

## Appendix 7

<b>Junction</b>	<b>A414/ Thieves Lane/ Hertingfordbury Road Roundabout</b>
<b>Reference</b>	<b>EH36</b>
<b>Location</b>	<p>The A414/ Thieves Lane/ Hertingfordbury Road roundabout forms the western edge of the Hertford Urban area. The A414 is a dual carriageway strategic road providing a connection between the A1(M) and A10 through the centre of Hertford.</p> <p>This report assesses the impact of traffic arising from the District Plan policy HERT 3 West of Hertford housing sites on this junction.</p>

**Description of Junction**

The junction of the A414 and Thieves Lane is a four arm roundabout with dual carriageway approaches from the A414 to the east and west, Thieves Lane to the north and Hertingfordbury Road to the south.

The A414 is the main east-west road in the local area, and is subject to a 70mph speed limit in the vicinity of the junction. Thieves Lane forms the current western edge of the Hertford urban area and is subject to a 40mph speed limit. Hertingfordbury Road provides access to the settlement of Hertingfordbury to the south and is subject to a 30mph speed limit.

An aerial photograph showing the junction is shown in Figure 1 below.



### Development Impact

The source of this information is the Transport Assessment for the HERT 3 West of Hertford residential development sites dated July 2014.

#### Baseline

Table 1 below shows the maximum observed queue lengths at the A414/ Thieves Lane/ Hertingfordbury Road roundabout during the AM (08:00 – 09:00) and PM (17:00 – 18:00) peak hours.

*Table 1 – Observed Queue Lengths (Vehicles)*

	AM Peak	PM Peak
Hertingfordbury Road	4	3
A414 Eastbound	12	6
Thieves Lane	9	4
A414 Westbound	10	8

The queue length data shows that queues form on the two A414 entries and the Thieves Lane entry to the roundabout in both the AM and PM peak hours; however, the extent of observed queueing does not suggest that there are currently any capacity problems at the junction.

#### Development Impact

The Transport Assessment contains the results of ARCADY models assessing the cumulative impact of the District Plan HERT 3, West of Hertford housing developments on the operation of the A414/Thieves Lane roundabout. The results of the modelling, in terms of the ratio of flow to capacity, are set out in Table 2 below.

*Table 2 – Ratio of Flow to Capacity Summary*

	Thieves Ln		A141 E		H'fordbury Rd		A414W	
	AM	PM	AM	PM	AM	PM	AM	PM
<b>2014 Baseline</b>	0.57	0.23	0.58	0.41	0.47	0.19	0.38	0.48
<b>Future Situation with HERT3 Sites</b>	0.72	0.33	0.63	0.45	0.57	0.22	0.42	0.54

The junction modelling demonstrates that the junction will be operating within capacity and the cumulative impact of the HERT3 developments is not severe. Consequently, it is considered that there is no mitigation required at the A414/Thieves Lane roundabout to accommodate the traffic resulting from the District Plan Hert3 West of Hertford development scenario.

### Required Mitigation

None required.

### Outline Cost Analysis\*

Mitigation works not required to accommodate District Plan traffic

Works Element	Estimated Cost	Notes
N/A	N/A	N/A

**Supporting Information**

A414/Thieves Lane Roundabout **Site Photographs** (note – road works were in place on A414 when photographs were taken)



Image 1: Thieves Lane approach to A414



Image 2: view towards A414 eastbound approach from Thieves Lane



Image 3: A414 westbound approach showing uncontrolled pedestrian crossing



Image 4: Uncontrolled pedestrian/ cycle crossing on A414 to east of Thieves Lane roundabout



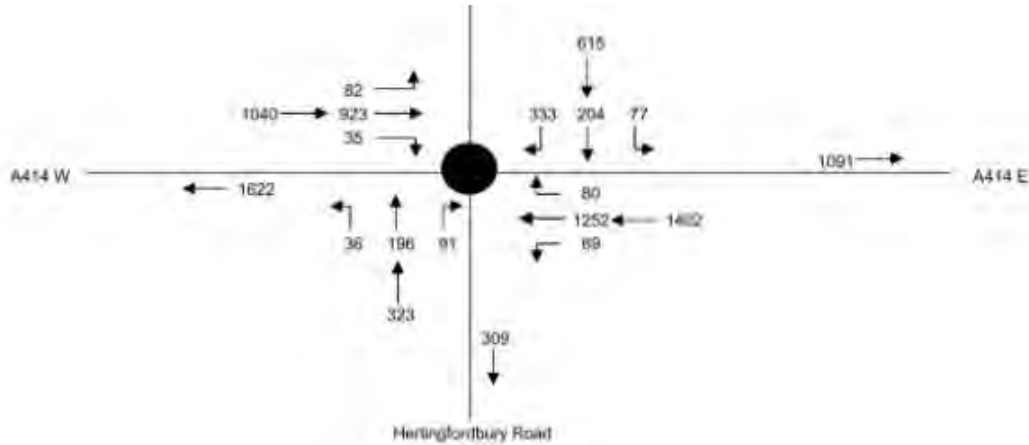
Image 5: Hertingfordbury Road approach to A414



