
VEHICLE TRAFFIC INFORMNATION		
3.1 Flow and composition		
		AM Peak - 82
	Vehicle count	PIVI Peak - 35
	Cyclists	Negligble
	Heavy goods vehicles	Negligble
	Public service vehicles	Negligble
3.2 Vehicle Speed		
	85th Percentile	Unknown (not)
	Speed Limit	
		50 mpn

ROAD COLLISIONS

4.1 Mean Personal Injury Collisions (PIC) Frequency

Number per year at site (over 5 years) Number per year at an average local site (over 5 years)



Assumes 1.2m/s for abled and 0.8m/s for elderley





Appendix C

Appendix C Site Assessment (Site 3 - Southern Crossing)

SITE ASSESSMENT

SITE CHARCTERISTICS

1.1 Site Location		Northern section of the main spine road in northern access and Zor	n close proximity to the he A1.
1.2 Carriageway Type		Number of Lanes	Single Two Way 2 (total)
1.3 Carriageway Width			6.2m
1.4 Footway Width		Northern Footway (proposed) Southern Footway (proposed)	3.0m 3.0m
1.5 Refuge Island			No
1.6 Road Lighting Standard		BS5489 classification? Is lighting to above standard? Any re-arrangement necessary? Better lighting standard needed? Supplementary lighting needed?	Yes Yes No No
1.7 Minimum Visibility			
	Pedestrian to vehicle Vehicle to crossing	Eastbound Westbound Eastbound Westbound	>200m 100m >200m 100m
1.8 Waiting/Loading/Stopping Restrictions			
	At prospective site Within 50 metres of the site		No No
1.9 Public Transport Stopping Points			
	At prospective site Within 50 metres of the site Relationship to crossing	Eastbound Westbound	No No n/a n/a
1.10 Nearby Junctions			
Distance to nearest	t significant traffic junction	To East To West	40m n/a
1.11 Other Pedestrian Crossings			
	Distance to next crossing	To East To West	56m 47m Priority
1 12 School Crossing			
	Patrol distance if less than 10	00 metres	No

1.13 Skid Risk

Does surface meet skid requirements	ce meet skid requirements
-------------------------------------	---------------------------



1.14 Surroundings (entrances within 10 ⁴	0 metres)	
	Hospital/Sheltered Housing/Workshop for Disabled people	No
	School	No
	Post office	No
	Railway/Bus Station	No
	Pedestrian leisure/Shopping area	No
	Sports stadia/entertainment venue	No
	Junction with cycle route	No
	Equestrian centre or junction with Bridle Path	No
	Others (for example Fire Station)	No
OSSING TRAFFIC INFORMATION		
2.1 Flow and Composition		AM Peak - 368
	Dedectrice count	PM Peak - 111
	Prome/pusichaore	
	Frams/pusjulauis	Unknown
	Frederik ekzeny	Unknown
	onaccompanied young children	Unknown
	Vieuelly impaired	Unknown
		2.10%
		Z.10%
	Equestilans	Unknown
	Others	UNKNOWN
2.2 Time to cross the road		
	Able pedestrians	6.0 seconds
	Elderly pedestrians	9.0 seconds
2.2 Difficulty of Crossing		
2.3 Difficulty of Crossing	Able pedestrians	Minimal
	Elderly pedestrians	Minor delay
2.4 Latent Crossing Demand		
	Estimate	Unlikely
HICLE TRAFFIC INFORMNATION		
5.1 Flow and composition		AM Peak - 75
	Vehicle count	PM Peak - 37
		Neglighte
	Cvclists	INCUILUIC
	Cyclists Heavy goods vehicles	Nealiable
	Cyclists Heavy goods vehicles Public service vehicles	Negligble Negligble Negligble

3.2 Vehicle Speed

85th Percentile Speed Limit

ROAD COLLISIONS

4.1 Mean Personal Injury Collisions (PIC) Frequency

Number per year at site (over 5 years) Number per year at an average local site (over 5 years)

