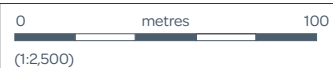


APPENDIX D.Illustrative Site Layout



- Key
- Site boundary
 - 01 Primary vehicular access point
 - 02 Emergency, bus and pedestrian cycle access only
 - 03 Retained and enhanced vegetation
 - 04 Primary access road and bus route
 - 05 Community orchard
 - 06 Sustainable drainage system including swales
 - 07 Pedestrian and cycle connection point
 - 08 Meadow planting and species-rich landscapes
 - 09 Pedestrian/cyclist, bus and emergency vehicle access link onto Tape Lane
 - 10 Car club parking space
 - 11 Shared pedestrian and cycle footpath
 - 12 Children's play space
 - 13 Extension to Tape Lane Allotments
 - ★ Mobility hub, including short-stay cycle parking, a bike repair/cycle maintenance area, a bus stop and parcel drop-off/pick-up lockers
 - Potential alternative pedestrian/cycle connection to local shop (subject to agreement with St Nicholas Hurst Parish Council)



CLIENT:
Mactaggart & Mickel Strategic Land

PROJECT:
Land off Lodge Road, Hurst

DRAWING:
Illustrative Masterplan

PROJECT NUMBER:
1422

DRAWING NUMBER: 003-01
CHECKED BY: SR

REVISION: B
STATUS: Draft

DATE: 15/07/2024
SCALE: 1:2,500



APPENDIX E. Stage 1 Road Safety Audits and Designer Response

Road Safety Audit Report

**Incorporating
Stage 1 Completion of Preliminary Design;
Design Organisation Response to items raised; and
Auditors View of Design Organisation Response.**



Proposed Development Access off and associated Highway Works along Lodge Road

Client:
i-Transport

Client reference:
ITB19328

Fenley
2 Blaenant
Emmer Green
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E: office@fenley.co.uk
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Report Status 4

Job no	RSA-24-057	Issue no	4	Date	July 2024
Prepared by	JJF	Verified by	ZB	Approved by	JJF
Filename and Path	Fenley/Road Safety Audits/RSA-24/RSA-24-057-4				

1.0 PROJECT DETAILS

Report Title:	Stage 1 Road Safety Audit
Date:	July 2024
Document reference and revision:	RSA-24-057-4
Prepared by:	Fenley Road Safety Limited
County Highway Authority:	Wokingham Borough Council
Design Organisation:	i-Transport
Project Sponsor:	Mactaggart & Mickel Strategic Land

REV	ISSUE PURPOSE	AUTHOR	CHECKED	APPROVED	DATE
0	Stage 1 Road Safety Audit drafted for Audit Team discussions	JJF			28 th June 2024
1	Stage 1 Road Safety Audit finalised and issued to the Design Organisation	JJF	ZB	JJF	8 th July 2024
2	Stage 1 Road Safety Audit Report format amended to incorporate a row for inclusion of a Design Organisation Response in order to maintain a concise record of items raised	JJF			8 th July 2024
3	Design Organisation Response incorporated	Ben Burrows on behalf of i-Transport			17 th July 2024
4	Auditor's View of Design Organisation Response	JJF			19 th July 2024

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4.0	Items Raised in this Stage 1 Road Safety Audit	4
	A.1 Alignment	
	A.2 General	
	A.3 Junctions	
	A.4 Walking, Cycling and Horse Riding	
	A.5 Traffic Signs, Carriageway Markings and Lighting	
5.0	Audit Team Statement	7

Appendices:

Stage 1	A1	Documents and Drawings provided for this Road Safety Audit
	A2	Item Location Plan
	A3	Documents and Drawings associated with the Design Organisation Response

2.0 INTRODUCTION

- 2.1 This report has been prepared by Fenley Road Safety Limited and results from a Stage 1 Road Safety Audit of the proposed development accesses and associated highway works along Lodge Road and Tape Lane, in Hurst. The proposals include the provision of a simple priority junction that is formed with 8 metre corner radii as well as the widening of the Lodge Road carriageway to the east, to provide a right turn lane. The works proposed along Tape Lane include the provision of an emergency / bus link and two pedestrian links as well as a short section of footway to the south. The proposals are to be undertaken as part of a proposed development of 99 homes.
- 2.2 The Audit Brief identifies that the proposals do not include any Departures from Standard, whether related to strategic decisions or otherwise.
- 2.3 This Road Safety Audit was undertaken during June and July 2024 in accordance with the Road Safety Audit Brief provided on the 18th June 2024 by the Design Organisation, i-Transport, on behalf of the Project Sponsor, Mactaggart & Mickel Strategic Land. The Road Safety Audit comprised of a site visit as well as an examination of the documents provided, detailed at **Appendix A1**. The Audit Team were satisfied that the Audit Brief was sufficient for the purpose of the Audit instructed. It has been confirmed that street lighting will be provided and that items such as surface water drainage, existing and proposed signage and utilities to include covers and telegraph poles, are to be assessed during the detail design stage of the scheme.
- 2.4 The Road Safety Audit has been undertaken by an Audit Team whose qualifications and experience accord with the requirements of GG119. The Audit Team consists of the following members:

Audit Team Leader

Jamie Fenning *BSc(Hons), MIHE, MCIHT, MSoRSA, National Highway RSA Certificate of Competency*
Road Safety / Highway Engineer

Audit Team Member

Zane Beswick *MCIHT, MSoRSA*
Road Safety / Highway Engineer

- 2.5 The site visit associated with this Audit was undertaken during the early afternoon of 24th June between the hours of 15:00 and 15:45. The site visit involved walking and driving around the local highway network for a 45-minute period whilst observing local infrastructure and current traffic conditions. The weather during the site visit was cloudy with clear patches, the road surface was dry and visibility was good. A number of pedestrians and cyclists were observed during the site visit to include pedestrians travelling along Tape Lane and the

footway of Lodge Lane. Vehicular traffic was also observed to include motorcycles, cars, public service vehicles, light and medium goods vehicles. The traffic flow was light.

- 2.6 The terms of reference of this Road Safety Audit are as described in GG119. The scheme has been examined and this report compiled, only with regard to the safety implications for road users of the scheme as presented. It has not been examined or verified for compliance with any other standards or criteria. However, in order to clearly explain a safety problem or the recommendation to resolve a problem, the Audit Team may on occasion have referred to a design standard for information only. All comments and recommendations are referenced to the design drawings supplied with the Audit Brief and the location of road safety concerns raised have been illustrated beneath the items along with relevant photographs for clarity, where appropriate, as well as on the Location Plan attached at **Appendix A2**.

Design Organisation Response

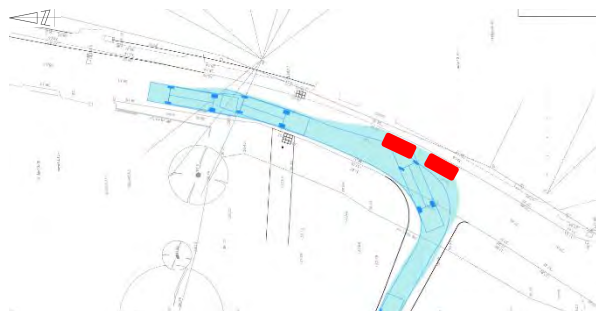
- 2.7 In accordance with national standards, this Road Safety Audit was finalised and issued to the Design Organisation as per the Road Safety Audit Report Template within Appendix D of GG119, which can be provided upon request from either the Audit Team or Design Organisation. The format of the Audit Report was subsequently revised to incorporate these paragraphs under the sub-heading as well as sufficient space beneath the items and recommendation, within Section 4, for the inclusion of a Design Organisation Response. This is generally contained within a separate Design Organisation Response Report but is included within this document in order to maintain a single record of all problems, recommendations and responses for the benefit of a concise Road Safety Audit trail to be held on file for Quality Assurance purposes.
- 2.8 The Design Organisation Response has been prepared by:
Name: Ben Burrows
Position / Organisation: Associate, i-Transport
- 2.9 Any drawings or documents associated with the Design Organisation Response are listed at **Appendix A3**, if applicable.
- 2.10 Upon the request of the Design Organisation and following receipt of the Design Organisation Response with any associated drawings, the Road Safety Audit Team Leader has provided a further comment on the item raised. The "Auditor's View on the Design Organisation Response" is included within a row beneath each item, for clarity.

3.0 ITEMS RAISED IN ANY PREVIOUS ROAD SAFETY AUDITS

- 3.1 Fenley Road Safety Limited have been made aware that the scheme has been subject to a previous Stage 1 Road Safety Audit by others, in November 2022. That document raised one road safety concern associated with vegetation limiting visibility at the proposed access works onto Lodge Lane, another associated with pedestrians crossing the proposed access, one associated with the proposed links onto Tape Lane and one associated with parked cars in proximity of the proposed uncontrolled crossings on School Road. This document reassesses the scheme in its entirety and raises any road safety concerns that should be addressed at this stage.

4.0 ITEMS RAISED AT THIS STAGE 1 ROAD SAFETY AUDIT

A.1	LOCAL ALIGNMENT
	<i>No Road Safety Concerns regarding LOCAL ALIGNMENT have been raised at this stage</i>
A.2	GENERAL
A.2.1	PROBLEM
Location:	Tape Lane
Summary:	Parked cars will prevent vehicles from utilising the emergency / bus link
Acc Type:	Sideswipe type collisions
The northern section of Tape Lane is a two-way single carriageway road that benefits from a footway to the east. The proposals include the provision of a priority access off the western side of Tape Lane that is to serve as an emergency / bus link for a development of circa 99 homes. The scheme drawings illustrate the swept path of various vehicles utilising the proposed link to include a pumping appliance and a 12 metre coach. The proposed link is narrow and inadequate for two-way traffic which raises no road safety concerns as it is understood that one-way bus services will be observed exiting only, however, an egressing coach is required to encroach the entire carriageway. Visibility splays of 2.4x43 metres are achievable from the proposed link and therefore the driver of the passenger service vehicle should not commence a manoeuvre until it is safe to do so, however, the Audit Team have concerns that on-street parking is permitted along Tape Lane and that a vehicle parked in proximity of the proposed link, will restrict a coach from exiting the link which could lead to a sideswipe type collision as one attempts to exit.	
RECOMMENDATION:	
It is recommended that measures are provided to prevent on-street parking taking place in the vicinity of the emergency / bus link.	

Location Plan:
DESIGN ORGANISATION RESPONSE provided by i-Transport on the 17th July 2024 following formal issue of this Stage 1 Road Safety Audit on the 8th July 2024

Acknowledged – On-street parking is temporary and no on-street parking was observed within the vicinity of the proposed emergency / bus access during site observations. Furthermore, Rule 243 of the Highway Code states that vehicles must not park opposite, or within 10 metres, of a junction or access. However, if necessary at the detailed design stage, parking restrictions in the form of signing and lining could be introduced to prevent on-street parking within the vicinity of the emergency / bus access.

AUDITOR'S VIEW OF DESIGN ORGANISATION RESPONSE dated 19th July 2024

Confirmation that parking restrictions could be introduced, addresses the road safety concern raised at this stage.

