TECHNICAL NOTE 1

DATE:	20 January 2026	**CONFIDENTIALITY:**	Public
SUBJECT:	Three Rivers Local Plan Impacts		
PROJECT:	UK0028052.7665 Three Rivers LP	**AUTHOR:**	Laura Lelliott/Palash Shukla
CHECKED:	Shaista Farooq	**APPROVED:**	Christine Elphicke

INTRODUCTION

WSP were appointed by Three Rivers District Council (TRDC) to assess the impacts of the Three Rivers Local Plan on the transport network, both public transport and highway. The COMET transport model recently developed has been used to assess the impacts of the Local Plan.

This Technical Note summarises the scenarios, assumptions and results of the initial, pre-VDM, transport modelling process and the impacts on the transport network of the TRDC Local Plan. A detailed technical report will be produced containing all modelling assumptions and post-VDM results.

SCENARIOS

The following scenarios have been assessed within the 2043 COMET model:

- **Scenario 1:** This reflects completed or committed development across Hertfordshire over the period 2023-2043. This scenario is constrained to the growth assumptions in households and jobs within DfT National Trip End Model (NTEM) for all districts in Hertfordshire except for Three Rivers. By not constraining the growth in Three Rivers to NTEM assumptions, the committed growth provided by TRDC is reflected in the model.
- **Scenario 2:** This builds on Scenario 1 by adding in the Three Rivers Local Plan development allocations

MODELLING ASSUMPTIONS

The starting point for undertaking the Local Plan assessment for TRD Local Plan assessment is the 2043 COMET NTEM model which reflects the committed growth in Hertfordshire in 2043 constrained to NTEM.

The time periods for the model are:

Highway model

- AM Peak: 08:00 to 09:00
- Interpeak: 10:00 to 16:00 (hourly average)
- PM Peak: 17:00 to 18:00

Public transport model

- AM peak period (between 07:00 and 10:00)
- An average Interpeak hour (between 10:00 and 16:00)
- PM peak period (between 16:00 and 19:00)

The TRDC Local Plan assessment has been undertaken in AM and PM models only.

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PLANNING DATA

Planning data for all districts in Hertfordshire has been provided by Hertfordshire County Council (HCC). This data was taken from the HCC Smart Planning database and includes data up to March 2024. For Three Rivers District this has been further updated to also include data to March 2025, ensuring that the forecast is based on the most up-to-date data available at the time of modelling.

Scenario 1

A summary of the planning data included in Scenario 1 for all the Hertfordshire districts is provided in **Table 1**. This includes completed or committed development (sites with planning permission) across Hertfordshire over the period 2023-2043.

Table 1: Summary of Planning Data for Scenario 1

District	Dwellings (2023 to 2043)	Jobs (2023 to 2043)
Broxbourne	4,179	9,787
Dacorum	3,181	2,858
East Hertfordshire	4,957	4,346
Hertsmere	1,082	2,818
North Hertfordshire	2,346	556
St Albans	2,695	6,312
Stevenage	4,801	4,737
Three Rivers	**1,549**	**1,739**
Watford	3,957	5,308
Welwyn Hatfield	4,113	3,722
Hertfordshire Total	**32,860**	**42,184**

Scenario 2

The additional Local Plan allocations that are included in Scenario 2 are shown in **Table 2**. In total, 8,952 dwellings and 546 jobs have been included in the modelling as allocations that are part of the Three Rivers Local Plan. The largest sites that have been included are presented in **Table 3**. The locations of all the developments are shown in **Figure 1**.

Table 2: Summary of Local Plan Allocations in Scenario 2

District	Local Plan Allocation Dwellings	Local Plan Allocation Jobs
Three Rivers	8,952	546

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Table 3: Large Local Plan Allocation Sites in Scenario 2

Development Name	Planning Reference	Dwellings	Jobs
West of the Kings Langley Estate	CFS26c	400	0
Land to the West and South of Maple Cross	EOS12.2	1,500	0
Land to the south of Shepherds Lane	EOS7.0	520	0
Land adjacent to Fraser Crescent and Woodside Road	CFS3	249	0
East Green Street	PCS4	678	0
South of Little Oxhey Lane	PCS47	485	0
Land at Rousebarn Lane, Little Green Lane	CFS21	600	0
Land to the East of Watford Road	NCFS6	333	0
Land East of Oxhey Lane	NCFS12	381	0
The Kings Langley Estate	CFS26A	1,463	0
Land at Gypsy Lane, Hunton Bridge	CFS28	0	526

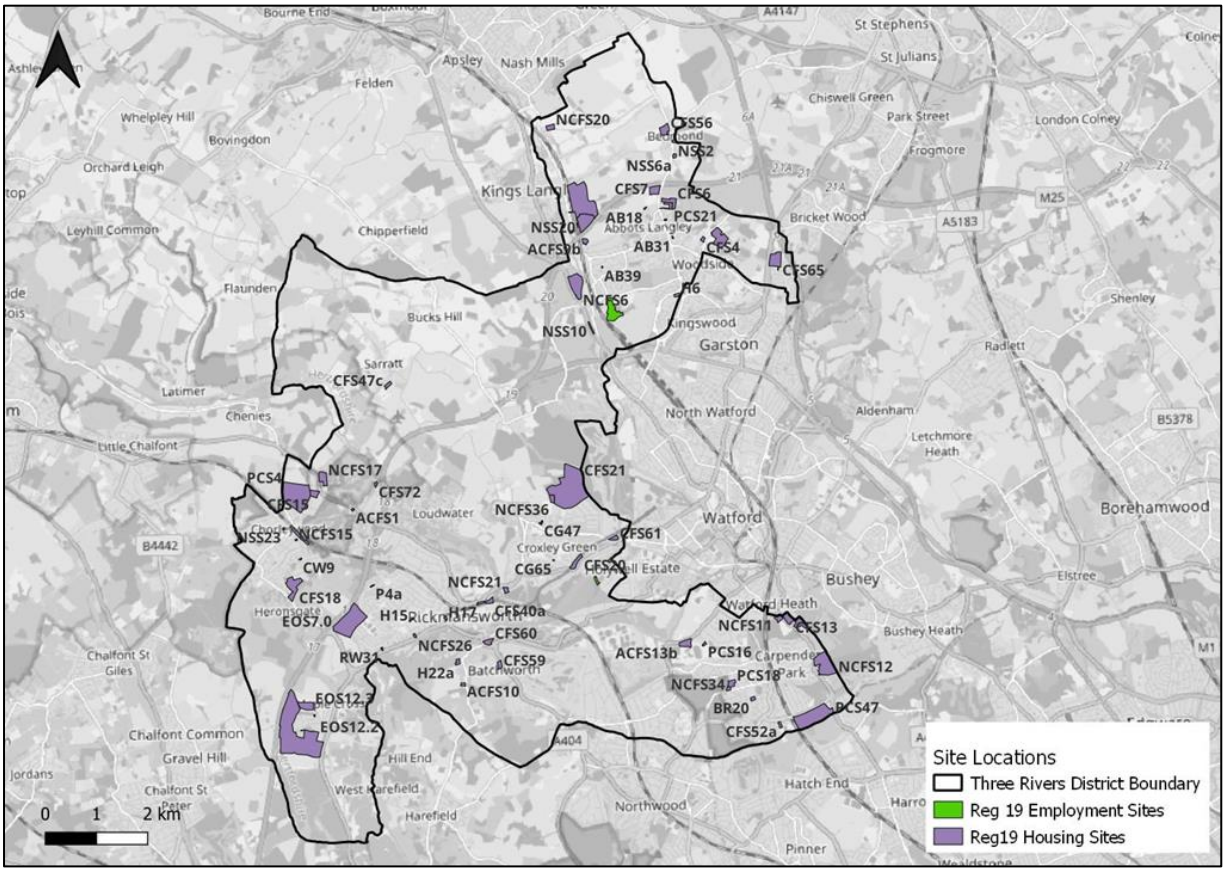

Figure 1: Location of Local Plan Allocations in Scenario 2

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LOCAL PLAN IMPACTS

This section provides the impacts of the Local Plan allocations on the highway and public transport network. Impacts have been assessed by plotting the difference between Scenario 2 (with Local Plan allocations) against Scenario 1 (without Local Plan allocations).