Unknown	(not yet constructed)
30 mph	

Assumes 1.2m/s for abled and 0.8m/s for elderley





Appendix D

Appendix D Site Assessment (Site 4 - South East Crossing)

SITE ASSESSMENT

SITE CHARCTERISTICS

1.1 Site Location		The proposed crossing is located on between the two sections of	the main spine road of Zone A7
1.2 Carriageway Type		Number of Lanes	Single Two Way 2 (total)
1.3 Carriageway Width			6.2m
1.4 Footway Width		Northern Footway (proposed) Southern Footway (proposed)	2.0m 2.0m
1.5 Refuge Island			No
1.6 Road Lighting Standard		BS5489 classification? Is lighting to above standard? Any re-arrangement necessary? Better lighting standard needed? Supplementary lighting needed?	Yes Yes No No
1.7 Minimum Visibility	Pedestrian to vehicle Vehicle to crossing	Eastbound Westbound Eastbound	63m 90m 67m
1.8 Waiting/Loading/Stopping Restrictions		Westbound	>100m
	At prospective site Within 50 metres of the site		No No
1.9 Public Transport Stopping Points	At prospective site Within 50 metres of the site Relationship to crossing	Eastbound Westbound	No No n/a n/a
1.10 Nearby Junctions Distance to nearest	significant traffic junction	To East To West	n/a 52m
1.11 Other Pedestrian Crossings	Distance to next crossing Type of crossing	To East To West	n/a 47m Priority
1.12 School Crossing	Patrol distance if less than 10	00 metres	No

1.13 Skid Risk

ROAD COLLISIONS

4.1 Mean Personal Injury Collisions (PIC) Frequency

Does surface meet skid requirement	s
------------------------------------	---



1.14 Surroundings (entrances within 1)	00 metres)	
3 (Hospital/Sheltered Housing/Workshop for Disabled people	No
	School	No
	Post office	No
	Railwav/Bus Station	No
	Pedestrian leisure/Shopping area	No
	Sports stadia/entertainment venue	No
	Junction with cycle route	No
	Equestrian centre or junction with Bridle Path	No
	Others (for example Fire Station)	No
2.1 Flow and Composition		
		AM Peak - 27
	Pedestrian count	PM Peak - 7
	Prams/pusjchaors	Unknown
	Precent elderly	Unknown
	Unaccompanied voung children	Unknown
	severe mobility difficulties	Unknown
	Visually impaired	Unknown
	Crossing cyclists	2 10%
	Fauestrians	
	Others	Linknown
2.2 Time to cross the road		<u></u>
	Able pedestrians	6.0 seconds
	Elderly pedestrians	9.0 seconds
2.3 Difficulty of Crossing		
, ,	Able pedestrians	Minimal
	Elderly pedestrians	Minor delay
2.4 Latent Crossing Demand		
-	Estimate	Unlikely
VEHICLE TRAFFIC INFORMNATION		
3.1 Flow and composition		
-		AM Peak - 27
	Vehicle count	PM Peak - 16
	Cyclists	Negligble
	Heavy goods vehicles	Negligble
	Public service vehicles	Negligble
3.2 Vehicle Speed		
	85th Percentile	Unknown (not v

Speed Limit

Number per year at site (over 5 years)

Number per year at an average local site (over 5 years)

Unknown (not yet constructed) 30 mph

Assumes 1.2m/s for abled and 0.8m/s for elderley

n/a <1



Appendix E

Vehicle Flows

Peak Hour Development Flows Derived from TA from outline planning application DC/15/1251/OUT

		AM Peak			PM Peak	
Land Use	Arr.	Dep.	2-Way	Arr.	Dep.	2-Way
Residential	423	1013	1436	990	618	1608
Primary Schools	221	149	370	4	17	21
B1 Employment	37	6	43	6	35	41
Total	681	1168	1849	1000	670	1670

Assumptions

TA states that all school/employment trips will be internal trips only, except for trips associated with 137 school places. The remaining 493 school places are internal trips.

