SURREY COUNTY COUNCIL

C164 Chessington Road j/w Derek Avenue, West Ewell

Proposed Pedestrian Crossings

Feasibility Report

October 2015

Project Title: C164 Chessington Road, West Ewell

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Sign .....

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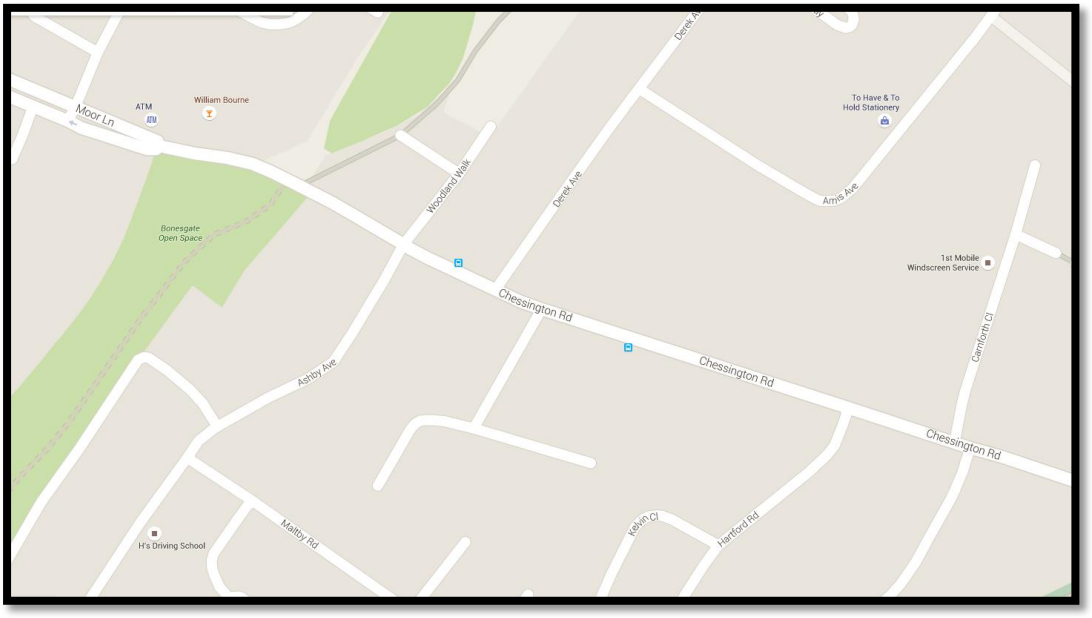
1. INTRODUCTION:

C164 Chessington Road, situated in West Ewell is a relatively busy 30mph residential 2-way road that connects Chessington village and Ewell village, with the carriageway averaging at 6.4m in width. Chessington Road features as part of Surrey's bus network, being a part of the 467 bus route with associated footways averaging 1.7m in width making them suitable locations for bus stops.



2. SITE ANALYSIS:

Chessington Road is situated in an area well utilised by pedestrians due to its location in a residential urban area. As well as being located within walking distance of Horton Country Park and Bonesgate Open Space. But equally it is a road heavily used by all types and sizes of vehicles, denoting the need to consider whether a safe pedestrian crossing point is required.

This study examines the possibility of providing a crossing point between the two existing bus stops either side of the junction with Derek Avenue, to ease the movement of pedestrians. The straight nature of the road with good visibility distances, and existing street lighting would seem to make this section of road a suitable location for a pedestrian crossing. However there are other criteria which must be considered before a final decision is made.

3. DATA COLLECTION:

3.1 Statutory Authorities Plant Request;

The following Statutory Authorities were approached with a level C2 Enquiry in September 2015. It should be noted that C2 enquiries are preliminary enquiries only and that depth of cover and possible costs of diversion would have to be established at the detailed design stage, prior to construction:

- Scotia Gas Networks
- BT
- UK Power Networks (electricity)
- Thames Water
- Virgin Media
- Linesearch – National Grid
- Sutton and East Surrey water

The following Statutory Authorities do not have any apparatus in the area:

- Scottish and Southern (electricity)
- South East Water
- Affinity Water
- Traffic Signals (SCC)

Referring to the Statutory Authority plans, there could potentially be diversionary or protective works for all of the authorities who have apparatus in the area apart from Traffic signals. Some of the conflict could potentially be overcome at the detailed design stage but there is the potential for significant additional costs. Costs for such works can only be identified at the detailed design stage. Copies of the C2 replies are available upon request.