HIGHWAY IMPACTS

TRAFFIC FLOW DIFFERENCE

The flow differences between Scenario 2 and Scenario 1 are shown in **Figure 2** for the AM peak and **Figure 3** for the PM peak. The plots show the impact of the Local Plan allocations on traffic flows within TRDC. The flows shown in the figures are the difference in the number of vehicles in each of the respective peak hours.

There is an overall increase in traffic flows on the highway network due to the additional traffic generated by the allocations. These are generated across the whole district, with higher flows closest to the development sites.

The greatest increases in flow (over 100 vehicles) on the TRD road network are on A405 Denham Way, A412 Denham Way, Hornhill Road, Green Street, Shepherds Lane, Bedmond Road, College Road, A404 Chorleywood Road, Baldwins Lane, Aerodrome Way and B4542 Little Oxhey Lane.

In the AM peak, there is an increase in flow on the M25 of 270 vehicles clockwise, which amounts to a 3.6% increase between Junction 18 and Junction 19 and around 115 vehicles (2%) counter clockwise in the PM peak. This is mainly due to the increased traffic generated from three developments namely, Land to the west and south of Maple Cross, Land to the south of Shepherds Lane and west of M25 and East Green Street.

There are some changes in flow on the M25 between Junction 16 and Junction 17 which are around 1-2% in the AM and PM peak. These changes are due to some wider traffic re-routing and not due to the impacts of the Local Plan growth in Three Rivers.

In both peak periods there is also a reduction in traffic flow on A404 Rickmansworth Road westbound and Common Road southbound, amounting to around 100 vehicles in the AM peak and 18 vehicles in the PM peak. This is due to rerouting via M25 junction 17 rather than junction 18 to reach Chorleywood Bottom and Shire Lane.

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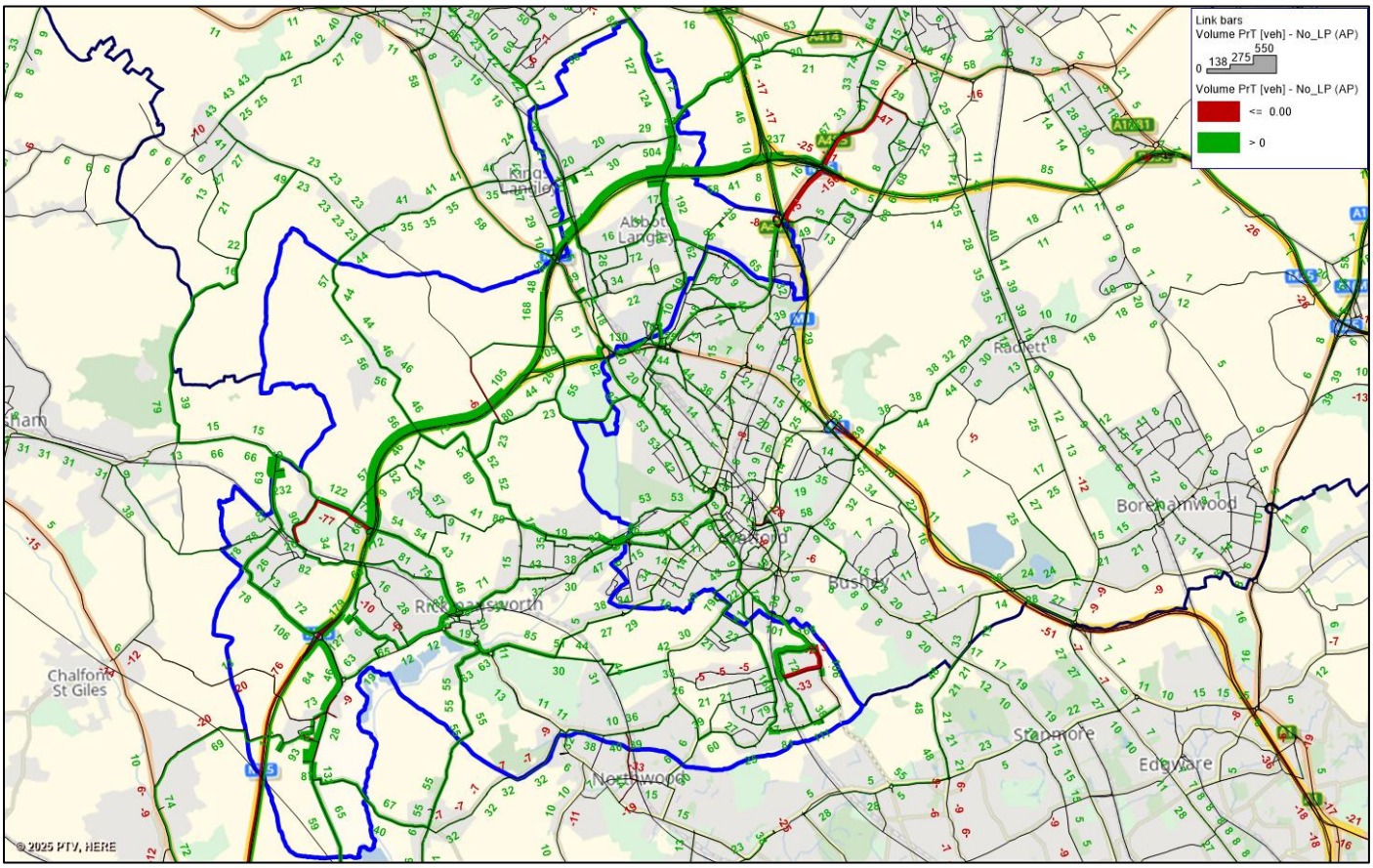

Figure 2: Flow Difference Scenario 2 minus Scenario 1 AM peak (0800-0900)