		AM Peak			PM Peak	
School Vehicular Trips	Arr.	Dep.	2-Way	Arr.	Dep.	2-Way
External	48	33	81	1	4	5
Internal	173	116	289	3	13	16
Total	221	149	370	4	17	21
Taken from Figure 8h of TA						
		AM Peak			PM Peak	
Total External Trips	Arr.	Dep.	2-Way	Arr.	Dep.	2-Way
Residential	423	1013	1346	990	618	1608
Primary and Secondary Schools	82	59	141	3	9	12
Employment	37	6	43	6	35	41

Internal Vehicular Trip Distribution - Trips from Residential to Schools

Only trips from school in north-west section of development (Zones A1-A8 and D1) result in internal trips in the north-western section of the development.

					No	o. Trips					Norther	n Crossing			Central	Crossing			Southerr	Crossing			South Eas	st Crossing	
		% share of		AM Peak			PM Pea	ık		AM	l Peak	PM	Peak	AM I	Peak	PM	Peak	AM	Peak	PM	Peak	AM	Peak	PM	l Peak
Zone	Units	trips	Arr.	Dep.	2-Way	Arr.	Dep.	2-Way	Routing Assumptions	Westbound	Eastbound	Westbound	Eastbound	Westbound	Eastbound	Westbound	Eastbound	Westbound	Eastbound	Westbound	Eastbound	Westbound	Eastbound	Westbound	Eastbound
A1	60	3%	5	3	9	0	0	0	Trips route along main spine road and do not pass any of the pedestrian crossings.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
A.2	140	70/	10	0	20	0	1	1	50% of trips route along the northern road and 50% along the southern road, therefore 50% of	6	4	0	0	6	4	0	0	0	0	0	0	0	0	0	0
A2	140	/ 70	12	о Г	20	0	1	1	All tring route through control grossing	0	4	0	0	0	4	0	0	0	0	0	0	0	0	0	0
A3	00	4%	0	5	15	0	1	1	All trips route through central crossing.	0	0	0	0	0 10	5	0	1	0	0	0	0	0	0	0	0
A4	120	6%	10	/	1/	0	1	1	All trips route through central crossing.	0	0	0	0	10	/	0	1	0	0	0	0	0	0	0	0
A5	/0	3%	6	4	10	0	0	1	All trips route through central crossing.	0	0	0	0	6	4	0	0	0	0	0	0	0	0	0	0
A6	26	1%	2	1	4	0	0	0	All trips route through central crossing.	0	0	0	0	2	1	0	0	0	0	0	0	0	0	0	0
A7	103	5%	9	6	15	0	1	1	2/3 route through southern crossing and 1/4 route through South East crossing	0	0	0	0	0	0	0	0	6	4	0	0	2	1	0	0
A8	245	12%	21	14	35	0	2	2	All trips route through southern crossing and 1/4 route through South East crossing.	0	0	0	0	0	0	0	0	21	14	0	2	5	4	0	0
A9	81	4%	7	5	12	0	1	1																	
A10	204	10%	17	12	29	0	1	2																	
A11	105	5%	9	6	15	0	1	1																	
A12	280	14%	24	16	40	0	2	2																	
A13	208	10%	18	12	30	0	1	2																	
A14	129	6%	11	7	18	0	1	1	Located in south-east section of the development and internal school trips will not impact upon																
A15	80	4%	7	5	11	0	1	1	proposed crossings.																
B1	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	No residential development, will not produce school trips.																
B2	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	Located in south-east section of the development and internal school trips will not impact upon																
C1	40	2%	3	2	6	0	0	0	proposed crossings.																
D1 *Assumed to be Zone A16 in																									
current proposals	40	2%	3	2	6	0	0	0	Trips route along main spine road and do not pass any of the pedestrian crossings.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	2019	1	173	3 116	5 28	89	3	13 16		6	4	0	0	32	21	1	2	27	18	0	2	7	5	0	1