3.2 Vehicle Survey Analysis;

3.2.1 Speed and volume surveys

Full automatic traffic speed and volume surveys were carried out at two separate locations along Chessington Road, either side of the junction with Derek Avenue between 28th September 2015 and 5th October 2015. The table below (page 8) shows the 85%ile and mean speeds and the overall daily volume of vehicles.

Site 1: Chessington Road, West Ewell (Bus Stop) TQ 19359 63916 – East of the junction with Derek Avenue:

Eastbound 85%ile	Westbound 85%ile	Eastbound mean	Westbound mean	Eastbound daily flow	Westbound daily flow
35.1	35.2	27.7	28.8	7707	8166

Site 2: Chessington Road, West Ewell (Bus Stop) TQ 19464 63880 – West of the junction with Derek Avenue:

Eastbound 85%ile	Westbound 85%ile	Eastbound mean	Westbound mean	Eastbound daily flow	Westbound daily flow
35.4	36.1	28.7	29.8	7819	9019

The speed information above was collected during free flowing traffic in order to provide an accurate insight into speeds along this stretch of road. Surrey County Council adopted a new speed limit policy on 3rd July 2014, which places a greater emphasis on the mean speed of vehicles and when compared to this, the existing mean speeds are well within the allowable thresholds.

In terms of vehicle flows, the main indication is that site 2 (west of the junction with Derek Avenue) has the highest volume of traffic. However the difference is minimal. In general it can be said that the westbound traffic travels at a greater speed with the westbound mean speed reaching 29.8mph, however the speed limit difference between sites is minimal.

3.3 Pedestrian Analysis;

Pedestrian counts were undertaken on 29th September 2015 (Tuesday), 1st October 2015 (Thursday) and 3rd October 2015 (Saturday) in order to assess pedestrian movements within the same areas as the vehicle speed and volume survey.

See page 9-14 for the summary of pedestrian data (see appendix for a larger copy of the drawing:


WOODLAND WALK
DEREK AVENUE
CHESSINGTON ROAD
HEADLEY CLOSE
CLOSE
Site A:
Total number of pedestrians crossing:
Tues 29th September:
N/Bound between 07:00 - 19:00: 3
S/bound between 07:00 - 19:00: 2
Thurs 1st October:
N/Bound between 07:00 - 19:00: 20
S/bound between 07:00 - 19:00: 7
Sat 3rd October:
N/Bound between 07:00 - 19:00: 5
S/bound between 07:00 - 19:00: 10
Site B:
Total number of pedestrians crossing:
Tues 29th September:
N/Bound between 07:00 - 19:00: 3
S/bound between 07:00 - 19:00: 2
Thurs 1st October:
N/Bound between 07:00 - 19:00: 3
S/bound between 07:00 - 19:00: 1
Sat 3rd October:
N/Bound between 07:00 - 19:00: 3
S/bound between 07:00 - 19:00: 3
Site D:
Total number of pedestrians crossing:
Tues 29th September:
N/Bound between 07:00 - 19:00: 7
S/bound between 07:00 - 19:00: 17
Thurs 1st October:
N/Bound between 07:00 - 19:00: 4
S/bound between 07:00 - 19:00: 7
Sat 3rd October:
N/Bound between 07:00 - 19:00: 4
S/bound between 07:00 - 19:00: 7
PEDESTRIAN SURVEY DATA
C164 CHESSINGTON ROAD J/W DEREK AVENUE
SURREY
PC0621
0621-002
PRESENTATION

Below is the breakdown of the data at the three sites on each day:

Tues 29th September 2015

Site A:

Direction	N/bound between Headley Close and 530 Chessington Road							
Time	Adults			Children: School age and under			Prams/ Disabled	Total
		With Cycles	Total		With Cycles	Total		
07:00 – 19:00	5	1	6	1	0	1	0	7
08:00 – 09:00	0	0	0	0	0	0	0	0
17:00 – 18:00	0	0	0	0	0	0	0	0

Direction	S/bound between Headley Close and 530 Chessington Road							
Time	Adults			Children: School age and under			Prams/ Disabled	Total
		With Cycles	Total		With Cycles	Total		
07:00 – 19:00	7	2	9	0	0	0	1	10
08:00 – 09:00	0	0	0	0	0	0	0	0
17:00 – 18:00	0	0	0	0	0	0	0	0

Site B:

Direction	N/bound between Headley Close and Derek Avenue							
Time	Adults			Children: School age and under			Prams/ Disabled	Total
		With Cycles	Total		With Cycles	Total		
07:00 – 19:00	2	1	3	0	0	0	0	3
08:00 – 09:00	0	0	0	0	0	0	0	0
17:00 – 18:00	0	0	0	0	0	0	0	0

Direction	S/bound between Headley Close and Derek Avenue							
Time	Adults			Children: School age and under			Prams/ Disabled	Total
		With Cycles	Total		With Cycles	Total		
07:00 – 19:00	2	0	2	0	0	0	0	2
08:00 – 09:00	0	0	0	0	0	0	0	0
17:00 – 18:00	0	0	0	0	0	0	0	0

Site D:

Direction	N/bound between Derek Avenue and Ashby Avenue							
Time	Adults			Children: School age and under			Prams/ Disabled	Total
		With Cycles	Total		With Cycles	Total		
07:00 – 19:00	16	1	17	2	1	3	2	22
08:00 – 09:00	1	0	1	0	1	1	0	2
17:00 – 18:00	0	0	0	0	0	0	0	0

Direction	S/bound between Derek Avenue and Ashby Avenue							
Time	Adults			Children: School age and under			Prams/ Disabled	Total
		With Cycles	Total		With Cycles	Total		
07:00 – 19:00	7	3	10	3	0	3	0	13
08:00 – 09:00	0	0	0	0	0	0	0	0
17:00 – 18:00	1	2	3	0	0	0	0	3

Thurs 1st October 2015

Site A:

Direction	N/bound between Headley Close and 530 Chessington Road							
Time	Adults			Children: School age and under			Prams/ Disabled	Total
		With Cycles	Total		With Cycles	Total		
07:00 – 19:00	4	0	4	0	0	0	0	4
08:00 – 09:00	0	0	0	0	0	0	0	0
17:00 – 18:00	2	0	2	0	0	0	0	2

Direction	S/bound between Headley Close and 530 Chessington Road							
Time	Adults			Children: School age and under			Prams/ Disabled	Total
		With Cycles	Total		With Cycles	Total		
07:00 – 19:00	1	1	2	1	0	1	0	3
08:00 – 09:00	0	0	0	0	0	0	0	0
17:00 – 18:00	1	0	1	0	0	0	0	1

Site B:

Direction	N/bound between Headley Close and Derek Avenue							
Time	Adults			Children: School age and under			Prams/ Disabled	Total
		With Cycles	Total		With Cycles	Total		
07:00 – 19:00	1	2	3	0	0	0	0	3
08:00 – 09:00	0	0	0	0	0	0	0	0
17:00 – 18:00	0	0	0	0	0	0	0	0

Direction	S/bound between Headley Close and Derek Avenue							
Time	Adults			Children: School age and under			Prams/ Disabled	Total
		With Cycles	Total		With Cycles	Total		
07:00 – 19:00	1	0	1	0	0	0	0	1
08:00 – 09:00	0	0	0	0	0	0	0	0
17:00 – 18:00	0	0	0	0	0	0	0	0

Site D:

Direction	N/bound between Derek Avenue and Ashby Avenue							
Time	Adults			Children: School age and under			Prams/ Disabled	Total
		With Cycles	Total		With Cycles	Total		
07:00 – 19:00	9	4	13	3	2	5	2	20
08:00 – 09:00	1	0	1	0	0	0	0	1
17:00 – 18:00	1	1	2	0	0	0	0	2

Direction	S/bound between Derek Avenue and Ashby Avenue							
Time	Adults			Children: School age and under			Prams/ Disabled	Total
		With Cycles	Total		With Cycles	Total		
07:00 – 19:00	3	1	4	3	0	3	0	7
08:00 – 09:00	0	0	0	0	0	0	0	0
17:00 – 18:00	1	0	1	0	0	0	0	1

Sat 3rd October 2015

Site A:

Direction	N/bound between Headley Close and 530 Chessington Road							
Time	Adults			Children: School age and under			Prams/ Disabled	Total
		With Cycles	Total		With Cycles	Total		
07:00 – 19:00	4	0	4	0	0	0	0	4
08:00 – 09:00	0	0	0	0	0	0	0	0
17:00 – 18:00	0	0	0	0	0	0	0	0

Direction	S/bound between Headley Close and 530 Chessington Road							
Time	Adults			Children: School age and under			Prams/ Disabled	Total
		With Cycles	Total		With Cycles	Total		
07:00 – 19:00	3	0	3	0	0	0	0	3
08:00 – 09:00	1	0	1	0	0	0	0	1
17:00 – 18:00	0	0	0	0	0	0	0	0