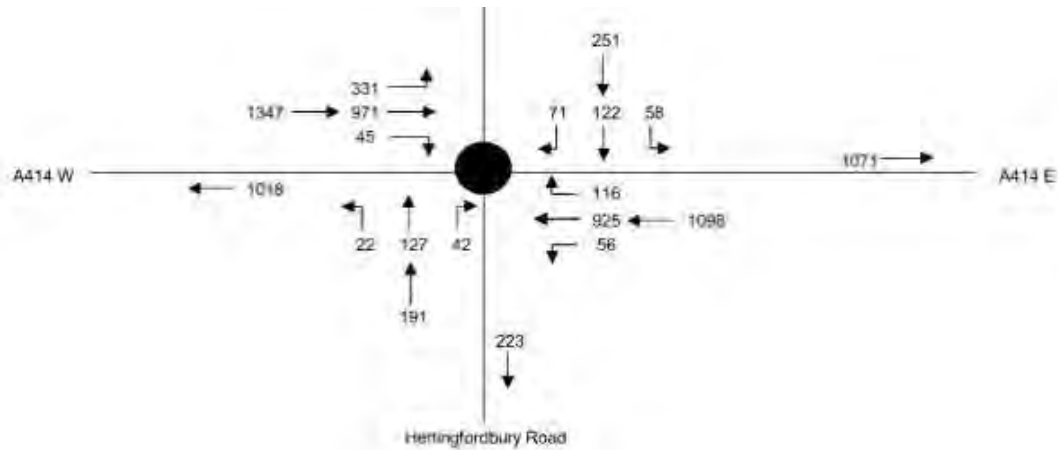
Image 6: Very worn road marking on cycle path to Hertingfordbury.