External Vehicular Trip Distribution

Distribution by access taken from DC/19/0834/RM Southern Junction Traffic Movements

					No.	Trips								Northerr	n Crossing			Central C	rossing			Southern	Crossing			South Eas	st Crossing	
		% share of		AM Peak			PM Peak	ζ.		Northern	Southern	Eastern	AM P	eak	PM P	Peak	AM P	Peak	PM P	eak	AM P	eak	PM P	eak	AMI	' eak	PM F	Peak
Zone	Units	trips	Arr.	Dep.	2-Way	Arr.	Dep.	2-Way	Routing Assumptions	Access	Access	Access	Westbound	Eastbound	Westbound	Eastbound	Westbound	Eastbound	Westbound	Eastbound	Westbound	Eastbound	Westbound	Eastbound	Westbound	Eastbound	Westbound	Eastbound
A1	60	3%	13	30	43	29	18	48	All trips route through the northern crossing.	100%	0%	0%	13	30	29	18	0	0	0	0	0	0	0	0	0	0	0	0
A2	140	7%	29	70	100	69	43	112	No trips route via the crossings.	100%	0%	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
A3	88	4%	18	44	63	43	27	70	No trips route via the crossings.	100%	0%	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
A4	120	6%	25	60	85	59	37	96	1/3 of trips route via the central and northern crossings.	100%	0%	0%	8	20	20	12	20	8	12	20	0	0	0	0	0	0	0	0
A5	70	3%	15	35	50	34	21	56	No trips route via the crossings.	100%	0%	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
A6	26	1%	5	13	18	13	8	21	No trips route via the crossings.	100%	0%	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
									2/3 of trips via the northern access route via the southern crossing and all via the northen																	· · · · · · · · · · · · · · · · · · ·		
									crossing. 1/3 of trips via the eastern access route via the southern crossing. 1/4 of trips via the																	·		
A7	103	5%	22	52	73	51	32	82	eastern access route via the South East crossing	25%	0%	75%	5	13	13	8	0	0	0	0	14	17	18	16	4	10	9	6
A8	245	12%	51	123	174	120	75	195	No trips route via the crossings.	0%	75%	25%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
А9	81	4%	17	41	58	40	25	65		0%	0%	100%														· · · · · · · · · · · · · · · · · · ·		
A10	204	10%	43	102	145	100	62	162		0%	0%	100%														ı,		
A11	105	5%	22	53	75	51	32	84		0%	0%	100%														,,		
A12	280	14%	59	140	199	137	86	223		0%	0%	100%														í,		
A13	208	10%	44	104	148	102	64	166		0%	0%	100%														í,		
A14	129	6%	27	65	92	63	39	103		0%	0%	100%														ı ——,		
A15	80	4%	17	40	57	39	24	64	Route via southern access so do not impact upon pedestrian crossings.	0%	0%	100%														ı ———,		
B1 - School	2.2	59%	49	35	84	2	5	7	100% route ia northern crossing.	100%	0%	0%	49	35	2	5	0	0	0	0	0	0	0	0	0	0	0	0
B2 - School	1.5	41%	33	24	57	1	4	5		0%	0%	100%														,,		
	40	2%	8	20	28	20	12	32		0%	0%	100%														1,		
C1	1,225	15%	6	1	7	1	6	7	Route via southern access so do not impact upon pedestrian crossings.	0%	0%	100%														, 		
																										,,		
D1 *Assumed to be Zone A16 in	40	2%	8	20	28	20	12	32	100% route via the northern crossing.	100%	0%	0%	8	20	20	12	0	0	0	0	0	0	0	0	0	0	0	0
current proposals	6,825	85%	31	5	36	5	30	35	100% route via the northern crossing.	100%	0%	0%	31	5	5	30	0	0	0	0	0	0	0	0	0	0	0	0
Total		2	511	1073	1584	994	633	1627					83	118	83	56	20	8	12	20	14	17	18	16	4	10	9	6

*Only trips routing through the northern and eastern accesses will route through the pedestrian crossings.