Site B:

Direction	N/bound between Headley Close and Derek Avenue							
Time	Adults			Children: School age and under			Prams/ Disabled	Total
		With Cycles	Total		With Cycles	Total		
07:00 – 19:00	2	0	2	1	0	1	0	3
08:00 – 09:00	0	0	0	0	0	0	0	0
17:00 – 18:00	0	0	0	0	0	0	0	0

Direction	S/bound between Headley Close and Derek Avenue							
Time	Adults			Children: School age and under			Prams/ Disabled	Total
		With Cycles	Total		With Cycles	Total		
07:00 – 19:00	0	0	0	0	0	0	0	0
08:00 – 09:00	0	0	0	0	0	0	0	0
17:00 – 18:00	0	0	0	0	0	0	0	0

Site D:

Direction	N/bound between Derek Avenue and Ashby Avenue							
Time	Adults			Children: School age and under			Prams/ Disabled	Total
		With Cycles	Total		With Cycles	Total		
07:00 – 19:00	5	0	5	0	0	0	0	5
08:00 – 09:00	0	0	0	0	0	0	0	0
17:00 – 18:00	0	0	0	0	0	0	0	0

Direction	S/bound between Derek Avenue and Ashby Avenue							
Time	Adults			Children: School age and under			Prams/ Disabled	Total
		With Cycles	Total		With Cycles	Total		
07:00 – 19:00	7	3	10	0	0	0	0	10
08:00 – 09:00	0	0	0	0	0	0	0	0
17:00 – 18:00	0	0	0	0	0	0	0	0

The above pedestrian survey data highlights that in general the road in question is not heavily crossed by pedestrians with the maximum number of people in a 12 hour period crossing a section of Chessington Road in either direction reached 35. In general it was evidenced that during the rush hour period at either end of the day, no pedestrians crossed Chessington Road. However it is clear that the most heavily used section of road to cross was site D (between Derek Avenue and Ashby Avenue.

As shown in appendix C Chessington Road's footway are relatively well utilised but as shown in the data above a relatively small number of those pedestrians cross the road. This questions the need for a pedestrian crossing in this location.

3.4 Collision Data;

The recorded collision data shows that there were 11 collisions in the vicinity of Chessington Road between the junction with Ashby Avenue and Hartford road in the 5 year period prior to June 2015. Of these only one involved a pedestrian who ran across the road and was hit by the passing vehicle. The others involved various collisions involving vehicle on vehicle.

The 11 collisions in question are unrelated and have not been recorded as speed related.

4. DISCUSSION AND OPTIONS:

As a result of the data collected it would seem the desire line for people crossing Chessington Road is between Derek Avenue and Ashby Avenue (site D of the pedestrian survey). Therefore the following options will examine the possibility of installing a provision for pedestrians to cross in that area, taking into account all the data which has been collected and examined previously in the report.

4.1 Puffin Crossing

A signalised crossing as highlighted in the LTN 1/95 (the assessment of pedestrian crossing, 1995) is most suited to roads where traffic volume is high and where pedestrian demand is high. As demonstrated in section 3.2 (vehicle survey analysis) the vehicle demand is relatively high but not to a point at which there are no suitable gaps in the traffic flow. But equally the demand for pedestrians is low as shown in section 3.3. For example at the desire line (between the junction with Derek Avenue and Ashby Avenue), from 7:00 to 19:00 the highest number of people to cross Chessington Road was 35 people. This is an issue again highlighted in the LTN 1/95 whereby when pedestrian's flows are generally light for long periods of the day caution must be exercised. 'Drivers who become accustomed to not being stopped at the crossing may being to ignore its existence, with dangerous consequences,' (LTN 1/95, 1995) with the problem accentuating as speeds increase.

It has also be noted that at rush hour the existing signals to the east at the junction with Ruxley Lane and to the west at the junction with Gilders Road often causes traffic to be near stationary. As a result a further signalised crossing at the junction with Derek Avenue is likely to cause further stationary traffic, resulting in traffic backing up further in either direction.

Guide Price: £120,000

4.2 Zebra Crossing

According to the LTN 1/95 (the assessment of pedestrian crossings, 1995) it states, 'zebra crossings should not be installed on roads with an 85th percentile speed of 35mph or above.' Therefore as a result of the outcome of our vehicle survey (item 3.2) the 85th percentile speeds came in over 35mph and therefore is not advisable to install a zebra crossing in this location due to issues related to safety.