A.3 **JUNCTIONS**

No Road Safety Concerns regarding JUNCTIONS have been raised at this stage

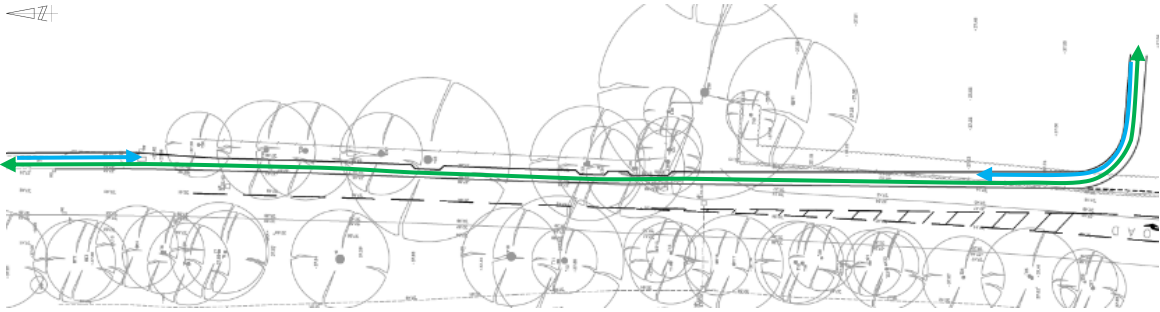
A.4 **WALKING, CYCLING AND HORSE RIDING**
A.4.1 **PROBLEM**

Location: Lodge Road

Summary: Pedestrians and wheelchair users may not be able to pass one another

Acc Type: Pedestrian trip slip fall and personal injury

Along the frontage of the application site, Lodge Road accommodates a verge both sides of the carriageway that accommodates a number of mature trees but benefits from a footway along at least one side of the carriageway within the built-up area of Hurst, that commences circa 160 metres to the north. The proposals include the provision of a priority access off the eastern side of Lodge Road and a footway along the eastern side to connect with the existing network to the north. The proposed 2.0 metre footway is to taper to 1.5 metres on approach to a number of trees where the footway will be locally reduced to 1.0 metres over short sections and be provided in a 'no dig' construction to ensure that the proposal does not impact on tree roots. The Audit Team understand that a 1.0 metre footway will accommodate all users in single file and that a 1.5 metre footway will allow two users to pass one another. Although understood to be a rare occurrence, the Audit Team have concerns that the proposed 1.5 metre footway is not adequate for a potential

wheelchair user to pass another user. A wheelchair user attempting to pass a pedestrian could inadvertently fall into the proposed footway leading to personal injuries or a vehicle to pedestrian type collision.	
RECOMMENDATION:	
It is recommended that the width of the footway either side of the 1.0 localised narrowings, is increased to allow all potential users to pass one another.	
Location Plan: 	
DESIGN ORGANISATION RESPONSE provided by i-Transport on the 17th July 2024 following formal issue of this Stage 1 Road Safety Audit on the 8th July 2024	
Acknowledged – The footway has been designed carefully with expert Arboricultural advice to ensure the retention of a number of trees on the eastern side of Lodge Road. A 1.5m width has been provided either side of the 1.0m narrowings and is adequate for two pedestrians to walk side by side or to pass one another. The proposed footway along Lodge Road will not form the principal pedestrian desire line from the site, with additional pedestrian points of access provided onto Tape Lane to the northeast and southeast respectively. All users (including those who are mobility impaired) will therefore have multiple options to safely access the site. On the rare occasion that a wheelchair user may utilise the footway on Lodge Road, the design ensures that intervisibility between users is good and provides adequate opportunities for a user to wait at the 2.0m wide sections of the footway to allow a wheelchair user to pass (and vice versa).	
AUDITOR'S VIEW OF DESIGN ORGANISATION RESPONSE dated 19th July 2024	
<i>The Audit Team understand that the footway has been designed following Arboricultural advice and visibility is of a good level to allow a pedestrian to wait at an appropriate location should a wheelchair / perambulator be observed.</i>	
A.5	TRAFFIC SIGNS, CARRIAGEWAY MARKINGS AND LIGHTING
	<i>No Road Safety Concerns regarding TRAFFIC SIGNS, CARRIAGEWAY MARKINGS AND LIGHTING have been raised at this stage</i>

5.0 STAGE 1 ROAD SAFETY AUDIT TEAM STATEMENT

5.1 We certify that this Road Safety Audit has been carried out in accordance with GG119.

Audit Team Leader

Name: **Jamie Fenning** *BSc (Hons), MIHE, MCIHT, MSoRSA, HE RSA Certificate of Competency*

Signed: 

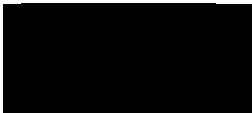
Position: Road Safety / Highway Engineer

Organisation: Fenley Road Safety Limited

Date: 19th July 2024

Audit Team Member

Name: **Zane Beswick** *MCIHT, MSoRSA*

Signed: 

Position: Road Safety / Highway Engineer

Organisation: Fenley Road Safety Limited

Date: 8th July 2024

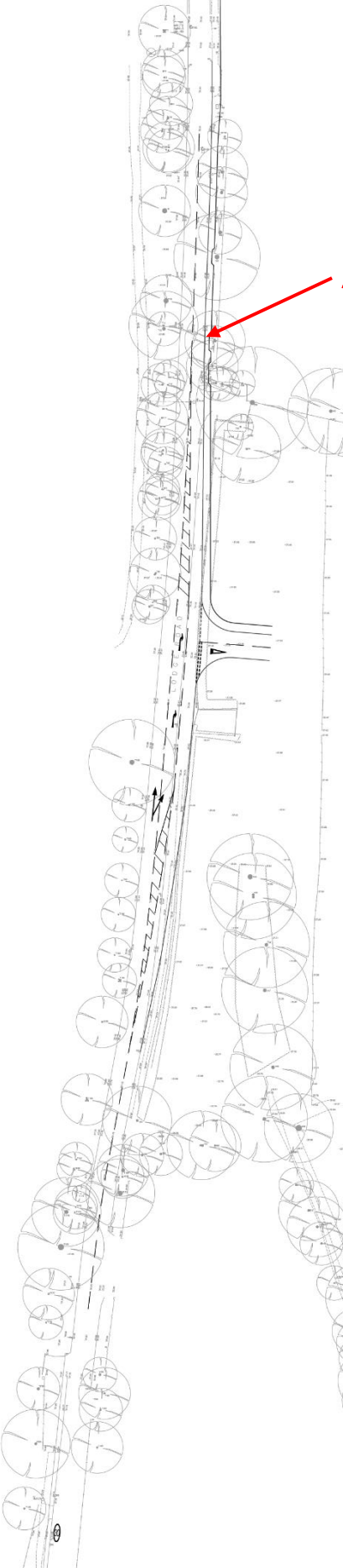
Appendix A1

Documents and Drawings provided for this Stage 1 Road Safety Audit

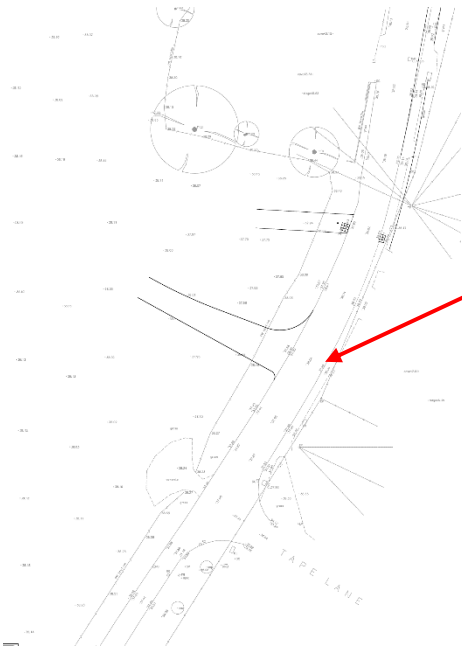
<u>Audit Stage</u>	<u>Doc. No.</u>	<u>Rev</u>	<u>Title</u>
Stage 1	ITB19328-007	-	Stage 1 Road Safety Audit Brief
	<u>Dwg No.</u>	<u>Rev</u>	<u>Title</u>
	ITB19328-GA-001	C	Potential Site Access Arrangement
	ITB19328-GA-005	-	Swept Path Analysis – Refuse Vehicle
	ITB19328-GA-003	A	Potential Emergency / Bus Access Arrangement
	ITB19328-GA-006	-	Potential Emergency / Bus Access Arrangement Swept Path Analysis – Fire Tender
	ITB19328-GA-131	-	Potential Offsite Pedestrian / Cycle Improvement Scheme

Appendix A2

Item Location Plan



A.4.1



A.2.1

Appendix A3

Drawings associated with the Design Organisation Response

<u>Audit Stage</u>	<u>Drawing No.</u>	<u>Rev</u>	<u>Title</u>
Stage 1			

fenley

Road Safety Audit Report

**Incorporating
Stage 1 Completion of Preliminary Design;
Design Organisation Response to items raised; and
Auditors View of Design Organisation Response.**



Proposed Highway Works to Improve Walking and Cycle Access to Twyford Station

Client:
i-Transport

Client reference:
ITB19238

Fenley
2 Blaenant
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Report Status 4

Job no	RSA-24-074	Issue no	4	Date	July 2024
Prepared by	JJF	Verified by	ZB	Approved by	JJF
Filename and Path	Fenley/Road Safety Audits/RSA-24/RSA-24-074-4				

1.0 PROJECT DETAILS

Report Title:	Stage 1 Road Safety Audit
Date:	July 2024
Document reference and revision:	RSA-24-074-4
Prepared by:	Fenley Road Safety Limited
County Highway Authority:	Wokingham Borough Council
Design Organisation:	i-Transport
Project Sponsor:	Mactaggart & Mickel Strategic Land

REV	ISSUE PURPOSE	AUTHOR	CHECKED	APPROVED	DATE
0	Stage 1 Road Safety Audit drafted for Audit Team discussions	JJF			28 th June 2024
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3	Design Organisation Response incorporated	Ben Burrows on behalf of i-Transport			17 th July 2024
4	Auditor's View of Design Organisation Response	JJF			19 th July 2024

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	A.2 General	
	A.3 Junctions	
	A.4 Walking, Cycling and Horse Riding	
	A.5 Traffic Signs, Carriageway Markings and Lighting	
5.0	Audit Team Statement	12

Appendices:

Stage 1	A1	Documents and Drawings provided for this Road Safety Audit
	A2	Item Location Plan
	A3	Documents and Drawings associated with the Design Organisation Response

2.0 INTRODUCTION

- 2.1 This report has been prepared by Fenley Road Safety Limited and results from a Stage 1 Road Safety Audit of the proposed highway works along Lodge Road, Broadwater Road and Hust Road between Hurst and Twyford. The proposals include the provision of advisory cycle lanes with the removal of the road centreline and coloured surfacing across junctions, the provision of footway widening to form shared footway cycleway with priority crossings of side roads, uncontrolled crossing points and reduced corner radii at some side roads. The proposals are to be undertaken as part of a proposed development of 99 homes in order to improve connectivity between Hurst and Twyford Train Station.
- 2.2 The Audit Brief identifies that the proposals do not include any Departures from Standard, whether related to strategic decisions or otherwise.
- 2.3 This Road Safety Audit was undertaken during June and July 2024 in accordance with the Road Safety Audit Brief provided on the 18th June 2024 by the Design Organisation, i-Transport, on behalf of the Project Sponsor, Mactaggart & Mickel Strategic Land. The Road Safety Audit comprised of a site visit as well as an examination of the documents provided, detailed at **Appendix A1**. The Audit Team were satisfied that the Audit Brief was sufficient for the purpose of the Audit instructed. It has been confirmed that street lighting will be provided and that items such as surface water drainage, existing and proposed signage and utilities to include covers and telegraph poles, are to be assessed during the detail design stage of the scheme.
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Audit Team Leader

Jamie Fenning *BSc(Hons), MIHE, MCIHT, MSoRSA, National Highway RSA Certificate of Competency*
Road Safety / Highway Engineer

Audit Team Member

Zane Beswick *MCIHT, MSoRSA*
Road Safety / Highway Engineer

- 2.5 The site visit associated with this Audit were undertaken during the early afternoon of 24th June between the hours of 15:45 and 16:45 as well as 18:00 and 19:00. The site visits involved walking and driving around the local highway network for a 120-minute period whilst observing local infrastructure and current traffic conditions. The weather during the site visits was cloudy with clear patches, the road surface was dry and visibility was good. A number of pedestrians and cyclists were observed during the site visits to include travelling between

Twyford and Hurst. Vehicular traffic was also observed to include motorcycles, cars, public service vehicles, light and medium goods vehicles. The traffic flow was light to moderate.

- 2.6 The terms of reference of this Road Safety Audit are as described in GG119. The scheme has been examined and this report compiled, only with regard to the safety implications for road users of the scheme as presented. It has not been examined or verified for compliance with any other standards or criteria. However, in order to clearly explain a safety problem or the recommendation to resolve a problem, the Audit Team may on occasion have referred to a design standard for information only. All comments and recommendations are referenced to the design drawings supplied with the Audit Brief and the location of road safety concerns raised have been illustrated beneath the items along with relevant photographs for clarity, where appropriate, as well as on the Location Plan attached at **Appendix A2**.