**Traffic Flow Information**

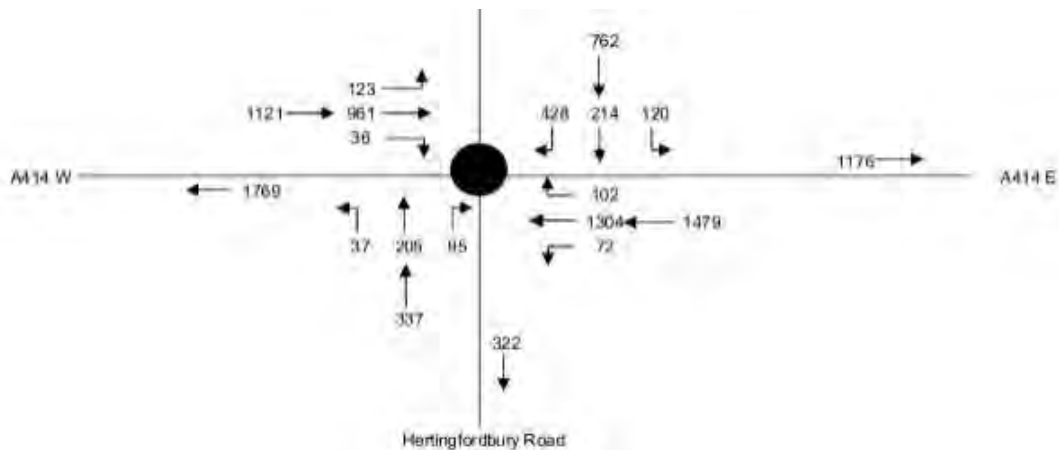
**2014 Baseline flows AM Peak Hour**



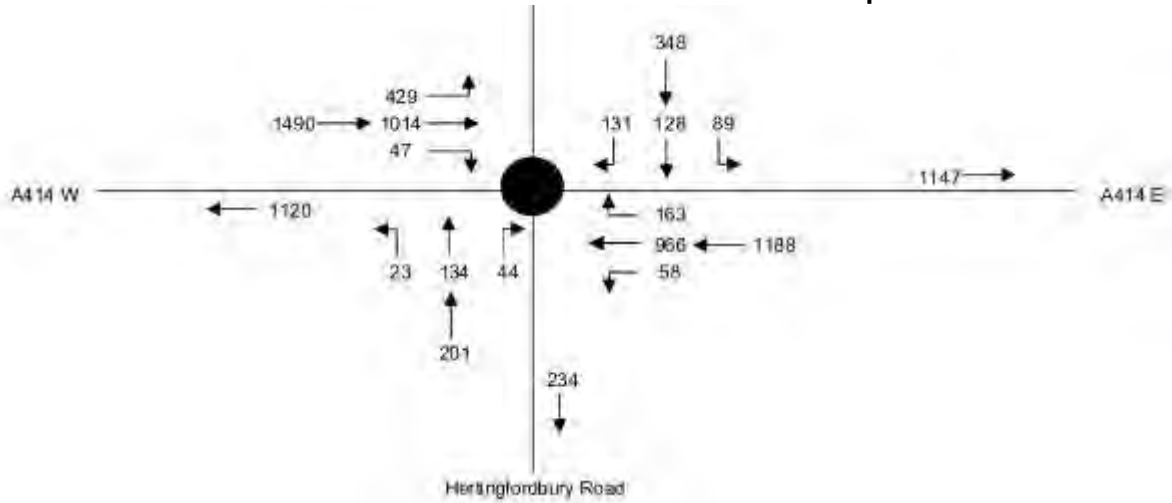
**2014 Baseline Flows PM Peak Hour**



**Future Situation with District Plan HERT3 West of Hertford Developments AM Peak Hour**

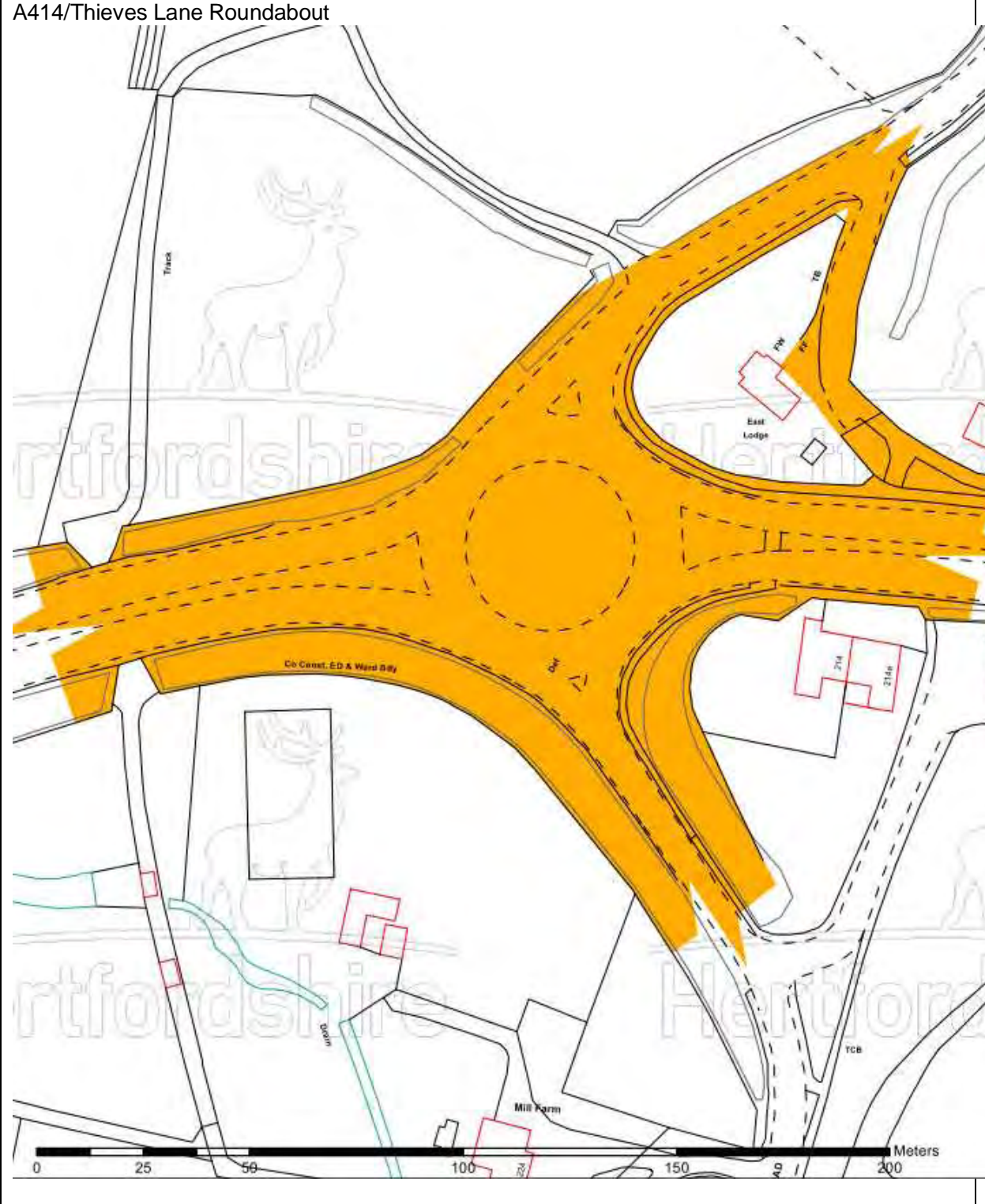


**Future Situation with District Plan HERT3 West of Hertford Developments PM Peak Hour**



**Highway Boundary Plans**

A414/Thieves Lane Roundabout



<b>Junction</b>	<b>B1000 Welwyn Road/ Windsor Drive/ Thieves Lane, Hertford</b>
<b>Reference</b>	<b>EH35</b>
<b>Location</b>	<p>A junction comprising adjacent compact and mini-roundabouts located in the Sele Farm area in the north west of Hertford. The two junctions are:</p> <ol style="list-style-type: none"> <li>1. B1000 Welwyn Road/ Thieves Lane; and</li> <li>2. B1000 Welwyn Road/ Windsor Drive.</li> </ol> <p>The junction provides the principal access to the Sele Farm residential area, and a connection to the A414. The B1000 forms an alternative route to the A414 between Hertford and Welwyn Garden City.</p> <p>This report assesses the impact of traffic arising from the District Plan policy HERT 3 West of Hertford housing sites on this junction.</p>