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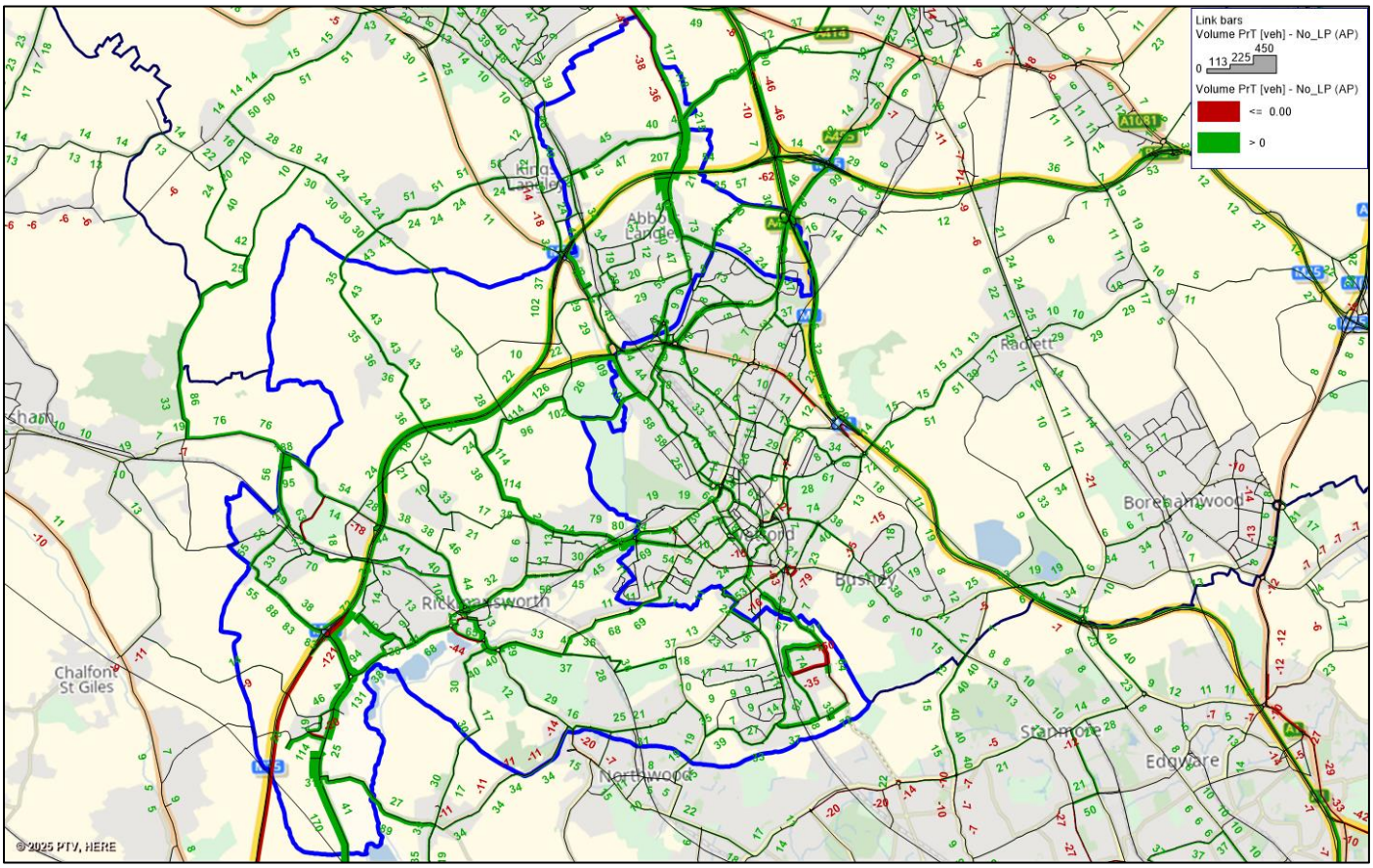

Figure 3: Flow Difference Scenario 2 minus Scenario 1 PM peak (1700-1800)

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In addition to absolute flow changes shown in **Figure *2*** and **Figure *3***, **Table 4** and **Table 5** show the increases in flows as absolute difference and percentage change, for AM and PM peak, on the TRD roads where the Local Plan growth has caused an increase in flow. The changes are shown for links with over 10% increase in flows.

Table 4: Traffic Flow Difference Scenario 2 minus Scenario 1 AM Peak (0800-0900)

Road Name	Direction	Scenario 1	Scenario 2	Difference (Scenario 2 - Scenario 1)	% Difference
Green Street	NB	196	453	257	131%
Green Street	SB	176	306	130	74%
A405 Denham Way (M25/Maple Cross Rbt)	WB	1228	1426	198	16%
A412 Denham Way (Chalfont Lane and Woodland Road)	NB	597	838	241	40%
A412 Denham Way (Chalfont Lane and Woodland Road)	SB	528	660	132	25%
Hornhill Road	NB	282	398	116	41%
Shepherds Lane	EB	21	137	116	552%
Berry Lane	WB	306	388	82	27%
Hillside Road	EB	197	270	73	37%
Rickmansworth Lane (Chalfont Common)	WB	356	425	69	19%
A404 Chorleywood Road	NB	853	996	143	17%
Valley Road	WB	312	377	65	21%
Baldwins Lane	EB	822	994	172	21%
Sarratt Road	NB	520	610	90	17%
Redhall Lane/Fir Tree Hill	EB	575	657	82	14%
Grove Mill Lane	EB	382	455	73	19%
Printers Avenue	EB	438	524	86	20%
The Green (Belsize)	NB	287	344	57	20%
Bedmont Road	NB	589	804	215	37%
Bedmont Road	SB	629	847	218	35%
College Road	EB	483	595	112	23%
Aerodrome Way	SB	434	544	110	25%
B4542 Little Oxhey Lane	WB	640	753	113	18%
B4542 Prestwick Road	NB	384	463	79	21%
Harefield Road (Batchworth)	EB	297	383	86	29%
Harefield Road (Batchworth)	WB	238	302	64	27%

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Table 5: Traffic Flow Difference Scenario 2 minus Scenario 1 PM Peak (1700-1800)

Road Name	Direction	Scenario 1	Scenario 2	Difference (Scenario 2 - Scenario 1)	% Difference
Green Street	NB	304	402	98	32%
Green Street	SB	195	393	198	102%
A405 Denham Way (M25/Maple Cross Rbt)	EB	1256	1409	153	12%
A412 Denham Way (Chalfont Lane and Woodland Road)	NB	799	1058	259	32%
A412 Denham Way (Chalfont Lane and Woodland Road)	SB	466	534	68	15%
Hornhill Road	SB	331	430	99	30%
Shepherds Lane	WB	22	155	133	605%
Berry Lane	WB	281	350	69	25%
Hillside Road	WB	281	369	88	31%
Uxbridge Road	WB	656	735	79	12%
Valley road	WB	322	394	72	22%
Baldwins Lane	WB	782	899	117	15%
Sarratt Road	SB	492	606	114	23%
Redhall Lane/Fir Tree Hill	EB	580	682	102	18%
Grove Mill Lane	WB	292	368	76	26%
Printers Avenue	WB	446	514	68	15%
Bedmont Road	NB	858	1029	171	20%
Bedmont Road	SB	525	736	211	40%
College Road	EB	713	798	85	12%
Aerodrome Way	NB	600	683	83	14%
B4542 Little Oxhey Lane	EB	562	645	83	15%
B4542 Prestwick Road	WB	405	462	57	14%
Harefield Road (Batchworth)	EB	276	315	39	14%
Harefield Road (Batchworth)	WB	204	244	40	20%

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DELAY DIFFERENCE

The difference in delays on the highway network between Scenario 2 and Scenario 1 are shown in **Figure 4** for the AM peak and **Figure 5** for the PM peak. The plots show the impact of the Local Plan allocations on the link and junction delays.

There is an increase in delay at Denham Way / Chalfont Road / Maple Lodge Close junction of 51 seconds, and delays of 51 seconds southbound on Denham Way in the AM peak and 30 seconds westbound on Maple Lodge Cross in the PM peak. This is due to the increased traffic flows from the Local Plan allocations.