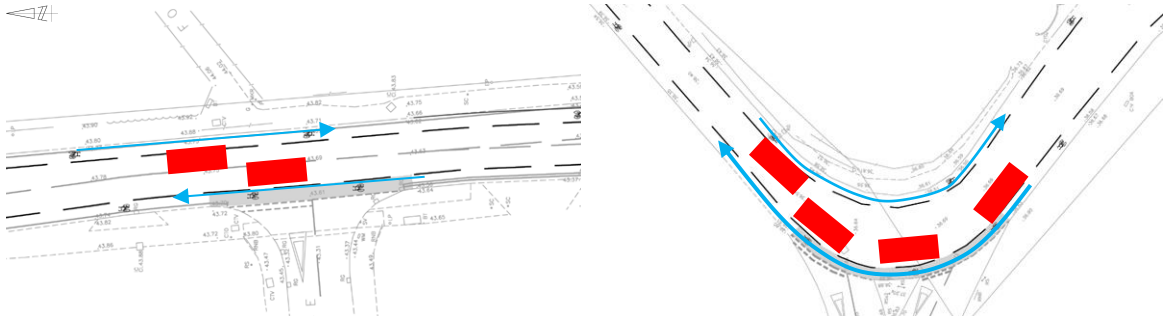
Design Organisation Response

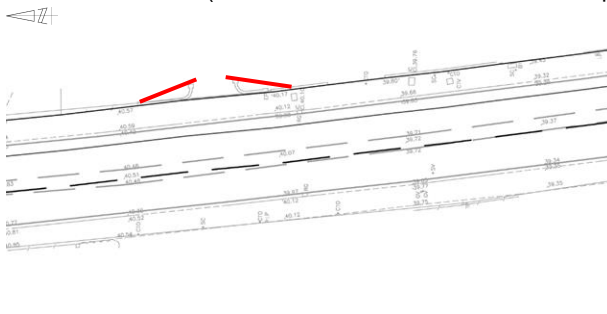
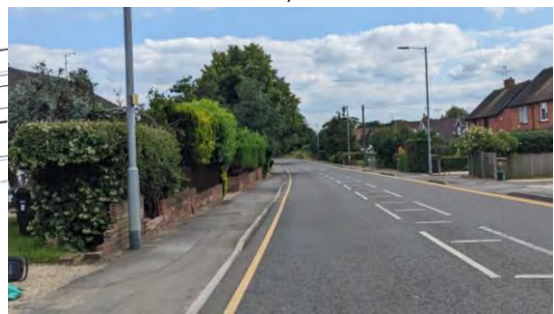
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Name: Ben Burrows
Position / Organisation: Associate, i-Transport
- 2.9 Any drawings or documents associated with the Design Organisation Response are listed at **Appendix A3**, if applicable.
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3.0 ITEMS RAISED IN ANY PREVIOUS ROAD SAFETY AUDITS

- 3.1 Fenley Road Safety Limited have not been made aware of any previous road safety audits associated with the current proposals.

4.0 ITEMS RAISED AT THIS STAGE 1 ROAD SAFETY AUDIT

A.1	LOCAL ALIGNMENT
	<i>No Road Safety Concerns regarding LOCAL ALIGNMENT have been raised at this stage</i>
A.2	GENERAL
A.2.1	PROBLEM
Location:	Scheme
Summary:	Insufficient space is available for opposing traffic
Acc Type:	Vehicle to cyclist and Sideswipe type collisions
Lodge Road, Broadwater Road and Hurst Road are single carriageway two-way roads that accommodate lane widths of between 2.85 metres and 3.5 metres with an area of central hatching present along Broadwater Road where the carriageway width exceeds 6 metres. The proposals include the provision of 1.2 metre advisory cycle lanes both sides of the carriageway and the removal of the road centreline along parts of Lodge Road as well as both Broadwater Road and Hurst Road. Advisory cycle lanes are formed with a broken warning line that advises road users that they must not cross unless it is unavoidable. It is therefore general practice that traffic does not encroach the advisory cycle lanes. The provision of the proposed advisory cycle lanes will reduce the width available for two-way vehicular traffic to circa 3.3 metres. Data provided within the documents associated with the Audit Brief, identify that Lodge Road, Broadwater Road and Hurst Lane observe annual average weekday traffic flows of 4,249, 7,912 and 6,352 respectively. Whilst the proposed advisory cycle lanes allow for two-way traffic as vehicles are permitted to encroach the cycle lanes if it is unavoidable, the Audit Team have concerns that the removal of the road centreline along a two-way traffic lane that is below 4.0 metres in width and observes traffic flows exceed 4000 vehicles per day, could introduce conflict and lead to vehicles to cyclist or sideswipe type collisions. This is of particular concern in proximity to bends in the carriageway where intervisibility between opposing vehicles, is limited.	
RECOMMENDATION:	
It is recommended that the road centrelines are retained.	
Location Plan: 	

DESIGN ORGANISATION RESPONSE provided by i-Transport on the 17 th July 2024 following formal issue of this Stage 1 Road Safety Audit on the 9 th July 2024	
Accepted – the design has been amended to reinstate the centreline road markings where necessary.	
AUDITOR'S VIEW OF DESIGN ORGANISATION RESPONSE dated 19 th July 2024	
Confirmation that the road centreline is to be retained, addresses the road safety concern raised at this stage.	
A.2.2	PROBLEM
Location:	Hurst Road
Summary:	Insufficient intervisibility is achievable at the driveways for the provision of a shared footway cycleway
Acc Type:	Vehicle to cyclist type collisions
Hurst Road accommodates a footway and allows direct access to the driveways off both sides of the carriageway in places upon entry to the village of Twyford. The proposals include the upgrade of the footway to the east of Hurst Road as it enters Twyford before terminating just to the south of Wellington Close where hazard warning tactile paving is provided and the cycle route transitions to on-carriageway advisory cycle lanes. It is noted that some of the driveways off the eastern side of the carriageway do not benefit from a good level of pedestrian visibility due to boundary treatments. It is understood that the limited intervisibility at the driveways has not been a road safety concern, however, the Audit Team have concerns that the upgrade of the footway to a shared footway cycleway will result in cyclists approaching the driveways at speeds in excess of that observed by pedestrians which could lead to a vehicle egressing a driveway into the path of an approaching cyclist resulting in a vehicle to cyclist type collision.	
RECOMMENDATION:	
It is recommended that adequate intervisibility is achievable.	
Location Plan: (NB: not all locations where this item is present, are illustrated below)  	
DESIGN ORGANISATION RESPONSE provided by i-Transport on the 17 th July 2024 following formal issue of this Stage 1 Road Safety Audit on the 9 th July 2024	
Accepted – to assist intervisibility the design has been amended to include an edge of footway marking a distance 250mm from the back edge of the shared footway/cycleway where driveways are present. This will ensure that cyclists will be a minimum of 250mm from existing driveways.	

AUDITOR'S VIEW OF DESIGN ORGANISATION RESPONSE dated 19th July 2024

The provision of line marking along the back edge of the footway cycleway will discourage cyclists from travelling close to the boundaries and should therefore maximise the achievable intervisibility between vehicles egressing driveways and cyclists.

A.2.3 PROBLEM

Location: Hurst Road

Summary: Passenger service vehicles within bus stop may encroach the through carriageway

Acc Type: Vehicle sideswipe type collisions

Hurst Road follows a 90° bend in proximity to Twyford Train Station where a bus layby is present immediately adjacent to the southern entrance. The proposals include the relocation of the bus layby to the west of the southern entrance allowing a larger pedestrianised area. The relocation of the bus stop away from the entrance does not raise any road safety concerns, however, no swept path analysis has been provided with the Audit Brief to illustrate that a passenger service vehicle can access and stand within the layby without encroaching the adjacent carriageway. The Audit Team have concerns that a passenger service vehicle could partially encroach the Hurst Road carriageway around the bend in the road where the entire lane width is utilised by larger vehicles which could lead to sideswipe type collisions.

RECOMMENDATION:

It is recommended that the expected vehicles can stand within the proposed layby without encroaching the through carriageway.

Location Plan:

DESIGN ORGANISATION RESPONSE provided by i-Transport on the 17th July 2024 following formal issue of this Stage 1 Road Safety Audit on the 9th July 2024

Acknowledged – the existing bus stop adjacent to Twyford Railway Station comprises a 2.0m wide layby and therefore results in a bus partially encroaching into the Hurst Road carriageway. The existing 128/129 bus service operates hourly Monday-Saturday and therefore this occurs relatively infrequently throughout a typical weekday. Hurst Road adjacent to Twyford Railway Station also has an unblemished highway safety record over the most recently available 5-year period and therefore it is understood that this existing arrangement has not led to any impacts on the safe operation of Hurst Road.

The design proposals provide a significantly improved bus stop and bus layby arrangement that will improve access to public transport services for all users. As part of the proposals, the bus layby will be widened to c. 3.0m. Whilst it is accepted that a bus will continue to partially encroach into the carriageway when standing at the bus layby, this revised design represents a significant betterment to the existing situation.

However, if deemed necessary, the layby proposals could be modified further at the detailed design stage.

AUDITOR'S VIEW OF DESIGN ORGANISATION RESPONSE dated 19th July 2024

It is understood that the proposals are a betterment over the bus layby as the relocation should ensure that all approaching northbound motorists have clear visibility of a stationary passenger service vehicle encroaching the carriageway ahead.

A.2.4 PROBLEM

Location: Hurst Road

Summary: Passenger service vehicles will block visibility for traffic egressing Byron Road

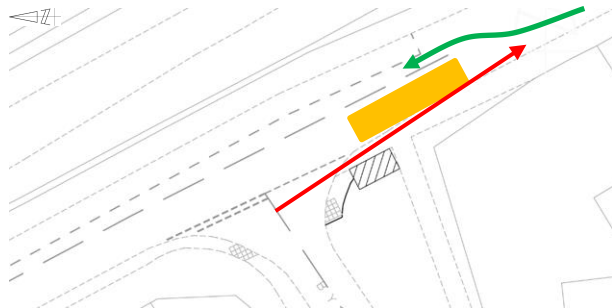
Acc Type: Vehicle side and rear impact type collisions

Hurst Road benefits from bus stops both sides of the carriageway to include one approximately 25 metres to the east of Byron Road. The proposals include the relocation of the bus stop to a location immediately west of Byron Road as well as the provision of a bus shelter. The Audit Team have concerns that a stationary passenger service vehicle at the relocated bus stop, will block visibility for motorists wishing to turn out of Byron Road where traffic could be overtaking the stationary vehicle. Limited visibility at a priority junction could result in a vehicle attempting to undertake a manoeuvre when it is not safe to do so, into the path of an approaching vehicle leading to a side or rear impact type collisions.

RECOMMENDATION:

It is recommended that the existing bus stop is retained.

Location Plan:



DESIGN ORGANISATION RESPONSE provided by i-Transport on the 17th July 2024 following formal issue of this Stage 1 Road Safety Audit on the 9th July 2024

Acknowledged – the revised bus stop location comprises a minor modification to the existing arrangement on Hurst Road, which is positioned c. 15m to the east of the existing Hurst Road /

Byron Road priority junction. The bus stop is served by the 128/129 bus service which operates at an hourly frequency Monday-Saturday.

Byron Road is a minor residential street and provides access to a small number of private residential dwellings. Access to Byron Road is achieved via two separate points of access onto Hurst Road, the most northern of which is located within the vicinity of the revised bus stop location near Twyford Railway Station. On this basis, the likely number of vehicle movements using the northern Byron Road junction will be low over the duration of a typical day. This, when combined with the hourly frequency of the existing 128/129 bus service, serves to limit the likelihood that any vehicle will arrive at the junction whilst a bus is temporarily waiting at the proposed bus stop location.

Furthermore, the revised bus stop is positioned c. 30-40m to the west of an existing pedestrian refuge island and adjacent to a length of on-street parking bays adjacent to Twyford Railway Station. These existing features will prevent vehicles from overtaking a stationary bus whilst it temporarily waits at the proposed bus stop.

Nevertheless, appropriate measures, i.e. signing and lining to alert existing users of the presence of the bus stop will be investigated and introduced as necessary at the detailed design stage.

AUDITOR'S VIEW OF DESIGN ORGANISATION RESPONSE dated 19th July 2024

Motorists should not attempt to undertake a manoeuvre unless it is safe to do so and therefore a vehicle existing Byron Road should not proceed if a stationary bus is restricting their visibility. It is understood that no road traffic collisions have been reported in proximity of the existing bus stop.