**Description of Junction**

The junction of Welwyn Road and Thieves Lane forms a compact three arm roundabout which is immediately adjacent to a three arm mini-roundabout junction between Welwyn Road and Windsor Drive. The two junctions form a right-left stagger with Thieves Lane connecting south to the A414 and Windsor Drive providing access the Sele Farm area of Hertford. A zebra crossing, located immediately to the east of the Windsor Drive mini-roundabout provides pedestrian access to the Sele School, which is located immediately to the south.

To the north east of the junction is an access to the Golden Griffin Public House, while the main pedestrian and vehicular accesses to the Sele School are located immediately to the south and east of the zebra crossing.

An aerial photograph of the junction is shown in Figure 1 below.



### Development Impact

The source of this information is the Transport Assessment for the HERT 3 West of Hertford residential development sites dated July 2014.

#### Baseline Situation

##### **Welwyn Road/ Thieves Lane**

Table 1 below summarises the maximum observed queue lengths at the Welwyn Road/ Thieves Lane junction.

*Table 1 – Maximum Observed Queue Lengths (Thieves Lane)*

	AM Peak	PM Peak
Thieves Lane	4	3
Welwyn Road Westbound	3	3
Welwyn Road Eastbound	3	2

The observed queue data shows only intermittent queuing at the Welwyn Road/ Thieves Lane junction

##### **Welwyn Road/ Windsor Drive**

Table 2 below summarises the maximum observed queue lengths at the Welwyn Road/ Windsor Drive junction

*Table 2 – Maximum Observed Queue Lengths (Windsor Drive)*

	AM Peak	PM Peak
Windsor Drive	12	13
Welwyn Road Westbound	17	10
Welwyn Road Eastbound	15	11

The survey recorded that the majority of the queuing at this junction was caused by the zebra crossing located immediately to the east of the mini-roundabout.

#### Junction Modelling

The Transport Assessment contains the results of ARCADY models assessing the cumulative impact of the District Plan HERT 3, West of Hertford housing developments on the operation of these two junctions. The results of the modelling, in terms of the ratio of flow to capacity, are set out in Tables 3 and 4 below. The future situation also compares the extant Racquets Centre permission with the HERT 3 site which replaces the Racquets Centre..

##### **Welwyn Road/ Thieves Lane**

The junction modelling contained in the Transport Assessment for the Welwyn Road/ Thieves Lane junction is summarised in Table 3 below.

*Table 3 – Predicted Ratio of Flow to Capacity – Welwyn Road/ Thieves Lane*

	Welwyn Road (E)		Thieves Lane		Welwyn Road (W)	
	AM	PM	AM	PM	AM	PM
<b>2014 Baseline</b>	0.47	0.36	0.32	0.26	0.30	0.56
<b>Future Situation with Racquets Centre</b>	0.55	0.46	0.37	0.32	0.35	0.46
<b>Future Situation with HERT 3 sites</b>	0.52	0.43	0.38	0.34	0.38	0.41

The modelling demonstrates ample capacity in all scenarios tested and that no mitigation is required.

**Welwyn Road/ Windsor Drive**

The junction modelling contained in the Transport Assessment for the Welwyn Road/ Windsor Drive junction is summarised in Table 4 below.

Table 4 – Predicted ratio of flow to capacity – Welwyn Road/ Windsor Drive

	Welwyn Road (E)		Windsor drive		Welwyn Road (W)	
	AM	PM	AM	PM	AM	PM
<b>2014 Baseline</b>	0.67	0.49	0.61	0.55	0.65	0.74
<b>Future Situation with Racquets Centre</b>	0.82	0.61	0.71	0.68	0.82	0.89
<b>Future Situation with HERT 3 sites</b>	0.75	0.56	0.66	0.62	0.73	0.81

The modelling demonstrates ample capacity in all scenarios tested and that no mitigation is required.

**Summary**

The junction modelling work undertaken in the Transport Assessment indicates that the traffic arising from the District Plan HERT3 developments would not have a significant impact on the operation of the Welwyn Road/ Thieves Lane and Welwyn Road/ Windsor Drive mini-roundabouts.

**Required Mitigation**

None required.

**Outline Cost Analysis\***

No mitigation works are required.