In Abbotts Langley, there is increased delay of 29 seconds on A41 Watford Road southbound at the junction with Bridge Road / Langleybury Lane in the AM peak.

In Batchworth Heath, , there is increased delay on White Hall Lane northbound at the junction with Batchworth Lane and A404 London Road. In the AM peak the increase is 16 seconds whilst in the PM peak it is 22 seconds.

On M25 at junction 18 there is increased delay of 26 seconds on the anticlockwise / southbound off slip in the PM peak. This is the likely cause of anticlockwise traffic from M25 rerouting to Junction 17 to reach Chorleywood Bottom.

In the PM peak, there is delay of 21 seconds on Gallows Hill northbound at the railway bridge signals.

There is increased delay on Chequers Lane in both peak periods. In the AM peak there is an increase in delay of 1 minute 20 seconds eastbound whilst in the PM peak there is an increase of 20 seconds westbound. This is because the M1 junction with A405 is already congested and traffic from Chequers Lane has to give way to the Northbound traffic on A405 and due to the increased traffic flow from the allocations there is further queuing on it.

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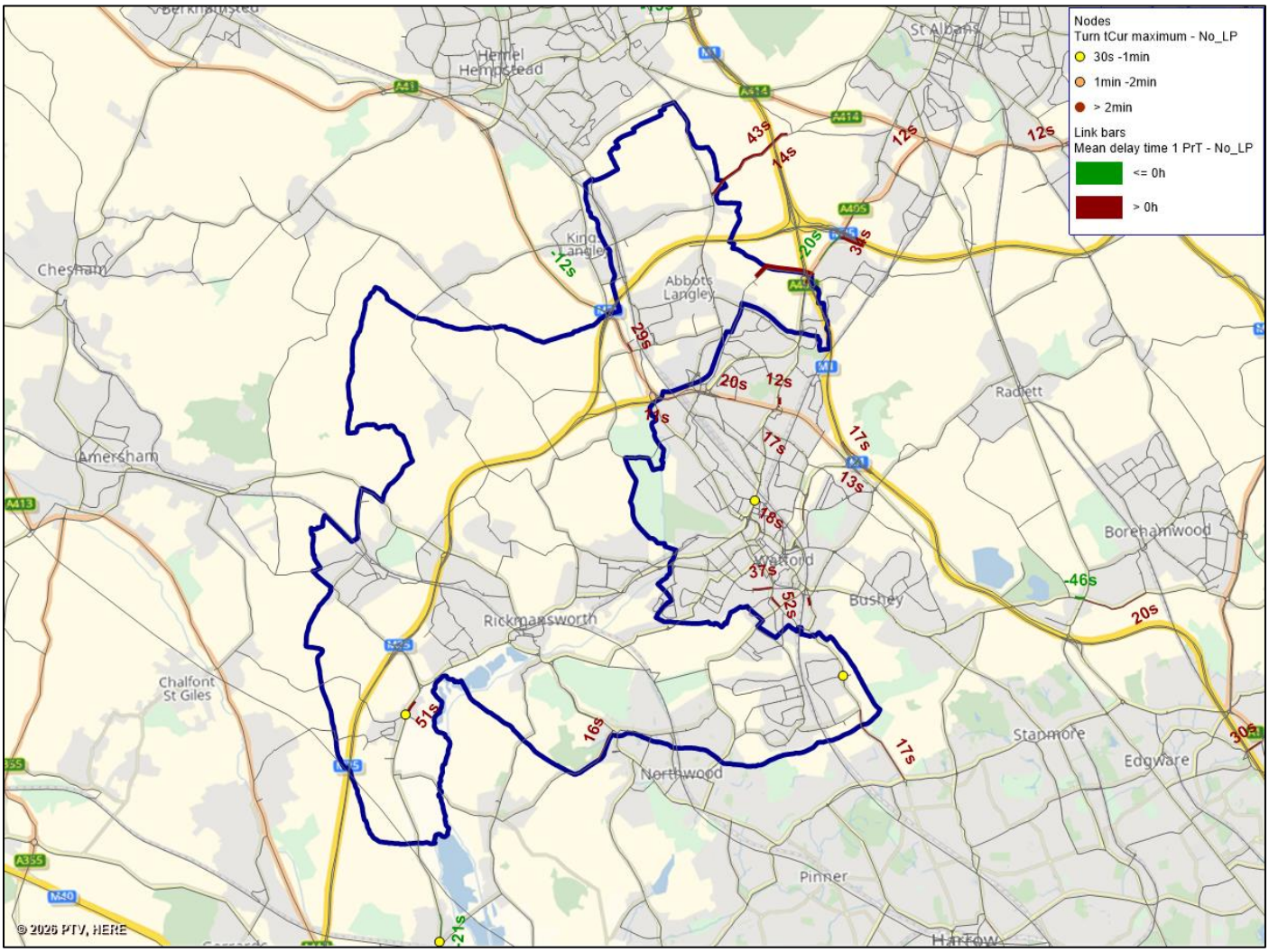

Figure 4: Delay Difference Scenario 2 minus Scenario 1 AM peak (0800-0900)

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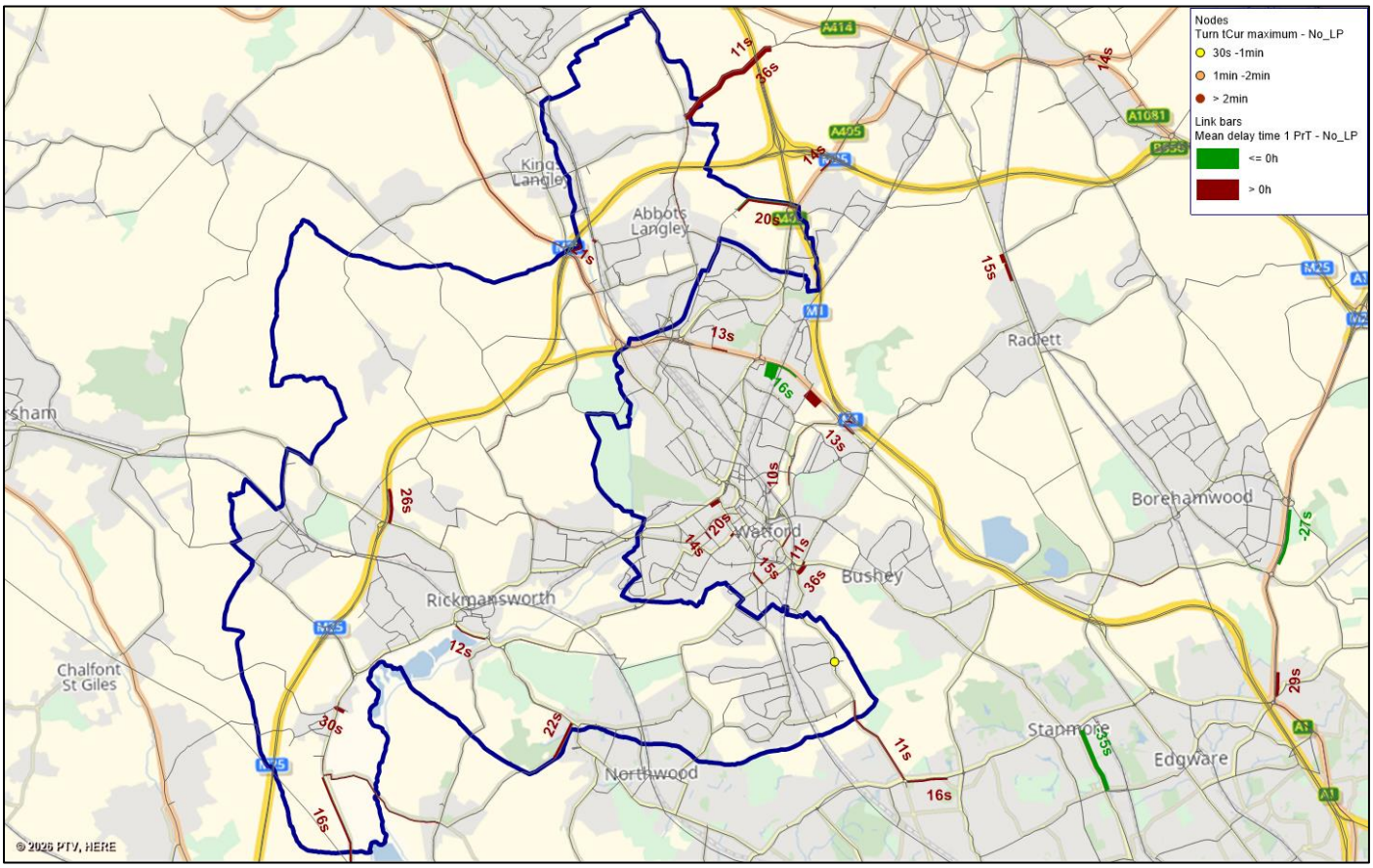