A.3 JUNCTIONS

No Road Safety Concerns regarding JUNCTIONS have been raised at this stage

A.4 WALKING, CYCLING AND HORSE RIDING

A.4.1 PROBLEM

Location: Scheme

Summary: Traffic may pass close to cyclists

Acc Type: Vehicle to cyclist, cyclist loss of control type collision

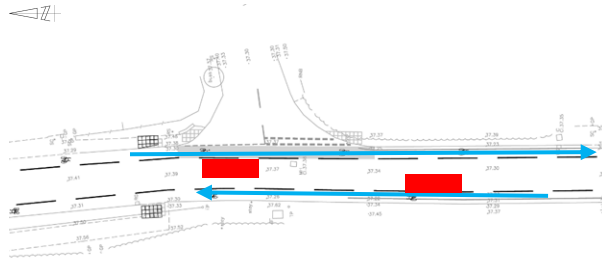
Lodge Road, Broadwater Road and Hurst Road observes cyclists which is likely to consist of commuters travelling between Hurst and Twyford Train Station as well as those cycling for leisure. The proposals introduce an advisory cycle lane along parts of Lodge Road, Broadwater Road and Hurst Road that based on measurements from the scheme drawings, are to be 1.2 metres wide. The provision of advisory cycle lanes is beneficial as they delineate an area of the carriageway that is intended for the use of cyclists and indicate a recommended line of travel, however, the Audit Team have concerns that the 1.2 metre width is too narrow and could encourage close passing of cyclists by motorists who judge their road position with reference to the nearside

marking. Vehicles passing cyclists too close, could lead to vehicle to cyclist as well as cyclist loss of control type collisions due to close passing.

RECOMMENDATION:

It is recommended that the width of the advisory cycle lanes is increased where possible and removed with the proposed cycle symbols retained to highlight the potential presence of cyclists, where not.

Location Plan:



DESIGN ORGANISATION RESPONSE provided by i-Transport on the 17th July 2024 following formal issue of this Stage 1 Road Safety Audit on the 9th July 2024

Accepted - the design has been amended to replace the advisory cycle lanes with advisory on-carriageway cycle symbol markings. Where necessary, the on-carriageway cycle symbol markings have been evenly spaced along Lodge Road, Broadwater Lane and Hurst Road respectively and include coloured road surfacing to clearly highlight the possible presence of cyclists to existing road users.

AUDITOR'S VIEW OF DESIGN ORGANISATION RESPONSE dated 19th July 2024

Confirmation that the advisory cycle lanes have been removed from the proposal, addresses the road safety concern raised at this stage. The proposed cycle symbols that are to be highlighted with a contrasting coloured surface, should encourage motorists to proceed appropriately.

A.4.2 PROBLEM

Location: Scheme

Summary: Visually impaired pedestrians may not appreciate that cyclists utilised the footway

Acc Type: Cyclist to pedestrian type collision

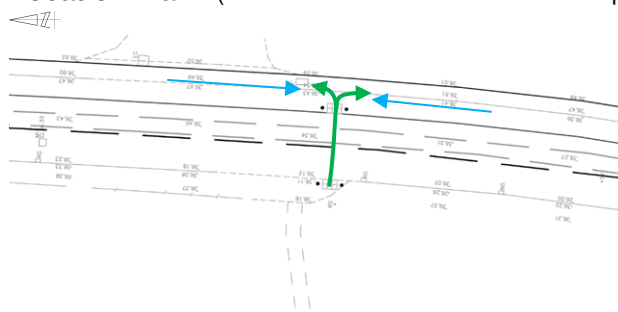
Broadwater Road accommodates a footway along the eastern side of the carriageway between the village of Hurst and Twyford. The proposals widen the existing footway to upgrade it to a footway cycleway. The footfall along the existing footway is not considerable and therefore a shared footway cycleway should operate adequately. It is noted, however, that the proposed tactile paving is configured to highlight the presence of a segregated footway cycleway and that measures to warn of the presence of the transition from a footway to a shared footway cycleway are missing in places. The Audit Team have concerns that the proposed ladder and tramline

tactile paving could confuse the visually impaired and the lack of measures highlighting the change in characteristics at some locations, could lead to cyclist to pedestrian type collisions.

RECOMMENDATION:

It is recommended that tactile paving is provided in accordance with guidance.

Location Plan: (NB: not all locations where this item is present, are illustrated below)



DESIGN ORGANISATION RESPONSE provided by i-Transport on the 17th July 2024 following formal issue of this Stage 1 Road Safety Audit on the 9th July 2024

Accepted – the tactile paving arrangements will be refined at the detailed design stage to ensure accordance with all necessary guidance.

AUDITOR'S VIEW OF DESIGN ORGANISATION RESPONSE dated 19th July 2024

Confirmation that the tactile paving arrangements throughout the scheme will be further developed, addresses the road safety concern raised at this stage.

A.4.3 PROBLEM

Location: Broadwater Road

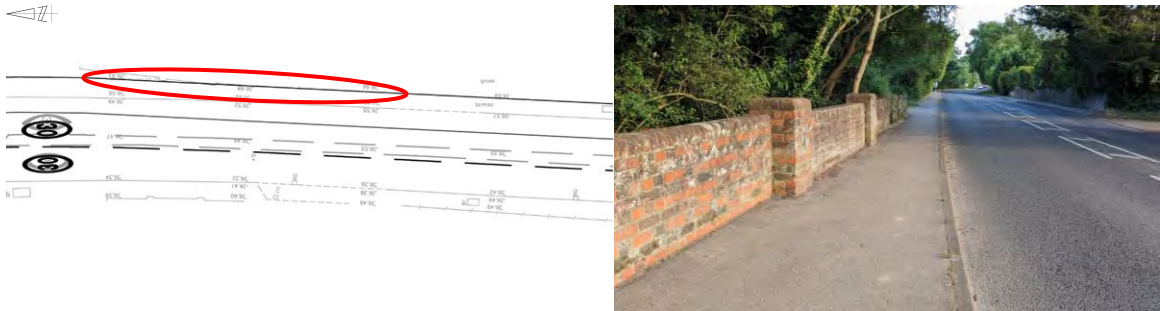
Summary: Cyclists could fall over the existing bridge parapet

Acc Type: Cyclist fall and personal injury

Broadwater Road accommodates a footway along the eastern side of the carriageway and passes across the Twyford Brook where bridge parapets are provided that are circa 0.75 metres high. The proposals widen the existing footway to upgrade it to a footway cycleway. The scheme drawing notes that the 'height of the parapet wall (is) to be considered', however, no details are provided at this stage. The Audit Team have concerns that the existing parapet will not contain a cyclist that falls off his bicycle which could lead to considerable personal injury.

RECOMMENDATION:

It is recommended that measures are provided to prevent the possibility of cyclists falling over the parapet.

Location Plan: 	
DESIGN ORGANISATION RESPONSE provided by i-Transport on the 17 th July 2024 following formal issue of this Stage 1 Road Safety Audit on the 9 th July 2024	
Accepted – the design has been amended to confirm that the height of the bridge parapets will be raised appropriately, with the details of this to be confirmed at the detailed design stage.	
AUDITOR’S VIEW OF DESIGN ORGANISATION RESPONSE dated 19 th July 2024	
Confirmation that the parapets will be provided in accordance with requirements, addresses the road safety concern raised at this stage.	
A.5	TRAFFIC SIGNS, CARRIAGEWAY MARKINGS AND LIGHTING
	No Road Safety Concerns regarding TRAFFIC SIGNS, CARRIAGEWAY MARKINGS AND LIGHTING have been raised at this stage

5.0 STAGE 1 ROAD SAFETY AUDIT TEAM STATEMENT

5.1 We certify that this Road Safety Audit has been carried out in accordance with GG119.

Audit Team Leader

Name: **Jamie Fenning** *BSc (Hons), MIHE, MCIHT, MSoRSA, HE RSA Certificate of Competency*

Signed: 

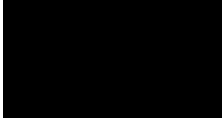
Position: Road Safety / Highway Engineer

Organisation: Fenley Road Safety Limited

Date: 19th July 2024

Audit Team Member

Name: **Zane Beswick** *MCIHT, MSoRSA*

Signed: 

Position: Road Safety / Highway Engineer

Organisation: Fenley Road Safety Limited

Date: 8th July 2024

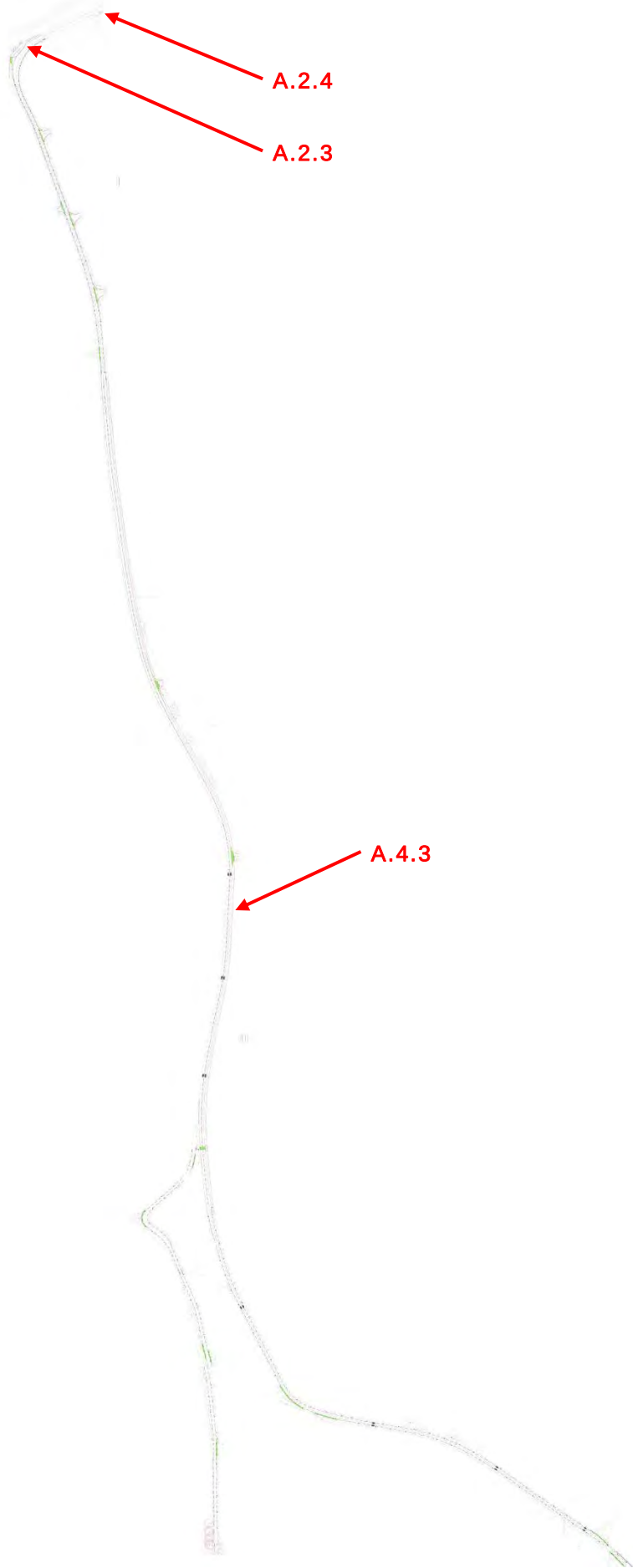
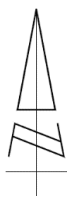
Appendix A1

Documents and Drawings provided for this Stage 1 Road Safety Audit

<u>Audit Stage</u>	<u>Doc. No.</u>	<u>Rev</u>	<u>Title</u>
Stage 1	ITB19328-007	-	Stage 1 Road Safety Audit Brief
	<u>Dwg No.</u>	<u>Rev</u>	<u>Title</u>
	ITB19328-GA-001	-	Potential Off-site Pedestrian / Cyclist Improvement Scheme Sheet 1
	ITB19328-GA-002	-	Potential Off-site Pedestrian / Cyclist Improvement Scheme Sheet 2
	ITB19328-GA-003	-	Potential Off-site Pedestrian / Cyclist Improvement Scheme Sheet 3
	ITB19328-GA-004	-	Potential Off-site Pedestrian / Cyclist Improvement Scheme Sheet 4
	ITB19328-GA-005	-	Potential Off-site Pedestrian / Cyclist Improvement Scheme Sheet 5
	ITB19328-GA-006	-	Potential Off-site Pedestrian / Cyclist Improvement Scheme Sheet 6
	ITB19328-GA-007	-	Potential Off-site Pedestrian / Cyclist Improvement Scheme Sheet 7
	ITB19328-GA-008	-	Potential Off-site Pedestrian / Cyclist Improvement Scheme Sheet 8
	ITB19328-GA-009	-	Potential Off-site Pedestrian / Cyclist Improvement Scheme Sheet 9
	ITB19328-GA-010	-	Potential Off-site Pedestrian / Cyclist Improvement Scheme Sheet 10
	ITB19328-GA-011	-	Potential Off-site Pedestrian / Cyclist Improvement Scheme Sheet 11
	ITB19328-GA-012	-	Potential Off-site Pedestrian / Cyclist Improvement Scheme Sheet 12
	ITB19328-GA-013	-	Potential Off-site Pedestrian / Cyclist Improvement Scheme Sheet 13