Works Element	Estimated Cost	Notes
N/a	N/A	N/A

**Supporting Information**

**B1000 Welwyn Road/ Thieves Lane Site Photographs**



Image 1: Thieves Lane roundabout looking west from Welwyn Road



Image 2: Eastbound Welwyn Road approach to Thieves Lane roundabout



Image 3: Thieves Lane approach to roundabout



Image 4: Link between Windsor Drive and Thieves Lane roundabouts from near Windsor Drive



Image 5: Eastbound Welwyn Road approach to Thieves Lane roundabout

**B1000 Welwyn Road/ Windsor Drive Site Photographs**



Image 1: Windsor Drive Approach showing entry to pub car park;



Image 2: Zebra crossing on Welwyn Road



Image 3: Western Welwyn Road approach to Windsor Drive roundabout



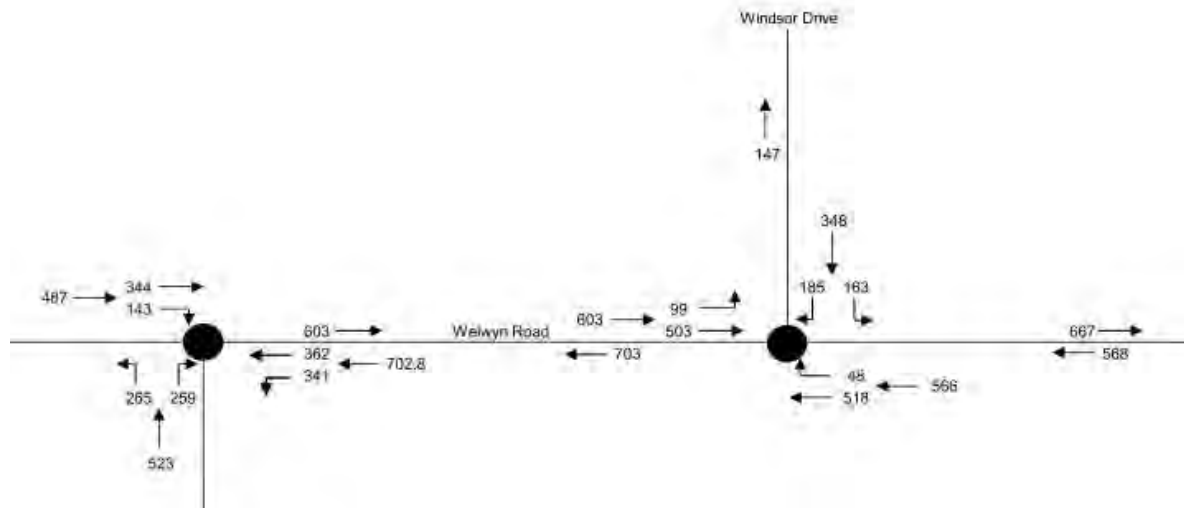
Image 4: Zebra crossing on Welwyn Road



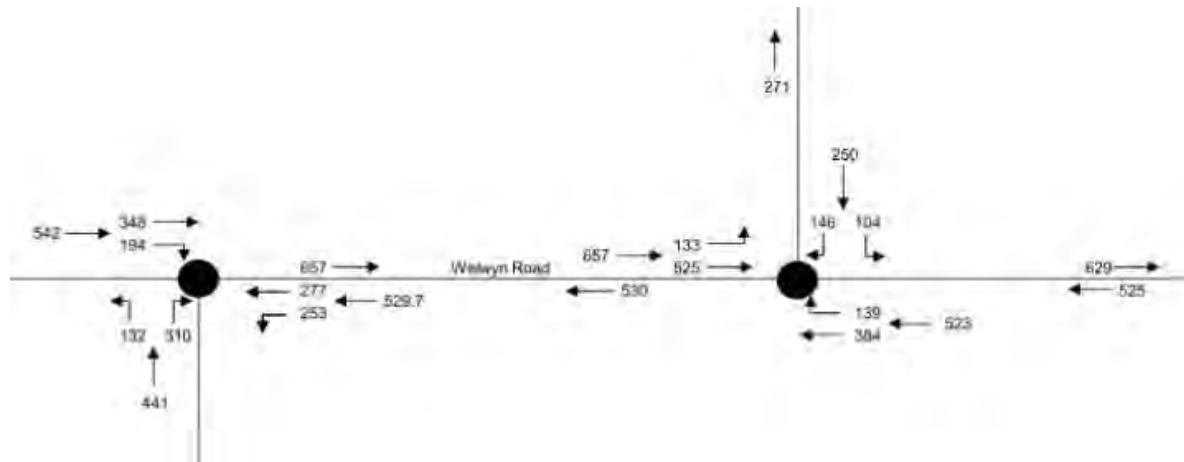
Image 5: Windsor Drive roundabout, looking towards Windsor Drive, showing worn central island road marking