Figure 5: Delay Difference Scenario 2 minus Scenario 1 PM peak (1700-1800)

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DEVELOPMENT FLOWS

The largest allocated development has been examined to understand the number of trips it has generate and how the trips are distributed on the highway network. The plots in each peak show the arrivals and departures for the development assessed.

Land to the West and South of Maple Cross (EOS12.2)

The traffic flow generated by the Land to the West and South of Maple Cross allocation is shown in **Figure 6** and **Figure 7** for the AM peak and **Figure 8** and **Figure 9** for the PM peak.

In the AM peak, the development is forecast to generate a total of 515 departure and 185 arrival trips. In the PM peak, the development is forecast to generate a total of 211 departure and 437 arrival trips. There are two access routes for the development, one on Hornhill Road and the other on Denham Way.

The majority of the traffic uses Denham Way to travel to/from the M25 clockwise (northbound), Harefield and north-west London and travel south to/from West London via the M40 Junction 1/A40. Locally, there is traffic to/from Rickmansworth and Croxley Green.

In the AM peak, there are around 80 vehicles that travel west via Chalfont St Peter to A413 Amersham Road but less than 10 using this route to travel back to the development. This is because there is a delay to the traffic on North Orbital Road at the junction of North Orbital Road with Moorfield Road due to the signals at this junction in the AM peak.

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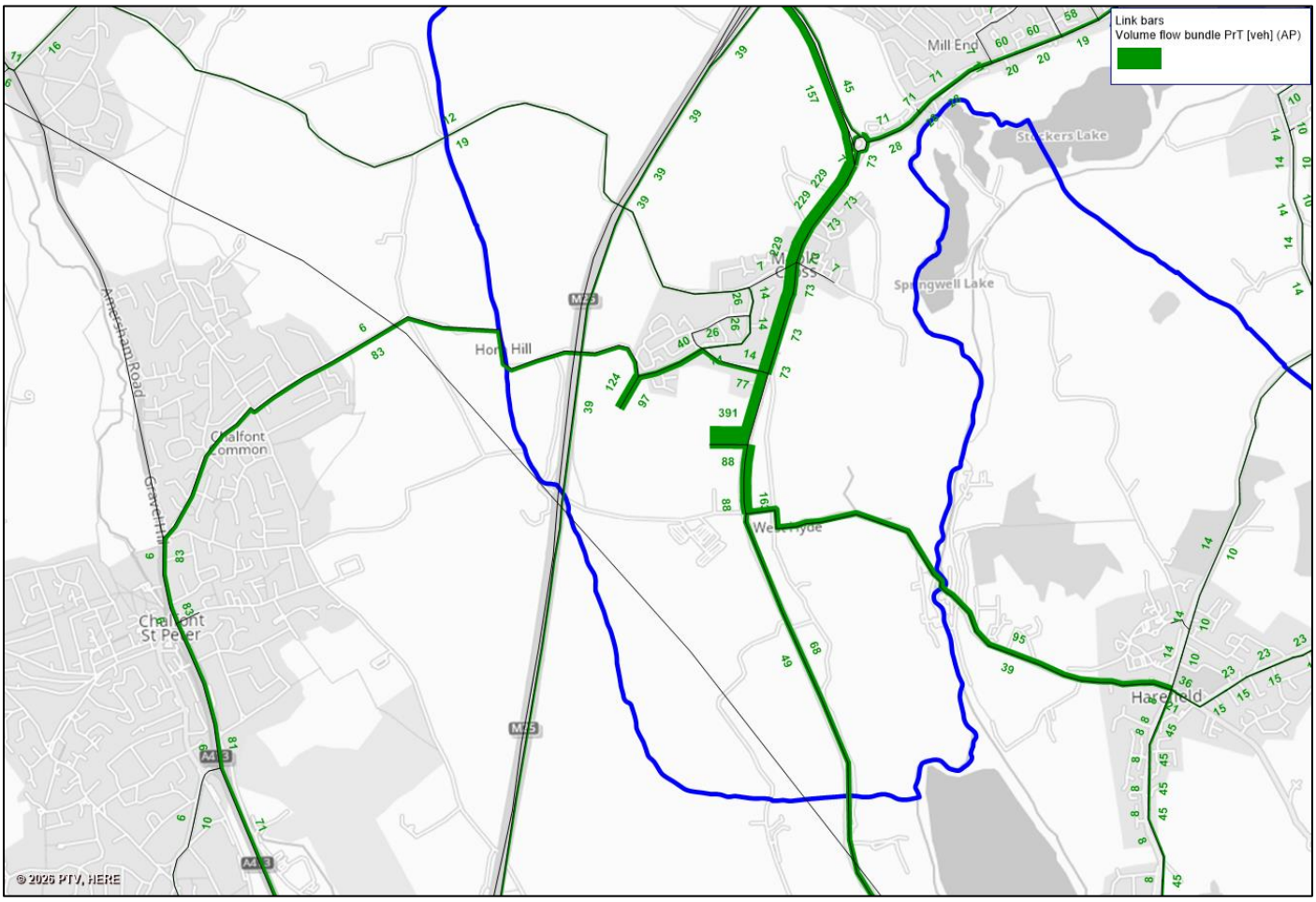

Figure 6: Traffic flows to/from Land to the West and South of Maple Cross allocation AM Peak (zoomed in) (0800-0900)