Guide Price: N/A

4.3 Pedestrian Refuge

The road width averages at 6.4m, which meant we do not have the space to fit in a pedestrian refuge without acquiring some of the footway. A 2.0m refuge was used as that is seen as preferable to a narrower version as it allows space for those with prams, pushbikes or those in wheelchairs to safely wait on the refuge. I explored the possibility of locating a refuge on either side of the junction with Derek Avenue;

A) – Pedestrian refuge to the east of the junction with Derek Avenue – In terms of visibility this is an ideal location to install a refuge. Visibility it great in both directions, with visibility distance far exceeding the requirements set out in the LTN 2/95 (the design of pedestrian crossings, 1995), which states that when the 85th Percentile is 35mph the desirable minimum visibility is 80m. As well as there being a suitable distance (5.5m of HB2 kerbs) between the dropped kerbs for private accesses outside house number 533 and 535 which allows for the installation of pedestrian island. Although it is worth noting here that as can be seen from the design (Drawing 1) the available space is very limited and restrictive.

After exploring the turning movements of vehicles on auto-turn it was realised that the location does not adhere itself to the installation of a pedestrian island (see appendix B for autoturn drawings – Drawings 4 and 5) With a large car travelling eastbound unable to turn into property number 548, as well as the car struggling to make numerous other turns without striking either the island or the kerbs at the edge of the carriageway, as well as having difficulty entering the driveways at the exact location of the dropped kerbs.

As a result it would not be advisable to locate the refuge in this location due to the struggles experienced with a car, let alone larger vehicles, despite exploring the possibility of narrowing the island down to 1.5m. As well as the lack of desire from pedestrians to cross in this location (see 3.3).

B) – Pedestrian refuge to the west of the junction with Derek Avenue – This location is the preferable choice as it presents itself to be in the desire line according to the pedestrian survey (see Item 3.3). As well as again providing great sight lines for those crossing, above and beyond that of the visibility requirements set out in the LTN 2/95.

As above a 2.0m wide pedestrian island has been proposed as that is seen as the desirable minimum width in terms of safety aspects, and 3.5m wide lanes have been proposed. This has resulted in the need to acquire footway as carriageway to make this possible, at a width of approximately 1.8m (see drawing 2).

Unlike the location of the pedestrian refuge proposed above the turning movements are possible with a large car. However to make this possible it

has meant that the island has had to be located closer to the junction with Derek Avenue; approximately 1.8m from the tangent point of the kerb at the junction with Derek Avenue (see drawing 2). Although there are no regulations which set out the minimum distance at which a refuge can be installed from a junction, I believe this island could be perceived by some as too close, and therefore could create a risk.

The refuge is also located just to the east of the bus stop. The proximity of this could become a risk. Vehicles could go to overtake a stopped bus without realizing the refuge is located there leading to car overtaking and passing the refuge on the wrong side of the road. This in itself creates a safety risk, worsened by the proximity of the junction. This means it is possible that people may pull out of the junction from Derek Avenue whilst the bus has stopped at the bus stop, meaning the driver's visibility is already restricted at the same point as vehicles travelling eastbound may overtake the stopped bus resulting in the potential for collisions.

Again it seems that although this refuge is located in a more desirable location, the proximity to both the junction and bus stop could lead to drivers taking unnecessary risks and as a result the possibility for collisions increases.

The installation of a pedestrian refuge in this location brings with it carriageway widening works itself and the need to illuminate the bollards due to being within 50m of a street light. Both of which will raise the cost of this scheme. But more than the cost, the installation in either location brings with it risks, whether it's from potential increase in possibility of vehicle/pedestrian collisions to the risk of creating access problems to private driveways due to difficulty with turning movements.

Guide Price: £32,000 per refuge and associated works.

4.4 Uncontrolled Crossing

The traffic flows levels along this stretch of road are reasonable but not so high that there are not generous sized gaps in the traffic levels which allow for pedestrians to cross. Nor the road too wide that it does not create a safe crossing distance for pedestrians. As a result the installation of dropped kerbs is a further potential option.

There are a number of private driveway accesses along the road but no formal pedestrian crossing points with dropped kerbs and tactiles to assist those with disabilities, or prams. As a result the installation of uncontrolled crossings at either bus stops or both could rectify this concern.