Total Pedestrian Crossing Traffic Flows

	AM	Peak	PM	Peak
Crossing	WB	EB	WB	EB
Northern	89	122	83	57
Central	52	30	13	22
Southern	41	35	18	18
South East	12	15	10	6

Pedestrian Flows

Pedestrian Trip Generation - Extracted from TA (DC/19/0834/RM)

External Trips

		AM Peak			PM Peak					
Land Use	Arr.	Dep.	2-Way	Arr.	Dep.	2-Way				
Residential	122	292	414	285	178	463				
School**	435	16	451	-	-	-				
Employment 0 0 0 0 0 0										
*Assumed external trips and includes cycle trips.										

*Assumed external trips and includes cy **Secondary school trips.

External Trip Distribution

Assumed that there are no external primary school trips undertaken on foot. Assumed that secondary school trips are split amongst the residential zones.

			No. Trips										Northern	Crossing			Central	Crossing			Southern	Crossing			South Ea	st Crossing		
		% share of		AM Peak			PM Pea	k		Northern	Southern		AM	Peak	PM	Peak	AM	l Peak	PM	Peak	AM	Peak	PM	Peak	AM	Peak	PM P	eak
Zone	Units	trips	Arr.	Dep.	2-Way	Arr.	Dep.	2-Way	Routing Assumptions	Access	Access	Eastern Access	Northbound	Southbound	Northbound	Southbound												
A1	60	3%	17	9	26	8	5	14	North access peds don't cross. Eastern access route through northern, central and	25%	0%	75%	12	7	6	4	12	7	6	4	12	7	6	4	0	0	0	0
									North access peds don't use any crossings. Eastern access use central and																			
A2	140	7%	39	21	60	20	12	32	southern crossings.	25%	0%	75%	0	0	0	0	29	16	15	9	29	16	15	9	0	0	0	0
									North access peds don't use any crossings. Eastern access use central and																			
A3	88	4%	24	13	38	12	8	20	southern crossings.	25%	0%	75%	0	0	0	0	18	10	9	6	18	10	9	6	0	0	0	0
									Northern access route via northern crossing. Eastern access use central and																			
A4	120	6%	33	18	51	17	11	28	southern crossings.	25%	0%	75%	5	8	3	4	25	14	13	8	25	14	13	8	0	0	0	0
									North access peds don't use any crossings. Eastern access use central and																			
A5	70	3%	19	11	30	10	6	16	southern crossings.	25%	0%	75%	0	0	0	0	14	8	7	5	14	8	7	5	0	0	0	0
									North access peds don't use any crossings. Eastern access use central and																			
A6	26	1%	7	4	11	4	2	6	southern crossings.	25%	0%	75%	0	0	0	0	5	3	3	2	5	3	3	2	0	0	0	0
A7	103	5%	28	16	44	15	9	24	3/4 use southern crossing. 1/4 use South East crossing	0%	0%	100%	0	0	0	0	0	0	0	0	21	12	11	7	7	4	4	2
A8	245	12%	68	37	105	35	22	56	No trips use crossings.	0%	25%	75%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
A9	81	4%	22	12	35	11	7	19		0%	0%	100%																
A10	204	10%	56	31	87	29	18	47		0%	0%	100%																
A11	105	5%	29	16	45	15	9	24		0%	0%	100%																
A12	280	14%	77	43	120	40	25	64		0%	0%	100%																
A13	208	10%	57	32	89	29	18	48		0%	0%	100%																
A14	129	6%	36	20	55	18	11	30		0%	0%	100%																
A15	80	4%	22	12	34	11	7	18		0%	0%	100%																
	40	2%	11	6	17	6	4	9		0%	0%	100%																
C1	1,225	15%	0	0	0	0	0	0		0%	0%	100%																
D1 *Assumed to									Northern access route via northern crossing. Eastern access route via southern																			
be Zone A16 in	40	2%	11	6	17	6	4	9	crossing.	25%	0%	75%	2	3	1	4	8	5	4	3	8	5	4	3	3	7	0	0
current	6,825	85%	0	0	0	0	0	0		25%	0%	75%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total		1	557	308	865	285	178	463					19	18	10	12	113	62	58	36	134	74	68	43	10	11	5	2