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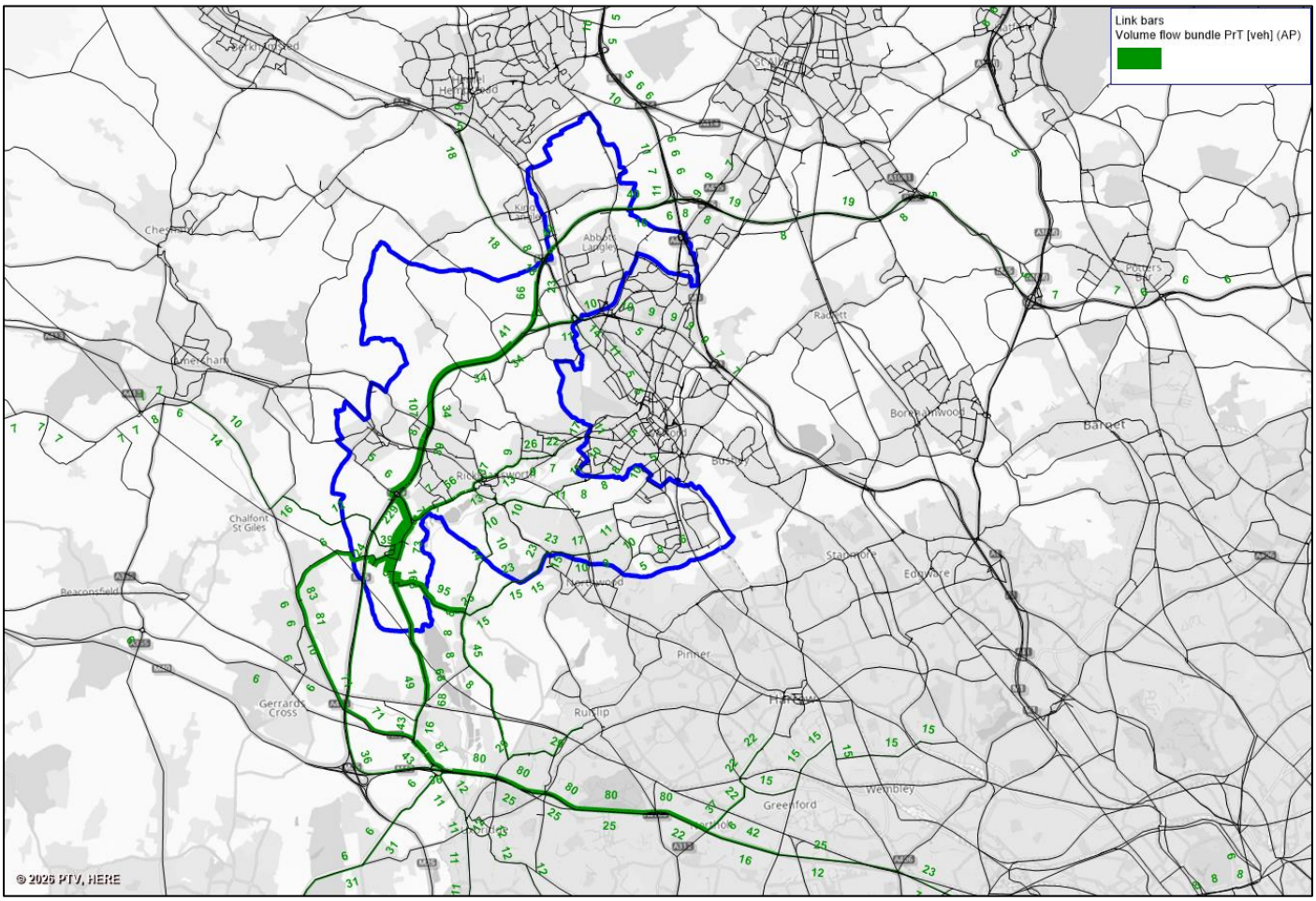

Figure 7: Traffic flows to/from Land to the West and South of Maple Cross allocation AM Peak (zoomed out) (0800-0900)

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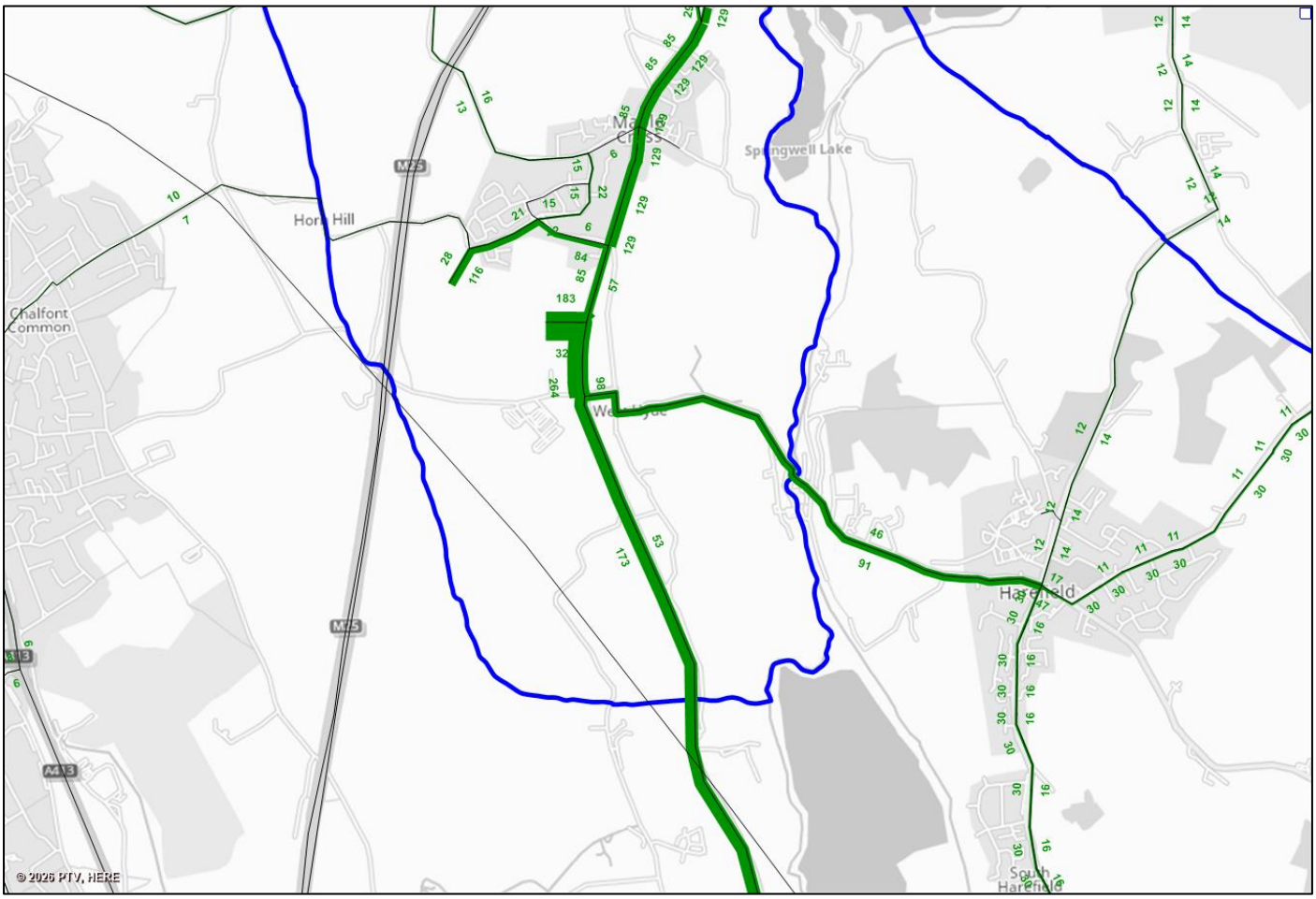