**Traffic Flow Information**

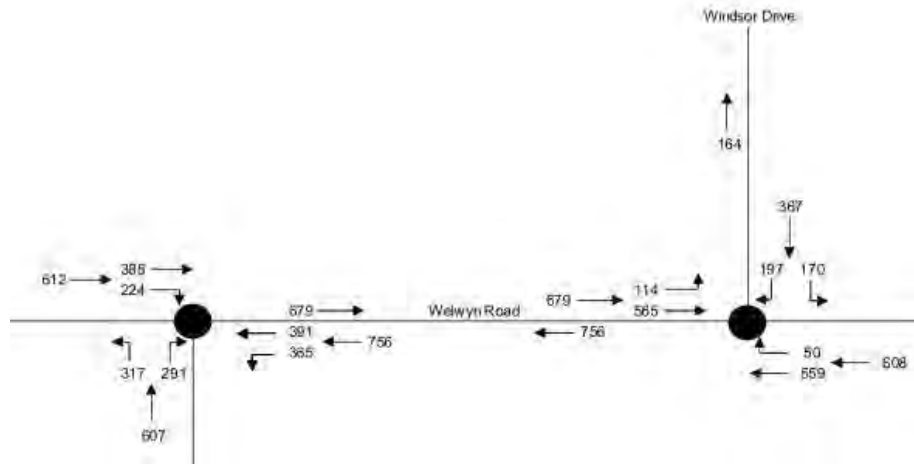
**2014 Baseline AM Peak Hour**



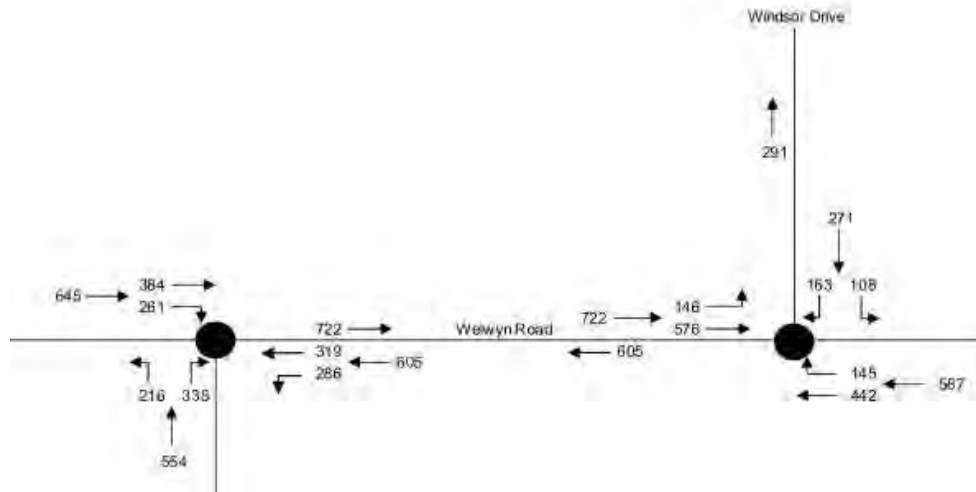
**2014 Baseline PM Peak Hour**



**Future Situation with District Plan HERT3 West of Hertford Developments AM Peak Hour**



**Future Situation with District Plan HERT3 West of Hertford Developments PM Peak Hour**



**Highway Boundary Plans**

B1000 Welwyn Road/Thieves Lane/Winsor Drive roundabouts



<b>Junction</b>	<b>A119/ North Road Roundabout</b>
<b>Reference</b>	<b>EH39</b>
<b>Location</b>	<p>The A119/North Road roundabout takes the form of a three arm mini roundabout layout. The A119 is an urban street that links Hertford North Station and routes to the north west through the centre of Hertford and to the A414.</p> <p>This report considers the impact of traffic arising from the District Plan policy HERT 3 West of Hertford housing sites on this junction.</p>

#### **Description of Junction**

The junction of the A119/North Road roundabout takes the form of a three arm mini roundabout, with A119 North Road to the north West, North Road linking to the town centre to the east and the A119 Cross Lane forming a short link to the A414 to the south.

The A119 and North Road are urban streets and are subject to a 30mph speed limit in the vicinity of the junction. There is a pelican crossing located on the A119 north west arm of the junction.

Figure 1 Aerial photograph of A119/North Road Junction



### Development Impact

The source of this information is traffic counts undertaken by HCC in 2013 and a Transport Assessment which included the HERT 3 West of Hertford residential development sites dated July 2014.

#### Baseline

Table 1 below shows the observed peak hour traffic flows at the A119/North Road roundabout during the AM (08:00 – 09:00) and PM (17:00 – 18:00) peak hours.

*Table 1 – Observed Traffic Flows (Vehicles)*

	AM Peak	PM Peak
A119 North Road	944	770
North Road	318	317
A119 Cross Lane	684	878

### Development Impact

The generation, distribution and assignment of traffic arising from the HERT3 sites is derived from the Transport Assessment dated July 2014. The distribution of traffic is shown in Table 2 below.