Appendix A2

Item Location Plan



Various
A.2.1
A.2.2
A.4.1
A.4.2

Appendix A3

Drawings associated with the Design Organisation Response

<u>Audit Stage</u>	<u>Drawing No.</u>	<u>Rev</u>	<u>Title</u>
Stage 1	ITB19328-GA-001	A	Potential Off-site Pedestrian / Cyclist Improvement Scheme Sheet 1
	ITB19328-GA-002	A	Potential Off-site Pedestrian / Cyclist Improvement Scheme Sheet 2
	ITB19328-GA-003	A	Potential Off-site Pedestrian / Cyclist Improvement Scheme Sheet 3
	ITB19328-GA-004	A	Potential Off-site Pedestrian / Cyclist Improvement Scheme Sheet 4
	ITB19328-GA-005	A	Potential Off-site Pedestrian / Cyclist Improvement Scheme Sheet 5
	ITB19328-GA-006	A	Potential Off-site Pedestrian / Cyclist Improvement Scheme Sheet 6
	ITB19328-GA-007	A	Potential Off-site Pedestrian / Cyclist Improvement Scheme Sheet 7
	ITB19328-GA-008	A	Potential Off-site Pedestrian / Cyclist Improvement Scheme Sheet 8
	ITB19328-GA-009	A	Potential Off-site Pedestrian / Cyclist Improvement Scheme Sheet 9
	ITB19328-GA-010	A	Potential Off-site Pedestrian / Cyclist Improvement Scheme Sheet 10
	ITB19328-GA-011	A	Potential Off-site Pedestrian / Cyclist Improvement Scheme Sheet 11
	ITB19328-GA-012	A	Potential Off-site Pedestrian / Cyclist Improvement Scheme Sheet 12
	ITB19328-GA-013	A	Potential Off-site Pedestrian / Cyclist Improvement Scheme Sheet 13

fenley

Road Safety Audit Report

**Incorporating
Stage 1 Completion of Preliminary Design;
Design Organisation Response to items raised; and
Auditors View of Design Organisation Response.**



Proposed Highway Works to Improve Pedestrian Access to Hurst Village

Client:
i-Transport

Client reference:
ITB19238

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2 Blaenant
Emmer Green
READING
RG4 8PH

E: office@fenley.co.uk
www.fenley.co.uk

Report Status 4

Job no	RSA-24-075	Issue no	4	Date	July 2024
Prepared by	JJF	Verified by	ZB	Approved by	JJF
Filename and Path	Fenley/Road Safety Audits/RSA-24/RSA-24-075-4				



1.0 PROJECT DETAILS

Report Title:	Stage 1 Road Safety Audit
Date:	July 2024
Document reference and revision:	RSA-24-075-4
Prepared by:	Fenley Road Safety Limited
County Highway Authority:	Wokingham Borough Council
Design Organisation:	i-Transport
Project Sponsor:	Mactaggart & Mickel Strategic Land

REV	ISSUE PURPOSE	AUTHOR	CHECKED	APPROVED	DATE
0	Stage 1 Road Safety Audit drafted for Audit Team discussions	JJF			28 th June 2024
1	Stage 1 Road Safety Audit finalised and issued to the Design Organisation	JJF	ZB	JJF	9 th July 2024
2	Stage 1 Road Safety Audit Report format amended to incorporate a row for inclusion of a Design Organisation Response in order to maintain a concise record of items raised	JJF			9 th July 2024
3	Design Organisation Response incorporated	Ben Burrows on behalf of i-Transport			17 th July 2024
4	Auditor's View of Design Organisation Response	JJF			19 th July 2024

Contents:

1.0	Project Details	1
2.0	Introduction	2
3.0	Items Raised in any previous Road Safety Audits	4
4.0	Items Raised in this Stage 1 Road Safety Audit	4
	A.1 Alignment	
	A.2 General	
	A.3 Junctions	
	A.4 Walking, Cycling and Horse Riding	
	A.5 Traffic Signs, Carriageway Markings and Lighting	
5.0	Audit Team Statement	11

Appendices:

Stage 1	A1	Documents and Drawings provided for this Road Safety Audit
	A2	Item Location Plan
	A3	Documents and Drawings associated with the Design Organisation Response

2.0 INTRODUCTION

- 2.1 This report has been prepared by Fenley Road Safety Limited and results from a Stage 1 Road Safety Audit of the proposed highway works along Tape Lane, Hust Road and Station Road in Hurst. The proposals include the widening of the existing footway along Tape Lane to the north and Broadwater Lane through marginal narrowing of the carriageway, the provision uncontrolled crossing points across Broadwater Lane and School Lane and the provision of a footway followed by a virtual footway along Tape Lane to the south. The proposals are to be undertaken as part of a proposed development of 99 homes in order to improve pedestrian connectivity to / from Hurst Village.
- 2.2 The Audit Brief identifies that the proposals do not include any Departures from Standard, whether related to strategic decisions or otherwise.
- 2.3 This Road Safety Audit was undertaken during June and July 2024 in accordance with the Road Safety Audit Brief provided on the 18th June 2024 by the Design Organisation, i-Transport, on behalf of the Project Sponsor, Mactaggart & Mickel Strategic Land. The Road Safety Audit comprised of a site visit as well as an examination of the documents provided, detailed at **Appendix A1**. The Audit Team were satisfied that the Audit Brief was sufficient for the purpose of the Audit instructed. It has been confirmed that street lighting will be provided and that items such as surface water drainage, existing and proposed signage and utilities to include covers and telegraph poles, are to be assessed during the detail design stage of the scheme.
- 2.4 The Road Safety Audit has been undertaken by an Audit Team whose qualifications and experience accord with the requirements of GG119. The Audit Team consists of the following members:

Audit Team Leader

Jamie Fenning *BSc(Hons), MIHE, MCIHT, MSoRSA, National Highway RSA Certificate of Competency*
Road Safety / Highway Engineer

Audit Team Member

Zane Beswick *MCIHT, MSoRSA*
Road Safety / Highway Engineer

- 2.5 The site visit associated with this Audit were undertaken during the early afternoon of 24th June between the hours of 15:00 and 15:45. The site visit involved walking and driving around the local highway network for a 45-minute period whilst observing local infrastructure and current traffic conditions. The weather during the site visit was cloudy with clear patches, the road surface was dry and visibility was good. A number of pedestrians and cyclists were observed during the site visit to include a couple of pedestrians that travelled between the Tape Lane cul-de-sac opposite the field gate to the application site to and from the Village

Shop. Vehicular traffic was also observed to include motorcycles, cars, public service vehicles, light and medium goods vehicles. The traffic flow was light to moderate with stationary traffic observed due to the presence of parked cars limiting the carriageway to one-way working.

- 2.6 The terms of reference of this Road Safety Audit are as described in GG119. The scheme has been examined and this report compiled, only with regard to the safety implications for road users of the scheme as presented. It has not been examined or verified for compliance with any other standards or criteria. However, in order to clearly explain a safety problem or the recommendation to resolve a problem, the Audit Team may on occasion have referred to a design standard for information only. All comments and recommendations are referenced to the design drawings supplied with the Audit Brief and the location of road safety concerns raised have been illustrated beneath the items along with relevant photographs for clarity, where appropriate, as well as on the Location Plan attached at **Appendix A2**.

Design Organisation Response

- 2.7 In accordance with national standards, this Road Safety Audit was finalised and issued to the Design Organisation as per the Road Safety Audit Report Template within Appendix D of GG119, which can be provided upon request from either the Audit Team or Design Organisation. The format of the Audit Report was subsequently revised to incorporate these paragraphs under the sub-heading as well as sufficient space beneath the items and recommendation, within Section 4, for the inclusion of a Design Organisation Response. This is generally contained within a separate Design Organisation Response Report but is included within this document in order to maintain a single record of all problems, recommendations and responses for the benefit of a concise Road Safety Audit trail to be held on file for Quality Assurance purposes.
- 2.8 The Design Organisation Response has been prepared by:
 Name: Ben Burrows
 Position / Organisation: Associate, i-Transport
- 2.9 Any drawings or documents associated with the Design Organisation Response are listed at **Appendix A3**, if applicable.
- 2.10 Upon the request of the Design Organisation and following receipt of the Design Organisation Response with any associated drawings, the Road Safety Audit Team Leader has provided a further comment on the item raised. The “Auditor’s View on the Design Organisation Response” is included within a row beneath each item, for clarity.

3.0 ITEMS RAISED IN ANY PREVIOUS ROAD SAFETY AUDITS

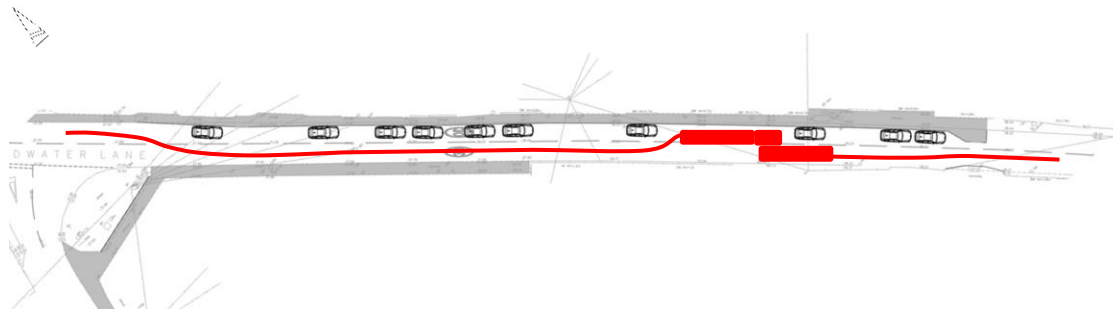
- 3.1 Fenley Road Safety Limited have been made aware that the proposed uncontrolled crossings of School Road were subject to a previous Stage 1 Road Safety Audit by others, in November 2022. That document raised one road safety concerns associated with parked cars in proximity of the proposed uncontrolled crossings on School Road. This document reassesses the scheme in its entirety and raises any road safety concerns that should be addressed at this stage.

4.0 ITEMS RAISED AT THIS STAGE 1 ROAD SAFETY AUDIT

A.1	LOCAL ALIGNMENT
	<i>No Road Safety Concerns regarding LOCAL ALIGNMENT have been raised at this stage</i>
A.2	GENERAL
A.2.1	PROBLEM
Location:	Broadwater Lane
Summary:	Insufficient space is available to enable opposing large vehicles to pass along the carriageway simultaneously
Acc Type:	Vehicle Sideswipe type collisions
Broadwater Lane passes through Hurst where the carriageway narrows to between circa 5.5 metres and 6.1 metres, as does the single footway that is present to the east of the carriageway. On-street parking is observed along Broadwater Lane throughout much of the day, particularly in the vicinity of the Village Post Office and Convenience Store. Due to the existing on-street parking that is observed through much of the day, Broadwater Lane is reduced to one-way working where stationary vehicles are present. The proposals include the widening of the existing footway through the narrowing of the carriageway to a constant 5.5 metres, which is the narrowest width at present. Broadwater Lane is a bus route and observes HGV traffic that forms part of the annual average daily traffic flow of 3695. Various guidance notes highlight that a carriageway that forms a bus route, should be at least 6.0 metres wide which can be reduced over short sections where good intervisibility is achievable. It is noted that Broadwater Lane is straight in alignment and intervisibility is achievable between sections where the carriageway width equates to 6.0 metres. The Audit Team have concerns, however, that not all drivers of large goods vehicles, will appreciate the narrow width of the carriageway particularly as any on-street parking may limit visibility of the carriageway width. Two large vehicles attempting to travel along the proposed 5.5 metre wide section of Broadwater Lane simultaneously could lead to sideswipe type collisions.	

RECOMMENDATION:

It is recommended that measures are provided to deter large vehicles from attempting to pass along Broadwater Road simultaneously.