Figure 8: Traffic flows to/from Land to the West and South of Maple Cross allocation PM peak (zoomed in) (1700-1800)

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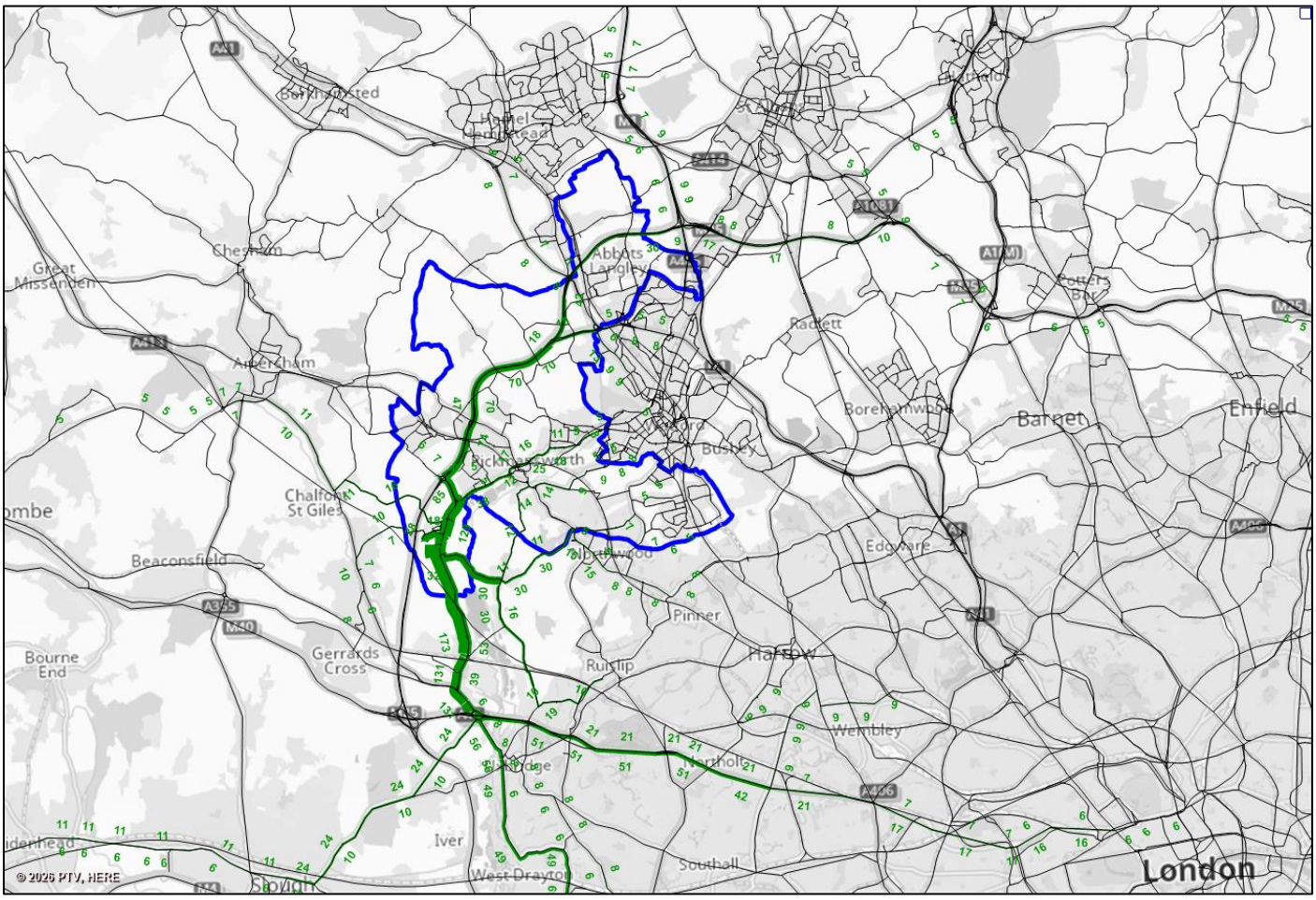

Figure 9: Traffic flows to/from Land to the West and South of Maple Cross allocation PM peak (zoomed out) (1700-1800)

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PUBLIC TRANSPORT

The Public Transport Assignment Model (PTAM) results are shown as flow differences between Scenario 2 and Scenario 1, presented in **Figure 10** for the AM peak and **Figure 11** for the PM peak. The plots show the impact of the allocations on the traffic flows. The flows shown in the figures are the difference in the number of public transport trips in each of the respective peak periods.
Overall, the results indicate an increase in public transport flows arising from the additional trips generated by the proposed allocations. These increases are distributed across the district, with the highest flow changes occurring in proximity to the development sites.

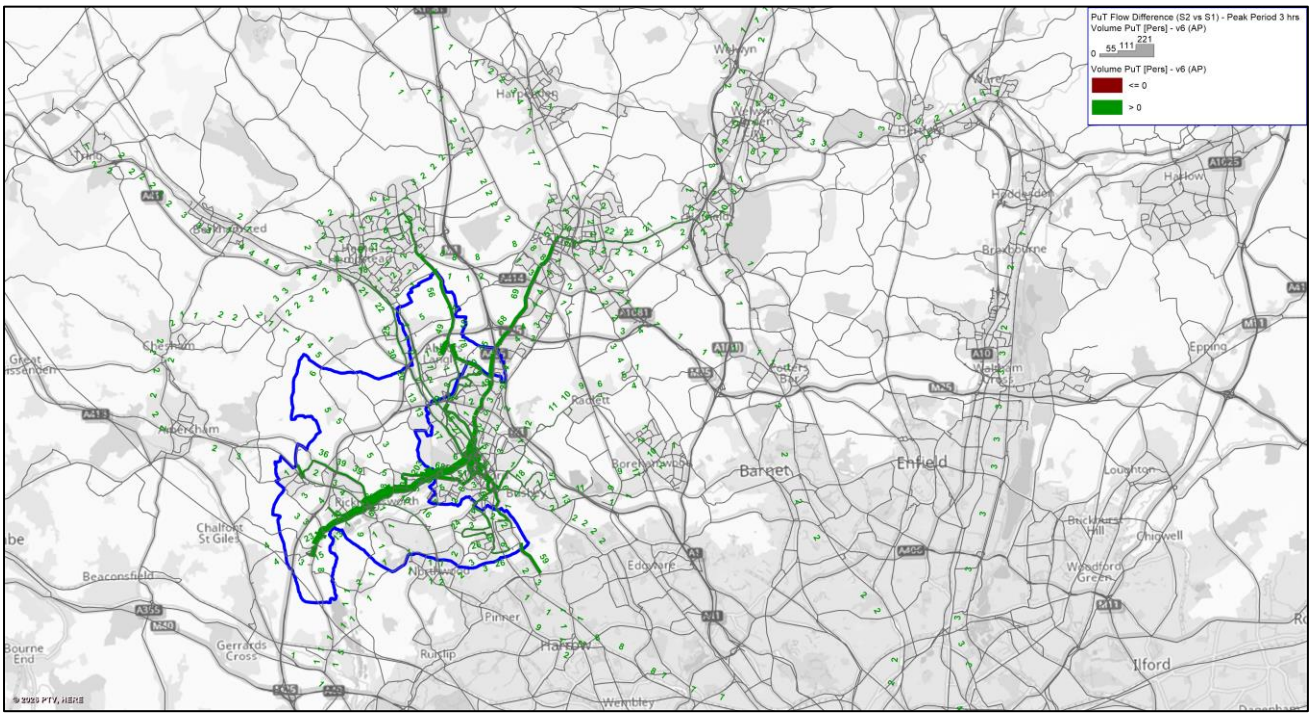

Figure 10: PTAM Flow Difference (Scenario 2 vs Scenario 1) – AM Peak Period (07:00hrs – 10:00hrs)