*Table 2 – Distribution of Traffic – Hert3 sites*

Route	% Distribution
A414 (W)	42%
A414 (E)	21%
North Road (S)	21%
Hertingfordbury Road (S)	0.5%
Welwyn Road (W)	10%
Windsor Drive and Bentley Road	5.5%

The calculation of traffic arising from the Hert3 sites is also derived from the Transport Assessment. It should be noted that a planning consent already exists on one of the Hert3 sites for a large Racquets Club/Leisure facility and therefore the traffic generated by it (see table 3 below) has already been accepted on the local highway network. The net increase in peak hour traffic flows arising from the Hert3 sites is derived from the gross traffic generated (Table 3) less the Racquets Club /leisure facility (Table 4).

*Table 3 – Traffic Arising from Hert3 sites*

	Arrivals	Departures	Total
AM Peak Hour	76	73	151
PM Peak Hour	174	167	341

*Table 4 – Traffic Arising from Racquets Club/Leisure Centre*

	Arrivals	Departures	Total
AM Peak Hour	89	192	281
PM Peak Hour	197	135	332

The net increase in peak hour traffic flows arising from the Hert3 sites is shown in Table 5 below and demonstrates that the Hert3 sites have a minor net impact in the morning peak hour and a negligible net impact in the evening peak hour.

*Table 5 – Net Traffic increase from Hert3 sites*

	Arrivals	Departures	Total
AM Peak Hour	+13	+119	+130
PM Peak Hour	-23	+32	+9

The gross peak hour traffic flows at the A4119/North Road roundabout arising from the Hert3 sites are shown at the rear of this report and shown in the Table 6 below as a percentage increase compared to the existing traffic flows on each approach arm to the roundabout.

*Table 6 – Percentage Increase in gross traffic arising from Hert3 sites*

	AM Peak	PM Peak
A119 North Road	4.0%	3.5%
North Road	4.4%	9.0%
A119 Cross Lane	0.5%	0.9%

The percentage increase in gross traffic arising from the Hert3 sites on the A119/North Road roundabout is generally low; however, the net traffic increase will be significantly lower still when account is taken of the replacement of the outstanding Racquets Club/Leisure facility permission.

The above assessments indicate that the cumulative impact of the HERT3 developments will not be severe on the A119/North Road roundabout. Consequently, it is considered that there is no mitigation required at the A119/North Road roundabout to accommodate the net traffic arising from the District Plan Hert3 West of Hertford development scenario.

#### Required Mitigation

None required.

#### Outline Cost Analysis\*

Mitigation works not required to accommodate the traffic arising from the District Plan Hert3 sites.