Location Plan:

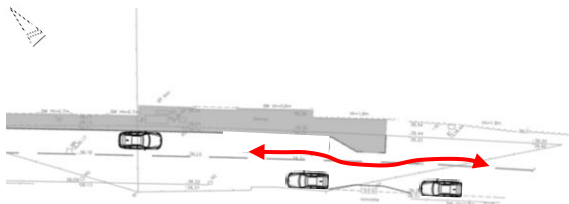
DESIGN ORGANISATION RESPONSE provided by i-Transport on the 17th July 2024 following formal issue of this Stage 1 Road Safety Audit on the 9th July 2024

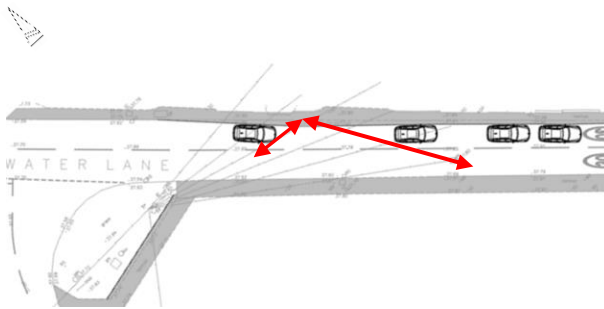
Accepted – The scheme proposals do not materially amend the width of Broadwater Lane for vehicular traffic, owing to the presence of existing on-street parking that effectively limits Broadwater Lane to one-way working for large periods throughout the day. As indicated by the ATC data, HGVs comprise a relatively small proportion of the vehicular traffic on Broadwater Lane and therefore the likelihood of HGVs meeting and being required to pass one another is very small.

However, the design has been amended to include a build-out at the northern crossing point. On approach to the scheme, priority give-way markings have also been introduced at the gateway features (where forward visibility is good) to encourage traffic to slow and large vehicles to wait for opposing large vehicles should they already be travelling along Broadwater Lane. The revised design is shown on drawing no. **ITB19328-GA-104A**.

AUDITOR'S VIEW OF DESIGN ORGANISATION RESPONSE dated 19th July 2024

Confirmation that the scheme has been revised to encourage the driver of a large vehicles to wait for opposing large vehicles where the carriageway width is adequate for the vehicles to pass one another, addresses the road safety concern raised at this stage.

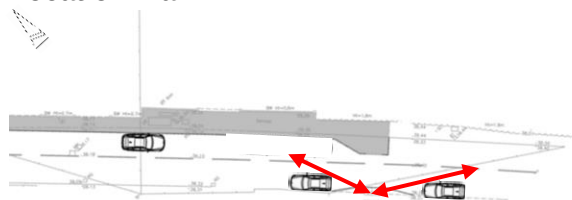
A.2.2	PROBLEM
Location:	Broadwater Lane south
Summary:	Vehicles parked on-street along the western side of the carriageway may limit the free flow of traffic
Acc Type:	Vehicle Head-on, Sideswipe type collisions
Broadwater Lane is a two-way single carriageway road that benefits from a centreline as it passes through Hurst where on-street parking, by both residents and visitors to the local stores, is observed. The proposals include the provision of a kerb build-out both sides of the carriageway immediately adjacent to an existing Post Office / Convenience Store, where an uncontrolled pedestrian crossing point is to be provided. Measurements from the scheme drawing indicate that the build-out to the east is to extend 1.4 metres into the carriageway and the build-out to the west is to extend just 0.6 metres into the carriageway, leaving a 3.5 metre wide through lane. Whilst the provision of an uncontrolled crossing at build-outs is beneficial as it increases the achievable level of intervisibility, the Audit Team have concerns that parked vehicles along the western side of the carriageway in proximity will limit the width available for through traffic as well as the level of intervisibility achievable which could lead to sideswipe and vehicle to pedestrian type collisions. Further, a carriageway width of 3.5 metres could appear adequate for a vehicle to overtake a cyclists and lead to vehicle to cyclist type collisions.	
RECOMMENDATION:	
It is recommended that buildouts are provided equally both sides of the carriageway to generate a 3.1 metre wide through lane that is visually reduced to an appropriate width with edge of carriageway markings.	
Location Plan:  	
DESIGN ORGANISATION RESPONSE provided by i-Transport on the 17th July 2024 following formal issue of this Stage 1 Road Safety Audit on the 9th July 2024	
Accepted – the design has been amended to introduce edge of carriageway road markings on either side of the proposed build-outs to visually narrow the carriageway for road users. In addition, the amended design includes a revised surface treatment at the proposed build-outs, along with reflective bollards, to highlight the presence of the crossing to existing road users. The details of the revised surface treatment and any bollards will be determined at the detailed design stage. The revised design is shown on drawing no. ITB19328-GA-104A.	

AUDITOR'S VIEW OF DESIGN ORGANISATION RESPONSE dated 17th July 2024	
<i>Confirmation that the scheme has been revised accordingly with edge of carriageway markings to reduce the width and discourage parking on the eastern side of the carriageway in proximity of the Post Office / Convenience Store, addresses the road safety concern raised at this stage.</i>	
A.3	JUNCTIONS
	<i>No Road Safety Concerns regarding JUNCTIONS have been raised at this stage</i>
A.4	WALKING, CYCLING AND HORSE RIDING
A.4.1	PROBLEM
Location:	Broadwater Lane
Summary:	Intervisibility between a pedestrian and approaching traffic may be limited
Acc Type:	Vehicle to pedestrian type collision
Broadwater Lane passes through Hurst where the carriageway narrows and on-street parking is experienced. A Post Office / Convenience Store as well as a Bakery are situated along Broadwater Lane and pedestrian desire lines have been observed to include from / to the Tape Lane cul-de-sac. As existing, a dropped kerb is present along the western side of Broadwater Road that allows level access across the carriageway when used in conjunction with the dropped kerbs associated with a driveway to the east. The proposals include the provision of an uncontrolled crossing point across Broadwater Lane that benefits from tactile paving and is to be situated circa 12 metres to the south with the reprovision of full height kerbs where pedestrians presently cross. Whilst the provision of an uncontrolled crossing in accordance with guidance, is a betterment over the existing situation, the Audit Team have concerns that on-street parking will limit the level of intervisibility between a pedestrian and approaching traffic which could result in a pedestrian entering the carriageway when it is not safe to do so leading to a vehicle to pedestrian type collision.	
RECOMMENDATION:	
It is recommended that the uncontrolled crossing is provided at a build-out to allow for adequate intervisibility.	
Location Plan:	
	
	

DESIGN ORGANISATION RESPONSE provided by i-Transport on the 17 th July 2024 following formal issue of this Stage 1 Road Safety Audit on the 9 th July 2024	
Accepted – the design has been amended to introduce a build-out at the northern crossing point. The proposed build-out includes edge of carriageway road markings on either side of the crossing to visually narrow the carriageway for road users and includes a revised surface treatment, along with reflective bollards, to highlight the presence of the crossing to existing road users. The details of the revised surface treatment and any bollards will be determined at the detailed design stage. The revised design is shown on drawing no. ITB19328-GA-104A .	
AUDITOR’S VIEW OF DESIGN ORGANISATION RESPONSE dated 19 th July 2024	
<i>Confirmation that the scheme has been revised to include a buildout to maximise intervisibility, addresses the road safety concern raised at this stage.</i>	
A.4.2	PROBLEM
Location:	Broadwater Lane
Summary:	Intervisibility between a pedestrian and approaching traffic may be limited
Acc Type:	Vehicle to pedestrian type collision
Broadwater Lane benefits from a footway along the eastern side of the carriageway with property frontages present to the west and insufficient space to accommodate a footway. A Post Office / Convenience Store is situated to the west of Broadwater Lane. No footway lies adjacent to the Post Office / Convenience Store, however, a private area of hard standing is present. Observations indicate that visitors to the Post Office / Convenience Store wait within the area of hard standing and due to the limited level of visibility that is achievable caused as a result of structures abutting the carriageway both sides, creep out to achieve visibility to approaching traffic. The proposals include the provision of an uncontrolled crossing across Broadwater Lane immediately adjacent to the Post Office / Convenience Store. The crossing points are is to be provided on a build-out both sides of the carriageway with the eastern one extending to a point 1.85 metres from the existing kerbline and the western crossing point extending just 600mm into the carriageway with circa 200mm of the tactile paving being accommodated within the private hardstanding. Whilst the provision of an uncontrolled crossing in accordance with guidance is a betterment over the existing situation where full height kerbs are present to the east of the carriageway, the Audit Team have concerns that on-street parking could be observed both sides of the crossing point and on both sides of the carriageway at different times of the day which will limit the level of intervisibility that is achievable between a pedestrian and approaching traffic. Limited intervisibility at an uncontrolled crossing point could result in a pedestrian entering the carriageway when it is not safe to do so, leading to a vehicle to pedestrian type collisions.	

RECOMMENDATION:

It is recommended that the proposed build-outs extend equally into the carriageway to maximise intervisibility from / to the crossing point both sides of the carriageway.

Location Plan:

DESIGN ORGANISATION RESPONSE provided by i-Transport on the 17th July 2024 following formal issue of this Stage 1 Road Safety Audit on the 9th July 2024

Accepted - The existing Post Office / Convenience Store has an existing customer car park which is well signed from Broadwater Lane and should accommodate for all visitors of the convenience store. However, the design has nonetheless been amended to include white line shoulder markings on either side of the proposed build out to discourage vehicle parking within the vicinity of the build-out and prevent obstruction to the length of achievable visibility at the crossing for pedestrians. The revised design is shown on drawing no. **ITB19328-GA-104A**.

AUDITOR'S VIEW OF DESIGN ORGANISATION RESPONSE dated 19th July 2024

Confirmation that the scheme has been revised to include white lines to deter parking to allow for an adequate level of visibility at all times, addresses the road safety concern raised at this stage.

A.4.3 PROBLEM

Location: School Road

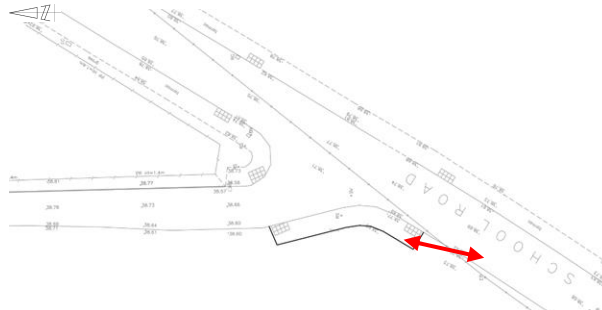
Summary: Intervisibility between a pedestrian and approaching traffic is limited

Acc Type: Vehicle to pedestrian type collision

School Road accommodates a footway along the southern side of the carriageway as well as the northern side to the east of Tape Lane with an informal path formed in the verge to the west. The proposals include the provision of a section of footway that is to wrap around the western radius and is accessible via a dropped kerb. The scheme drawings illustrate that this new section of footway is to allow access to a proposed uncontrolled crossing point across School Road before terminating. Although it is clear on the ground, that a good level of visibility would be achievable if a temporary sign was not in situ, no visibility splays are illustrated on the scheme drawings which detail that the splays extend outside of the public highway. The Audit Team have concerns that intervisibility may become limited which could result in a pedestrian entering the carriageway when it is not safe to do so leading to a vehicle to pedestrian type collisions.

RECOMMENDATION:

It is recommended that an adequate visibility is achievable at all times.

Location Plan:

DESIGN ORGANISATION RESPONSE provided by i-Transport on the 17th July 2024 following formal issue of this Stage 1 Road Safety Audit on the 9th July 2024

Accepted – the design has been amended to demonstrate that appropriate pedestrian visibility splays in accordance with the signposted speed limit of 30mph can be achieved from the proposed uncontrolled crossing point. The revised design is shown on drawing no. ITB19328-GA-131A.

AUDITOR'S VIEW OF DESIGN ORGANISATION RESPONSE dated 19th July 2024

Confirmation that adequate visibility can be achieved, addresses the road safety concern raised at this stage.

A.4.4 PROBLEM

Location: Tape Lane

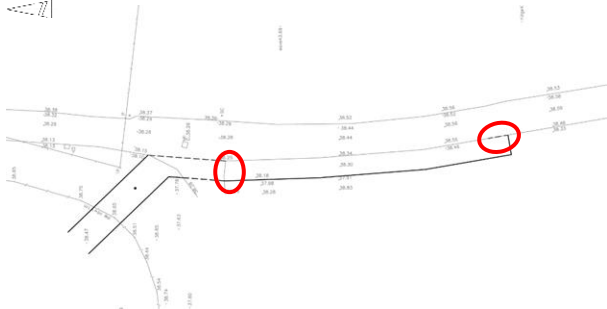
Summary: Pedestrians could unknowingly enter the carriageway

Acc Type: Vehicle to pedestrian type collision

To the south, Tape Lane is a lightly trafficked shared surface two-way narrow carriageway that allows for one-way working. The proposals include the provision of a section of footway along the western side of the carriageway that is to allow level access between a proposed pedestrian / cycle access and the shared surface carriageway. The scheme drawings illustrate that cyclists are to be guided onto the carriageway almost immediately with the footway continuing south before terminating at dropped kerbs. The Audit Team have concerns that no measures are provided to highlight the change in characteristics of the proposed link and the transition to / from a shared surface carriageway.