During the AM peak period, the allocations result in increased movements from zones within the Three Rivers District (TRD) towards Watford, particularly in the vicinity of Watford Junction rail station. These trips are predominantly accommodated by bus services 724 and 321. Route 346 also serves a notable

proportion of trips originating near South Oxley. Trips towards Hemel Hempstead primarily utilise Route 20, while movements towards St Albans and Hatfield typically involve a combination of Routes 724 and 725.

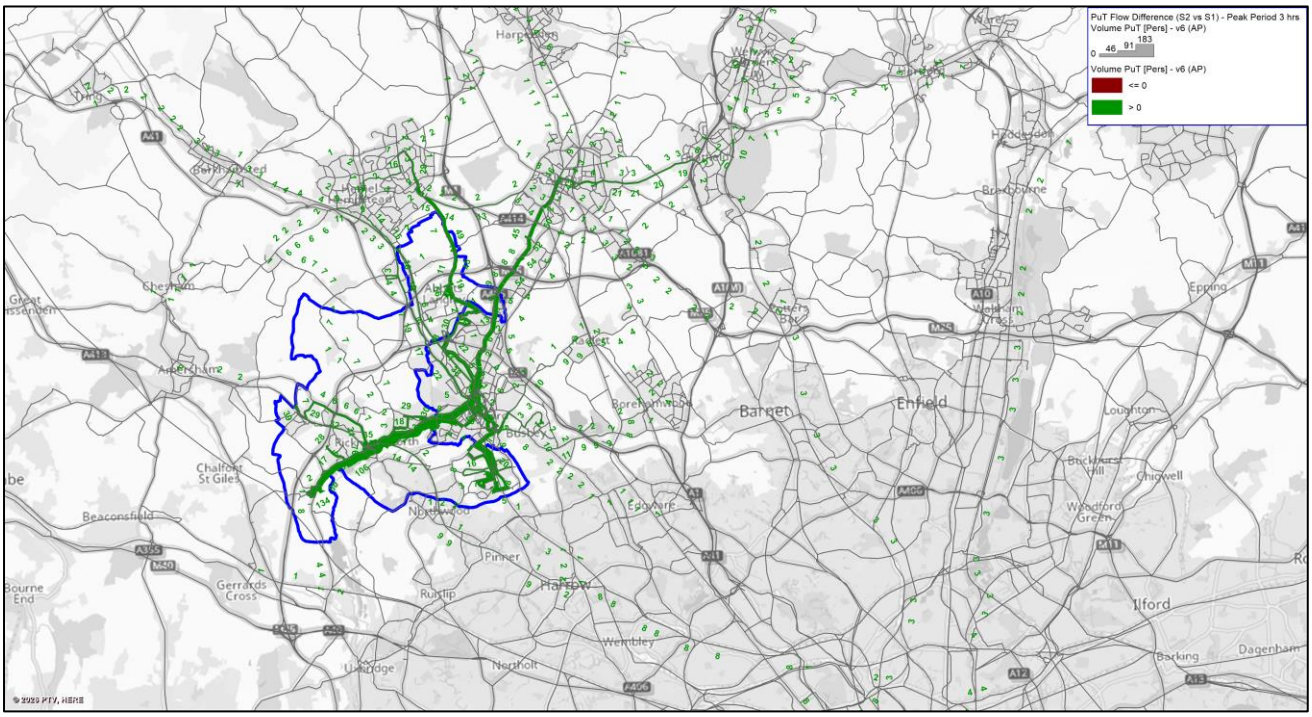

Figure 11: PTAM Flow Difference (Scenario 2 vs Scenario 1) – PM Peak Period (16:00hrs – 19:00hrs)

In the PM peak period, trip movements are generally reversed, with increased flows directed from Watford and surrounding areas towards the allocated zones within TRD. Bus services 724 and 725 towards Rickmansworth, along with Route 346 towards South Oxley, are identified as the most frequently used services. This reflects a broadly symmetrical travel pattern relative to the AM peak period, consistent with commuting movements associated with the allocations.

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SUMMARY

WSP were appointed by Three Rivers District Council (TRDC) to assess the impacts of the Three Rivers Local Plan on the transport network, both public transport and highway. The COMET transport model has been used to assess the impacts of the Three Rivers Local Plan on the transport network, both public transport and highway. This Technical Note summarises the scenarios, assumptions and results of the initial, pre-VDM, transport modelling process.

The following scenarios have been assessed within the COMET model, in AM and PM models only:

- **Scenario 1:** This reflects completed or committed development across Hertfordshire over the period 2023-2043.
- **Scenario 2:** This builds on Scenario 1 by including the Three Rivers Local Plan development allocations. In total, 8,952 dwellings and 546 jobs have been included in the modelling as Local Plan allocations.

There is an overall increase in traffic flows on the highway network in Scenario 2 compared to Scenario 1, due to the additional traffic generated by the allocations. These are generated across the whole district, with higher flows closest to the development sites. The greatest increases in flow (over 100 vehicles) on the TRDC road network are on A405 Denham Way, A412 Denham Way, Hornhill Road, Green Street, Shepherds Lane, Bedmond Road, College Road, A404 Chorleywood Road, Baldwins Lane, Aerodrome Way and B4542 Little Oxhey Lane.

The traffic flows have also been presented in tabulated form to provide absolute and percentage change in flows for the links on local roads in Three Rivers district which have been impacted due to the additional trips from the local plan allocations.

On M25 between Junction 18 and Junction 19, in the AM peak there is an increase in flow of 273 vehicles (3.6%) clockwise, and around 115 vehicles (2%) counterclockwise in the PM peak.

There are some links and junctions that are forecast to have increased delay due to the Local Plan allocations. The increased delay is forecast to occur at the Denham Way / Chalfont Road / Maple Lodge Close junction, on the A41 Watford Road, Gallows Hill and Chequers Lane in Abbotts Langley, on Rickmansworth Road in Northwood, and on the M25 anticlockwise off-slip at Junction 18.

The magnitude and distribution of the traffic flows to/from the largest development - Land to the West and South of Maple Cross (EOS12.2) has been examined in detail.

In the AM peak, the development is forecast to generate a total of 515 departure and 185 arrival trips. In the PM peak, the development is forecast to generate a total of 211 departure and 437 arrival trips. The development trips are forecast to have greatest impact on Denham Way, with the majority of trips travelling to/from M25 junction 17 and A40 Oxford Road.

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The impacts of the allocations on the public transport network in terms of the passenger flow changes have also been assessed. The results indicate an increase in public transport flows arising from the additional trips generated by the proposed allocations. These increases are distributed across the district, with the highest flow changes occurring in proximity to the development sites.