This is not a costly option and would allow us to formally assign crossing points however it does not affect the traffic flows and as a result the traffic does not by law have to stop and allow the pedestrians a chance to cross as a puffin or zebra crossing would. But the traffic flows do not determine that such a requirement is necessary and that traffic flows, especially away from rush hour when the majority of people cross, is low enough that suitable gaps are available in the traffic to allow people to cross in a safe manner. The dropped kerbs will also formalise the best areas to cross due to visibility, and proximity to junctions.

As shown in drawing 3, it is possible to locate uncontrolled crossing either side of the junction with Derek Avenue and therefore it provides an option of installing both or either crossing.

Guide Price: £1,500 per pair of crossings (both pairs of uncontrolled crossings; £3,000).

4.5 Do Nothing

Given the fact there has been 1 collision involving pedestrians in the last 5 years and given the limited number of pedestrians wanting to cross the road. Combined with the fact the majority of the pedestrians were recorded to cross the road outside of rush hour when the number of gaps in the traffic would have been higher, the do nothing approach seems a potential option.

The results from the collision data survey do not indicate there is a safety issue in this instance, which combined with the pedestrian survey data that indicates there is an extremely low number of people, weekdays and weekends, looking to cross the road demonstrates there is neither a need or real desire for a crossing in any form to be installed in this location.

Guide Price: £0

5. FINANCIAL AND VALUE FOR MONEY IMPLICATIONS:

The table below shows the various Options and an estimated guide price for each. Additionally the main advantages and disadvantages are also tabulated.

Please note the following costs have not been included in these estimates: Street lighting, Diversions to Statutory Undertakers' apparatus and Legal and design processes.

Option	Advantages	Disadvantages	Cost
Puffin Crossing	Formally creates gaps in the traffic to allow safe time for pedestrians to cross.	Very costly, and is a risk due to limited number of people who cross, that drivers may be used to the signals being green and therefore ignore its existence, with dangerous consequences.	£120,000
Zebra Crossing	N/A	The regulations in LTN 1/95 specify that due to the speeds recorded it is not advisable to install a zebra in this location.	N/A
Pedestrian Refuge	Provides a safe area in the centre of the road to ease the process of crossing and means that a gap is only needed on one side of the road rather than both, making crossing easier.	Will cause issues with turning movements, potentially increase the possibility of collisions at the refuge west of the junction with Derek Avenue and requires extensive widening of the carriageway.	£32,000 (per pedestrian refuge and associated works)
Uncontrolled Crossing	Formalises a crossing point and creates greater ease for those with disabilities crossing.	Does not increase the gaps in the traffic therefore not easing the process of crossing in any way.	£1,500 per pair of dropped kerbs/tactiles
Do nothing	The survey data does not indicate there is a collision problem in terms of pedestrians nor a high level of demand to cross the road therefore any work may be deemed unnecessary. No cost.	No improvement to existing situation	£0

6. RECOMMENDATION:

Due to the existing survey data relating to this site it would seem that the need to improve the current situation and provide a formal crossing facility is relatively low with very few pedestrians wishing to cross Chessington Road. This combined with the high number of private accesses into properties along this road leaves us with a restricted area at which it would be possible to install any such crossing. Therefore any location we choose is likely to bring with it issues related to turning circles as seen with the pedestrian refuges.

Due to the lack of personal injury collisions, a cost benefit of the Options cannot be calculated.

As such, in order of preference the Options are:

1) Option 5 - Do nothing
2) Option 4 – Uncontrolled Crossing

Not suggested for progression:

3) Option 3 – Pedestrian Refuge – both options
4) Option 2 – Zebra Crossing
5) Option 1 – Puffin Crossing

Therefore the preferred Option is **'Do nothing'**

7. APPENDICIES: (Not available with the agenda, contact the Community Partnership & Committee Officer 020 8541 9437 if you would like a copy)

A) Drawings showing proposed options:

PC0621-003 - Feasibility Option 3(A) - Pedestrian Refuge (1 of 3) (Drawing 1)

PC0621-004 - Feasibility Option 3(B) - Pedestrian Refuge (2 of 3) (Drawing 2)

PC0621-005 - Feasibility Option 4 - Uncontrolled Crossing (3 of 3) (Drawing 3)

B) Autoturn Designs and Pedestrian Survey Plan:

PC0621-006 - Pedestrian Island Feasibility - Autoturn (1 of 2)

PC0621-007 - Pedestrian Island Feasibility - Autoturn (2 of 2)

PC0621-002 – Pedestrian survey plan

C) Survey Data Results:

Pedestrian survey Data

Vehicle Survey Data

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