RECOMMENDATION:

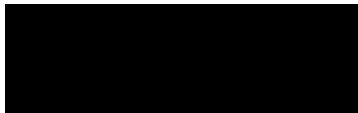
It is recommended that tactile paving is provided in accordance with guidance.

Location Plan: 	
DESIGN ORGANISATION RESPONSE provided by i-Transport on the 17 th July 2024 following formal issue of this Stage 1 Road Safety Audit on the 9 th July 2024	
Accepted – the design has been amended to introduce corduroy paving at both ends of the proposed footway to ensure that visually impaired pedestrians become aware of the transition. The revised design is shown on drawing no. ITB19328-GA-131A .	
AUDITOR'S VIEW OF DESIGN ORGANISATION RESPONSE dated 19 th July 2024	
Confirmation that a hazard warning paving will be provided, addresses the road safety concern raised at this stage.	
A.5	TRAFFIC SIGNS, CARRIAGEWAY MARKINGS AND LIGHTING
	No Road Safety Concerns regarding TRAFFIC SIGNS, CARRIAGEWAY MARKINGS AND LIGHTING have been raised at this stage

5.0 STAGE 1 ROAD SAFETY AUDIT TEAM STATEMENT

5.1 We certify that this Road Safety Audit has been carried out in accordance with GG119.

Audit Team Leader

Name:  , MIHE, MCIHT, MSoRSA, HE RSA Certificate of Competency

Signed:

Position: Road Safety / Highway Engineer

Organisation: Fenley Road Safety Limited

Date: 19th July 2024

Audit Team Member

Name: **Zane Beswick** MCIHT, MSoRSA

Signed:

Position: Road Safety / Highway Engineer

Organisation: Fenley Road Safety Limited

Date: 9th July 2024

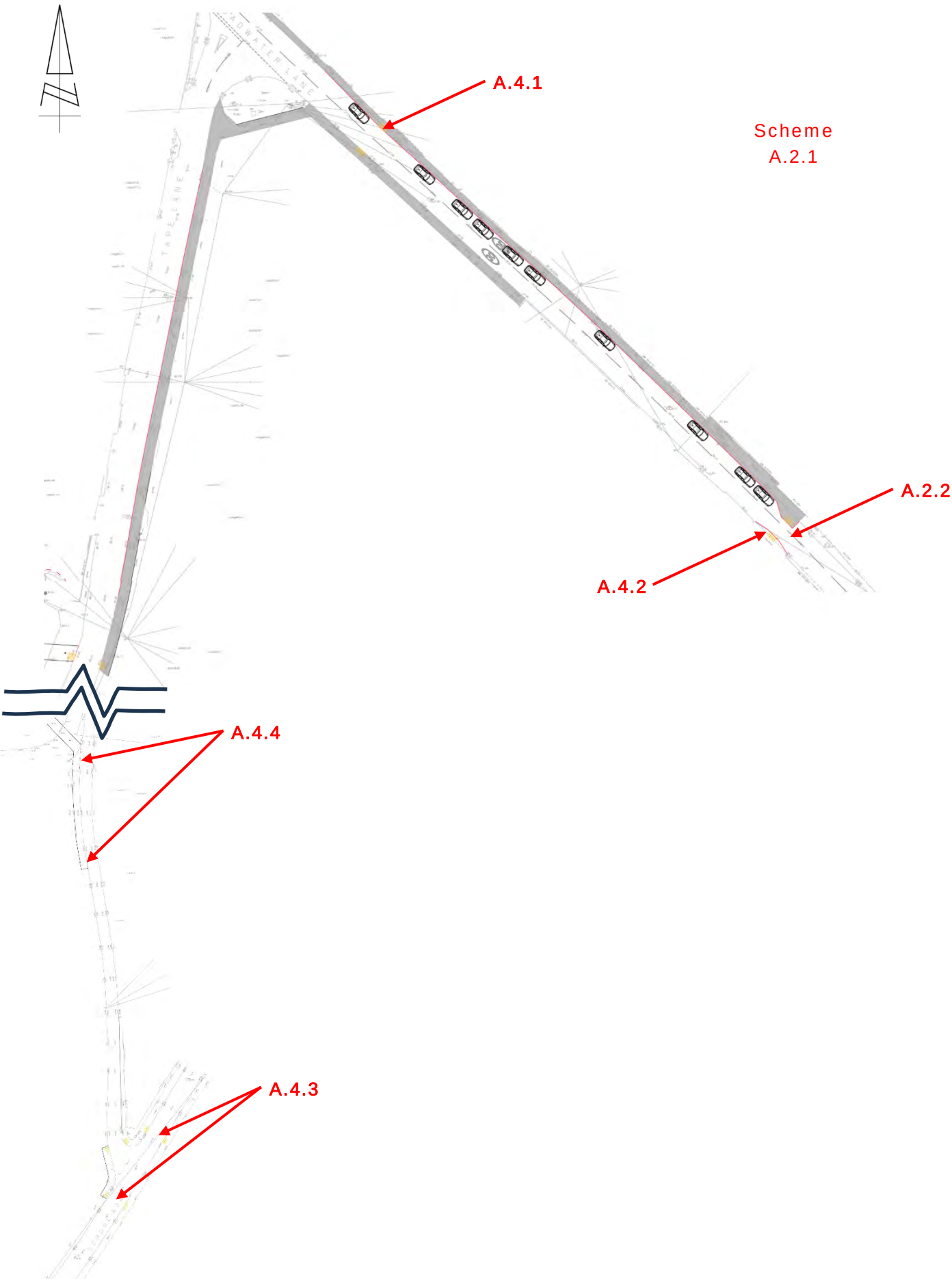
Appendix A1

Documents and Drawings provided for this Stage 1 Road Safety Audit

<u>Audit Stage</u>	<u>Doc. No.</u>	<u>Rev</u>	<u>Title</u>
Stage 1	ITB19328-007	-	Stage 1 Road Safety Audit Brief
	<u>Dwg No.</u>	<u>Rev</u>	<u>Title</u>
	ITB19328-GA-004	-	Potential Off-site Pedestrian / Cyclist Improvement Scheme Sheet 4
	ITB19328-GA-121	-	Potential Off-site Pedestrian / Cyclist Improvement Tape Lane
	ITB19328-GA-131	-	Potential Off-site Pedestrian / Cyclist Improvement Tape Lane

Appendix A2

Item Location Plan



Appendix A3

Drawings associated with the Design Organisation Response

<u>Audit Stage</u>	<u>Drawing No.</u>	<u>Rev</u>	<u>Title</u>
Stage 1	ITB19328-GA-004	A	Potential Off-site Pedestrian / Cyclist Improvement Scheme Sheet 4
	ITB19328-GA-131	A	Potential Off-site Pedestrian / Cyclist Improvement Tape Lane

fenley

APPENDIX F. Multi-Modal TRICS Trip Rate

Calculation Reference: AUDIT-236601-240711-0753

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 03 - RESIDENTIAL
Category : M - MIXED PRIVATE/AFFORDABLE HOUSING
MULTI-MODAL TOTAL VEHICLES

Selected regions and areas:

02	SOUTH EAST	
	ES EAST SUSSEX	1 days
	OX OXFORDSHIRE	1 days
	SC SURREY	1 days
	WS WEST SUSSEX	1 days
04	EAST ANGLIA	
	NF NORFOLK	4 days

This section displays the number of survey days per TRICS® sub-region in the selected set

i-Transport The Square Basingstoke

Licence No: 236601

Primary Filtering selection:

This data displays the chosen trip rate parameter and its selected range. Only sites that fall within the parameter range are included in the trip rate calculation.

Parameter: No of Dwellings
Actual Range: 75 to 180 (units:)
Range Selected by User: 50 to 200 (units:)

Parking Spaces Range: All Surveys Included

Parking Spaces per Dwelling Range: All Surveys Included

Bedrooms per Dwelling Range: All Surveys Included

Percentage of dwellings privately owned: All Surveys Included

Public Transport Provision:

Selection by: Include all surveys

Date Range: 01/01/16 to 05/03/24

This data displays the range of survey dates selected. Only surveys that were conducted within this date range are included in the trip rate calculation.

Selected survey days:

Tuesday 2 days
Wednesday 5 days
Thursday 1 days

This data displays the number of selected surveys by day of the week.

Selected survey types:

Manual count 8 days
Directional ATC Count 0 days

This data displays the number of manual classified surveys and the number of unclassified ATC surveys, the total adding up to the overall number of surveys in the selected set. Manual surveys are undertaken using staff, whilst ATC surveys are undertaken using machines.

Selected Locations:

Neighbourhood Centre (PPS6 Local Centre) 8

This data displays the number of surveys per main location category within the selected set. The main location categories consist of Free Standing, Edge of Town, Suburban Area, Neighbourhood Centre, Edge of Town Centre, Town Centre and Not Known.

Selected Location Sub Categories:

Village 8

This data displays the number of surveys per location sub-category within the selected set. The location sub-categories consist of Commercial Zone, Industrial Zone, Development Zone, Residential Zone, Retail Zone, Built-Up Zone, Village, Out of Town, High Street and No Sub Category.

Inclusion of Servicing Vehicles Counts:

Servicing vehicles Included 5 days - Selected
Servicing vehicles Excluded 15 days - Selected

Secondary Filtering selection:

Use Class:

C3 8 days

This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order (England) 2020 has been used for this purpose, which can be found within the Library module of TRICS®.

Population within 500m Range:

All Surveys Included

Secondary Filtering selection (Cont.):

Population within 1 mile:

1,000 or Less	1 days
1,001 to 5,000	7 days

This data displays the number of selected surveys within stated 1-mile radii of population.

Population within 5 miles:

25,001 to 50,000	1 days
50,001 to 75,000	1 days
75,001 to 100,000	2 days
125,001 to 250,000	4 days

This data displays the number of selected surveys within stated 5-mile radii of population.

Car ownership within 5 miles:

1.1 to 1.5	7 days
1.6 to 2.0	1 days

This data displays the number of selected surveys within stated ranges of average cars owned per residential dwelling, within a radius of 5-miles of selected survey sites.

Travel Plan:

Yes	8 days
-----	--------

This data displays the number of surveys within the selected set that were undertaken at sites with Travel Plans in place, and the number of surveys that were undertaken at sites without Travel Plans.

PTAL Rating:

No PTAL Present	8 days
-----------------	--------

This data displays the number of selected surveys with PTAL Ratings.

Covid-19 Restrictions	Yes	At least one survey within the selected data set was undertaken at a time of Covid-19 restrictions
-----------------------	-----	--

LIST OF SITES relevant to selection parameters

1	ES-03-M-18	MIXED HOUSES	EAST SUSSEX
	NORTH COMMON ROAD		
	WIVELSFIELD GREEN		
	Neighbourhood Centre (PPS6 Local Centre)		
	Village		
	Total No of Dwellings:	75	
	Survey date: TUESDAY	15/06/21	Survey Type: MANUAL
2	NF-03-M-42	MIXED HOUSES	NORFOLK
	STALHAM ROAD		
	HOVETON		
	Neighbourhood Centre (PPS6 Local Centre)		
	Village		
	Total No of Dwellings:	120	
	Survey date: THURSDAY	16/09/21	Survey Type: MANUAL
3	NF-03-M-43	MIXED HOUSES	NORFOLK
	PIGOT LANE		
	NEAR NORWICH		
	FRAMINGHAM EARL		
	Neighbourhood Centre (PPS6 Local Centre)		
	Village		
	Total No of Dwellings:	100	
	Survey date: TUESDAY	21/09/21	Survey Type: MANUAL
4	NF-03-M-55	MIXED HOUSES	NORFOLK
	CAISTOR LANE		
	NEAR NORWICH		
	PORINGLAND		
	Neighbourhood Centre (PPS6 Local Centre)		
	Village		
	Total No of Dwellings:	150	
	Survey date: WEDNESDAY	28/09/22	Survey Type: MANUAL
5	NF-03-M-61	MIXED HOUSES & FLATS	NORFOLK
	LONG LANE		
	NEAR NORWICH		
	MULBARTON		
	Neighbourhood Centre (PPS6 Local Centre)		
	Village		
	Total No of Dwellings:	180	
	Survey date: WEDNESDAY	28/09/22	Survey Type: MANUAL
6	OX-03-M-02	MIXED HOUSES & FLATS	OXFORDSHIRE
	GODSTOW ROAD		
	OXFORD		
	WOLVERCOTE		
	Neighbourhood Centre (PPS6 Local Centre)		
	Village		
	Total No of Dwellings:	117	
	Survey date: WEDNESDAY	20/10/21	Survey Type: MANUAL
7	SC-03-M-14	MIXED HOUSES & FLATS	SURREY
	CHOBHAM LANE		
	LONGCROSS		
	Neighbourhood Centre (PPS6 Local Centre)		
	Village		
	Total No of Dwellings:	179	
	Survey date: WEDNESDAY	16/11/22	Survey Type: MANUAL

LIST OF SITES relevant to selection parameters (Cont.)