Internal Trips

Internal trips are associated with the primary schools. The TA states that 493 school children would be internal to the development, of which 116 were assumed that these trips occur in the AM peak only. Paretn would arrive with their children (754 arrivals) and depart (377 x 2 = 754 pedestrians), spread across all of the residential areas. it is assumed that these trips occur in the AM peak only. Paretn would arrive with their children (754 arrivals) and depart (377) without children. This is a robust assumption as there will be some groups of children with fewer than one adult per child.

					No	. Trips					Norther	n Crossing			Central C	rossing			Southern	Crossing			South Eas	t Crossing	
		% share of	f	AM Peak			PM Pe	ak		AM	l Peak	PM	Peak	AM Peak		PM	Peak	AM	Peak	PM I	Peak	AM	Peak	PM	Peak
Zone	Units	trips	Arr.	Dep.	2-Way	Arr.	Dep.	2-Way	Routing Assumptions	Northbound	Southbound	Northbound	Southbound	Northbound Sou	uthbound	Northbound	Southbound								
A1	60	3%	22	11	34	0	0	0	Route via northern and central crossings.	11	22	0	0	11	22	0	0	0	0	0	0	0	0	0	0
A2	140	7%	52	26	78	0	0	0	Route via central crossing.	0	0	0	0	26	52	0	0	0	0	0	0	0	0	0	0
A3	88	4%	33	16	49	0	0	0	Route via central crossing.	0	0	0	0	16	33	0	0	0	0	0	0	0	0	0	0
A4	120	6%	45	22	67	0	0	0	Doesn't route via any crossings.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
A5	70	3%	26	13	39	0	0	0	Doesn't route via any crossings.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
A6	26	1%	10	5	15	0	0	0	Doesn't route via any crossings.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
A7	103	5%	38	19	58	0	0	0	3/4 don't route via any crossing. 1/4 route via south east crossing	0	0	0	0	0	0	0	0	0	0	0	0	10	5	0	0
A8	245	12%	91	46	137	0	0	0	Routes via southern crossing.	0	0	0	0	0	0	0	0	91	46	0	0	0	0	0	0
A9	81	4%	30	15	45	0	0	0																	
A10	204	10%	76	38	114	0	0	0																	
A11	105	5%	39	20	59	0	0	0																	
A12	280	14%	105	52	157	0	0	0																	
A13	208	10%	78	39	117	0	0	0																	
A14	129	6%	48	24	72	0	0	0																	
A15	80	4%	30	15	45	0	0	0																	
C1	40	2%	15	7	22	0	0	0																	
D1 *Assumed to																									
be Zone A16 in																									
current																									
proposals	40	2%	15	7	22	0	0	0	Routes via cetral crossing.	0	0	0	0	0	0	0	0	7	15	0	0	0	0	0	0
Total	2019	1	754	377	1131	0	0	0		11	22	0	0	54	108	0	0	99	61	0	0	10	5	0	0

Total Pedestrian Movement (including cyclists)

	AM	Peak	PM	Peak
Crossing	NB	SB	NB	SB
Northern	30	40	10	12
Central	166	170	58	36
Southern	233	135	68	43
South East	19	16	5	2

Site 1 Northern Crossing- PV² Calculation

P = the pedestrian flow (pedestrians / hour) across a 100m length of road centred on the proposed crossing site. V = the number of vehicles in both directions (vehicles / hour).