Works Element	Estimated Cost	Notes
N/A	N/A	N/A

**Supporting Information**

**A119/North Road roundabout Site Images**



Image 1: Cross approach from A414



Image 2: view towards A119 eastbound approach and pedestrian crossing



Image 3: North Road westbound approach



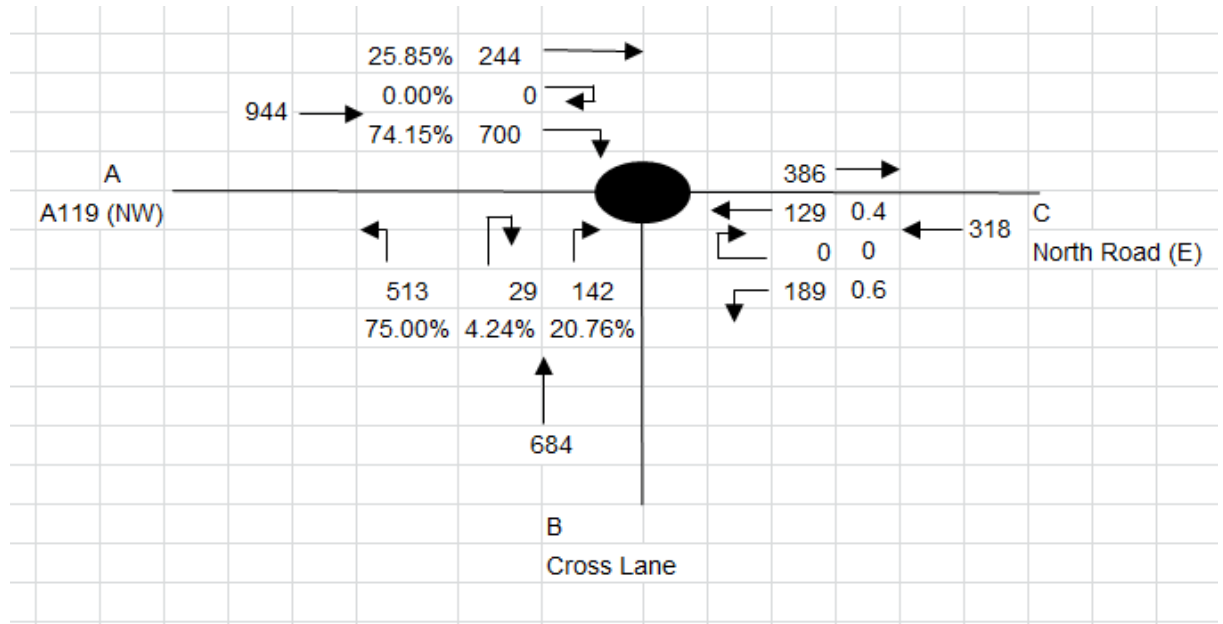
Image 4: A119 Cross Lane Approach



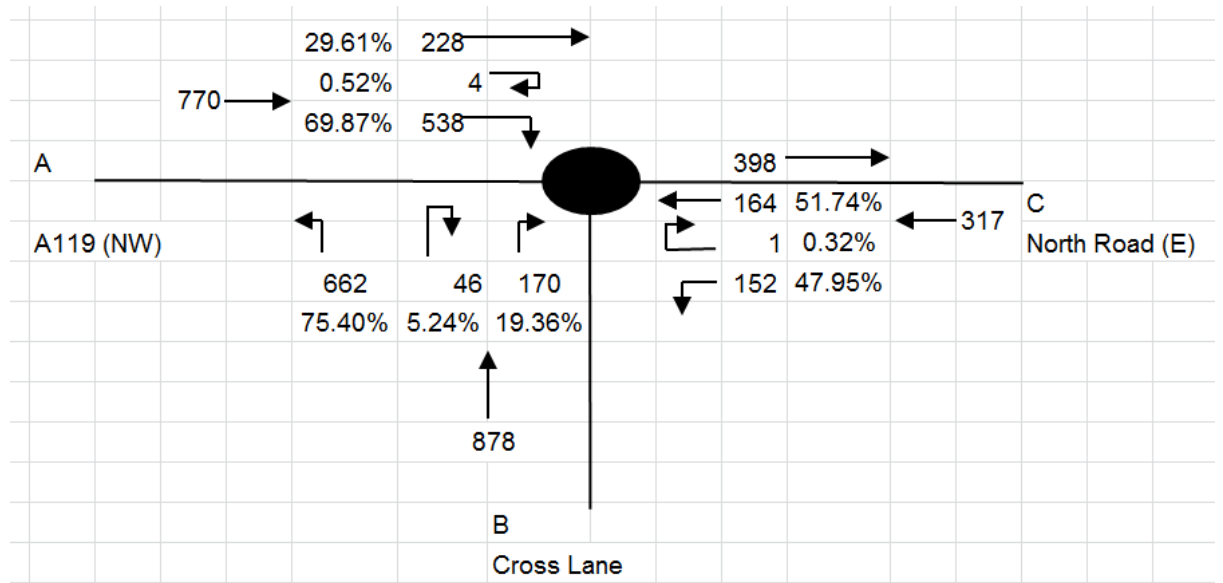
Image 5: A119 North Road approach

**Traffic Flow Information**

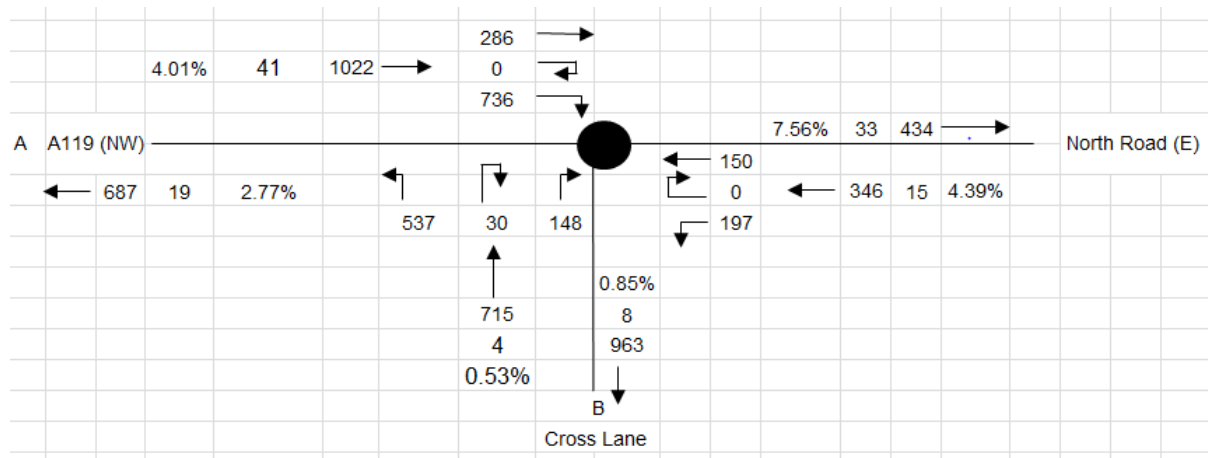
**2013 Baseline flows AM Peak Hour**



**2013 Baseline Flows PM Peak Hour**



**Future Situation with District Plan HERT3 West of Hertford Developments AM Peak Hour**



**Future Situation with District Plan HERT3 West of Hertford Developments PM Peak Hour**