TfL Guidance (SQA-0064) - 'Design Standards for Signal Schemes in London' The PV^2 value should be the average over the four busiest hours of the day and a crossing is normally justified where the calculated value of PV^2 is equal to or greater than 1×10^8 on an undivided road or 2×10^8 on a carriageway incorporating a staggered crossing.

For the purposes of this assessment, only the peak hour has been assessed. However this is considered to provide a more robust assessment.

AM Peak Hour	PM Peak Hour
Pedestrian Demand	Pedestrian Demand
Forecast Demand	Forecast Demand
Northbound30Southbound40	Northbound10Southbound12
Vehicle Demand	Vehicle Demand



PV² Calculation

		Rounded
P =	70	70
V =	212	210
$PV^2 =$		3,087,000



		Rounded
P =	22	20
V =	140	140
$PV^2 =$		392,000



Site 2 Central Crossing - PV² Calculation

P = the pedestrian flow (pedestrians / hour) across a 100m length of road centred on the proposed crossing site. V = the number of vehicles in both directions (vehicles / hour).

TfL Guidance (SQA-0064) - 'Design Standards for Signal Schemes in London' The PV^2 value should be the average over the four busiest hours of the day and a crossing is normally justified where the calculated value of PV^2 is equal to or greater than 1×10^8 on an undivided road or 2×10^8 on a carriageway incorporating a staggered crossing.

For the purposes of this assessment, only the peak hour has been assessed. However this is considered to provide a more robust assessment.

AM Peak Hour	PM Peak Hour
Pedestrian Demand	Pedestrian Demand
Forecast Demand	Forecast Demand
Northbound 166 Southbound 170	Northbound 58 Southbound 36
Vehicle Demand	Vehicle Demand



PV² Calculation

		Rounded
P =	336	340
V =	82	80
$PV^2 =$		2,176,000



		Rounded
P =	94	90
V =	35	40
$PV^2 =$		144,000



Site 3 Southern Crossing - PV² Calculation

P = the pedestrian flow (pedestrians / hour) across a 100m length of road centred on the proposed crossing site. V = the number of vehicles in both directions (vehicles / hour).

TfL Guidance (SQA-0064) - 'Design Standards for Signal Schemes in London' The PV^2 value should be the average over the four busiest hours of the day and a crossing is normally justified where the calculated value of PV^2 is equal to or greater than 1×10^8 on an undivided road or 2×10^8 on a carriageway incorporating a staggered crossing.

For the purposes of this assessment, only the peak hour has been assessed. However this is considered to provide a more robust assessment.

AM Peak Hour	PM Peak Hour
Pedestrian Demand	Pedestrian Demand
Forecast Demand	Forecast Demand
Northbound233Southbound135	Northbound68Southbound43
Vehicle Demand	Vehicle Demand



PV² Calculation

		Rounded
P =	368	370
V =	75	80
$PV^2 =$		2,368,000



		Rounded
P =	111	110
V =	37	40
$PV^2 =$		176,000



Site 4 South-East Crossing - PV² Calculation

P = the pedestrian flow (pedestrians / hour) across a 100m length of road centred on the proposed crossing site. V = the number of vehicles in both directions (vehicles / hour).

TfL Guidance (SQA-0064) - 'Design Standards for Signal Schemes in London' The PV^2 value should be the average over the four busiest hours of the day and a crossing is normally justified where the calculated value of PV^2 is equal to or greater than 1×10^8 on an undivided road or 2×10^8 on a carriageway incorporating a staggered crossing.

For the purposes of this assessment, only the peak hour has been assessed. However this is considered to provide a more robust assessment.

AM Peak Hour		PM Peak Hour	
Pedestrian Demand		Pedestrian Demand	
Forecast Demand		Forecast Demand	
Northbound	19	Northbound	5
Southbound	16	Southbound	2
Vehicle Demand		Vehicle Demand	



PV² Calculation

		Rounded
P =	35	40
V =	26	30
$PV^2 =$		36,000



		Rounded
P =	7	10
V =	16	20
$PV^2 =$		4,000