8	WS-03-M-23	MIXED HOUSES & FLATS	WEST SUSSEX
	STANE STREET		
	CHICHESTER		
	WESTHAMPNETT		
	Neighbourhood Centre (PPS6 Local Centre)		
	Village		
	Total No of Dwellings:	99	
	Survey date: WEDNESDAY	13/10/21	Survey Type: MANUAL

This section provides a list of all survey sites and days in the selected set. For each individual survey site, it displays a unique site reference code and site address, the selected trip rate calculation parameter and its value, the day of the week and date of each survey, and whether the survey was a manual classified count or an ATC count.

TRIP RATE for Land Use 03 - RESIDENTIAL/M - MIXED PRIVATE/AFFORDABLE HOUSING

MULTI-MODAL TOTAL VEHICLES

Calculation factor: 1 DWELLS

BOLD print indicates peak (busiest) period

Total People to Total Vehicles ratio (all time periods and directions): 1.73

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	8	128	0.078	8	128	0.279	8	128	0.357
08:00 - 09:00	8	128	0.172	8	128	0.401	8	128	0.573
09:00 - 10:00	8	128	0.151	8	128	0.149	8	128	0.300
10:00 - 11:00	8	128	0.118	8	128	0.147	8	128	0.265
11:00 - 12:00	8	128	0.108	8	128	0.120	8	128	0.228
12:00 - 13:00	8	128	0.165	8	128	0.154	8	128	0.319
13:00 - 14:00	8	128	0.133	8	128	0.114	8	128	0.247
14:00 - 15:00	8	128	0.141	8	128	0.179	8	128	0.320
15:00 - 16:00	8	128	0.243	8	128	0.165	8	128	0.408
16:00 - 17:00	8	128	0.260	8	128	0.154	8	128	0.414
17:00 - 18:00	8	128	0.324	8	128	0.143	8	128	0.467
18:00 - 19:00	8	128	0.203	8	128	0.134	8	128	0.337
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			2.096			2.139			4.235

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP*FACT$. Trip rates are then rounded to 3 decimal places.

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Parameter summary

Trip rate parameter range selected: 75 - 180 (units:)
Survey date range: 01/01/16 - 05/03/24
Number of weekdays (Monday-Friday): 8
Number of Saturdays: 0
Number of Sundays: 0
Surveys automatically removed from selection: 2
Surveys manually removed from selection: 0

This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are shown. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

BOLD print indicates peak (busiest) period

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP*FACT$. Trip rates are then rounded to 3 decimal places.

TRIP RATE for Land Use 03 - RESIDENTIAL/M - MIXED PRIVATE/AFFORDABLE HOUSING
MULTI-MODAL OGVS
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	8	128	0.002	8	128	0.002	8	128	0.004
08:00 - 09:00	8	128	0.001	8	128	0.001	8	128	0.002
09:00 - 10:00	8	128	0.004	8	128	0.004	8	128	0.008
10:00 - 11:00	8	128	0.002	8	128	0.002	8	128	0.004
11:00 - 12:00	8	128	0.000	8	128	0.000	8	128	0.000
12:00 - 13:00	8	128	0.000	8	128	0.000	8	128	0.000
13:00 - 14:00	8	128	0.000	8	128	0.000	8	128	0.000
14:00 - 15:00	8	128	0.000	8	128	0.000	8	128	0.000
15:00 - 16:00	8	128	0.000	8	128	0.000	8	128	0.000
16:00 - 17:00	8	128	0.001	8	128	0.001	8	128	0.002
17:00 - 18:00	8	128	0.000	8	128	0.000	8	128	0.000
18:00 - 19:00	8	128	0.000	8	128	0.000	8	128	0.000
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.010			0.010			0.020

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.

TRIP RATE for Land Use 03 - RESIDENTIAL/M - MIXED PRIVATE/AFFORDABLE HOUSING
 MULTI-MODAL PSVS
 Calculation factor: 1 DWELLS
 BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	8	128	0.001	8	128	0.001	8	128	0.002
08:00 - 09:00	8	128	0.001	8	128	0.001	8	128	0.002
09:00 - 10:00	8	128	0.000	8	128	0.000	8	128	0.000
10:00 - 11:00	8	128	0.000	8	128	0.000	8	128	0.000
11:00 - 12:00	8	128	0.000	8	128	0.000	8	128	0.000
12:00 - 13:00	8	128	0.000	8	128	0.000	8	128	0.000
13:00 - 14:00	8	128	0.000	8	128	0.000	8	128	0.000
14:00 - 15:00	8	128	0.000	8	128	0.000	8	128	0.000
15:00 - 16:00	8	128	0.002	8	128	0.002	8	128	0.004
16:00 - 17:00	8	128	0.000	8	128	0.000	8	128	0.000
17:00 - 18:00	8	128	0.000	8	128	0.000	8	128	0.000
18:00 - 19:00	8	128	0.000	8	128	0.000	8	128	0.000
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.004			0.004			0.008

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.

BOLD print indicates peak (busiest) period

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP*FACT$. Trip rates are then rounded to 3 decimal places.

TRIP RATE for Land Use 03 - RESIDENTIAL/M - MIXED PRIVATE/AFFORDABLE HOUSING
 MULTI-MODAL VEHICLE OCCUPANTS
 Calculation factor: 1 DWELLS
 BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	8	128	0.094	8	128	0.349	8	128	0.443
08:00 - 09:00	8	128	0.197	8	128	0.607	8	128	0.804
09:00 - 10:00	8	128	0.170	8	128	0.182	8	128	0.352
10:00 - 11:00	8	128	0.149	8	128	0.188	8	128	0.337
11:00 - 12:00	8	128	0.133	8	128	0.144	8	128	0.277
12:00 - 13:00	8	128	0.192	8	128	0.194	8	128	0.386
13:00 - 14:00	8	128	0.172	8	128	0.140	8	128	0.312
14:00 - 15:00	8	128	0.188	8	128	0.209	8	128	0.397
15:00 - 16:00	8	128	0.376	8	128	0.194	8	128	0.570
16:00 - 17:00	8	128	0.364	8	128	0.203	8	128	0.567
17:00 - 18:00	8	128	0.416	8	128	0.198	8	128	0.614
18:00 - 19:00	8	128	0.261	8	128	0.182	8	128	0.443
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			2.712			2.790			5.502

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.

BOLD print indicates peak (busiest) period

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP*FACT$. Trip rates are then rounded to 3 decimal places.

TRIP RATE for Land Use 03 - RESIDENTIAL/M - MIXED PRIVATE/AFFORDABLE HOUSING
MULTI-MODAL BUS/TRAM PASSENGERS
 Calculation factor: 1 DWELLS
 BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	8	128	0.000	8	128	0.008	8	128	0.008
08:00 - 09:00	8	128	0.001	8	128	0.017	8	128	0.018
09:00 - 10:00	8	128	0.001	8	128	0.005	8	128	0.006
10:00 - 11:00	8	128	0.000	8	128	0.005	8	128	0.005
11:00 - 12:00	8	128	0.003	8	128	0.004	8	128	0.007
12:00 - 13:00	8	128	0.003	8	128	0.005	8	128	0.008
13:00 - 14:00	8	128	0.002	8	128	0.004	8	128	0.006
14:00 - 15:00	8	128	0.004	8	128	0.008	8	128	0.012
15:00 - 16:00	8	128	0.023	8	128	0.005	8	128	0.028
16:00 - 17:00	8	128	0.009	8	128	0.000	8	128	0.009
17:00 - 18:00	8	128	0.009	8	128	0.002	8	128	0.011
18:00 - 19:00	8	128	0.004	8	128	0.000	8	128	0.004
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.059			0.063			0.122

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.

BOLD print indicates peak (busiest) period

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP*FACT$. Trip rates are then rounded to 3 decimal places.

TRIP RATE for Land Use 03 - RESIDENTIAL/M - MIXED PRIVATE/AFFORDABLE HOUSING
MULTI-MODAL COACH PASSENGERS
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	8	128	0.000	8	128	0.001	8	128	0.001
08:00 - 09:00	8	128	0.000	8	128	0.009	8	128	0.009
09:00 - 10:00	8	128	0.000	8	128	0.000	8	128	0.000
10:00 - 11:00	8	128	0.000	8	128	0.000	8	128	0.000
11:00 - 12:00	8	128	0.000	8	128	0.000	8	128	0.000
12:00 - 13:00	8	128	0.000	8	128	0.000	8	128	0.000
13:00 - 14:00	8	128	0.000	8	128	0.000	8	128	0.000
14:00 - 15:00	8	128	0.000	8	128	0.000	8	128	0.000
15:00 - 16:00	8	128	0.002	8	128	0.000	8	128	0.002
16:00 - 17:00	8	128	0.000	8	128	0.000	8	128	0.000
17:00 - 18:00	8	128	0.008	8	128	0.000	8	128	0.008
18:00 - 19:00	8	128	0.000	8	128	0.000	8	128	0.000
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.010			0.010			0.020

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.

BOLD print indicates peak (busiest) period

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP*FACT$. Trip rates are then rounded to 3 decimal places.

TRIP RATE for Land Use 03 - RESIDENTIAL/M - MIXED PRIVATE/AFFORDABLE HOUSING
MULTI-MODAL TOTAL PEOPLE
 Calculation factor: 1 DWELLS
 BOLD print indicates peak (busiest) period
 Total People to Total Vehicles ratio (all time periods and directions): 1.73

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	8	128	0.140	8	128	0.471	8	128	0.611
08:00 - 09:00	8	128	0.281	8	128	0.881	8	128	1.162
09:00 - 10:00	8	128	0.207	8	128	0.231	8	128	0.438
10:00 - 11:00	8	128	0.176	8	128	0.222	8	128	0.398
11:00 - 12:00	8	128	0.166	8	128	0.181	8	128	0.347
12:00 - 13:00	8	128	0.242	8	128	0.231	8	128	0.473
13:00 - 14:00	8	128	0.201	8	128	0.177	8	128	0.378
14:00 - 15:00	8	128	0.234	8	128	0.283	8	128	0.517
15:00 - 16:00	8	128	0.653	8	128	0.273	8	128	0.926
16:00 - 17:00	8	128	0.472	8	128	0.256	8	128	0.728
17:00 - 18:00	8	128	0.532	8	128	0.269	8	128	0.801
18:00 - 19:00	8	128	0.327	8	128	0.228	8	128	0.555
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			3.631			3.703			7.334

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP*FACT$. Trip rates are then rounded to 3 decimal places.

BOLD print indicates peak (busiest) period

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP*FACT$. Trip rates are then rounded to 3 decimal places.

TRIP RATE for Land Use 03 - RESIDENTIAL/M - MIXED PRIVATE/AFFORDABLE HOUSING
MULTI-MODAL LGVS
 Calculation factor: 1 DWELLS
 BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	8	128	0.011	8	128	0.019	8	128	0.030
08:00 - 09:00	8	128	0.025	8	128	0.033	8	128	0.058
09:00 - 10:00	8	128	0.024	8	128	0.024	8	128	0.048
10:00 - 11:00	8	128	0.025	8	128	0.029	8	128	0.054
11:00 - 12:00	8	128	0.020	8	128	0.018	8	128	0.038
12:00 - 13:00	8	128	0.027	8	128	0.027	8	128	0.054
13:00 - 14:00	8	128	0.016	8	128	0.023	8	128	0.039
14:00 - 15:00	8	128	0.014	8	128	0.021	8	128	0.035
15:00 - 16:00	8	128	0.025	8	128	0.018	8	128	0.043
16:00 - 17:00	8	128	0.037	8	128	0.021	8	128	0.058
17:00 - 18:00	8	128	0.021	8	128	0.009	8	128	0.030
18:00 - 19:00	8	128	0.007	8	128	0.004	8	128	0.011
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.252			0.246			0.498

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

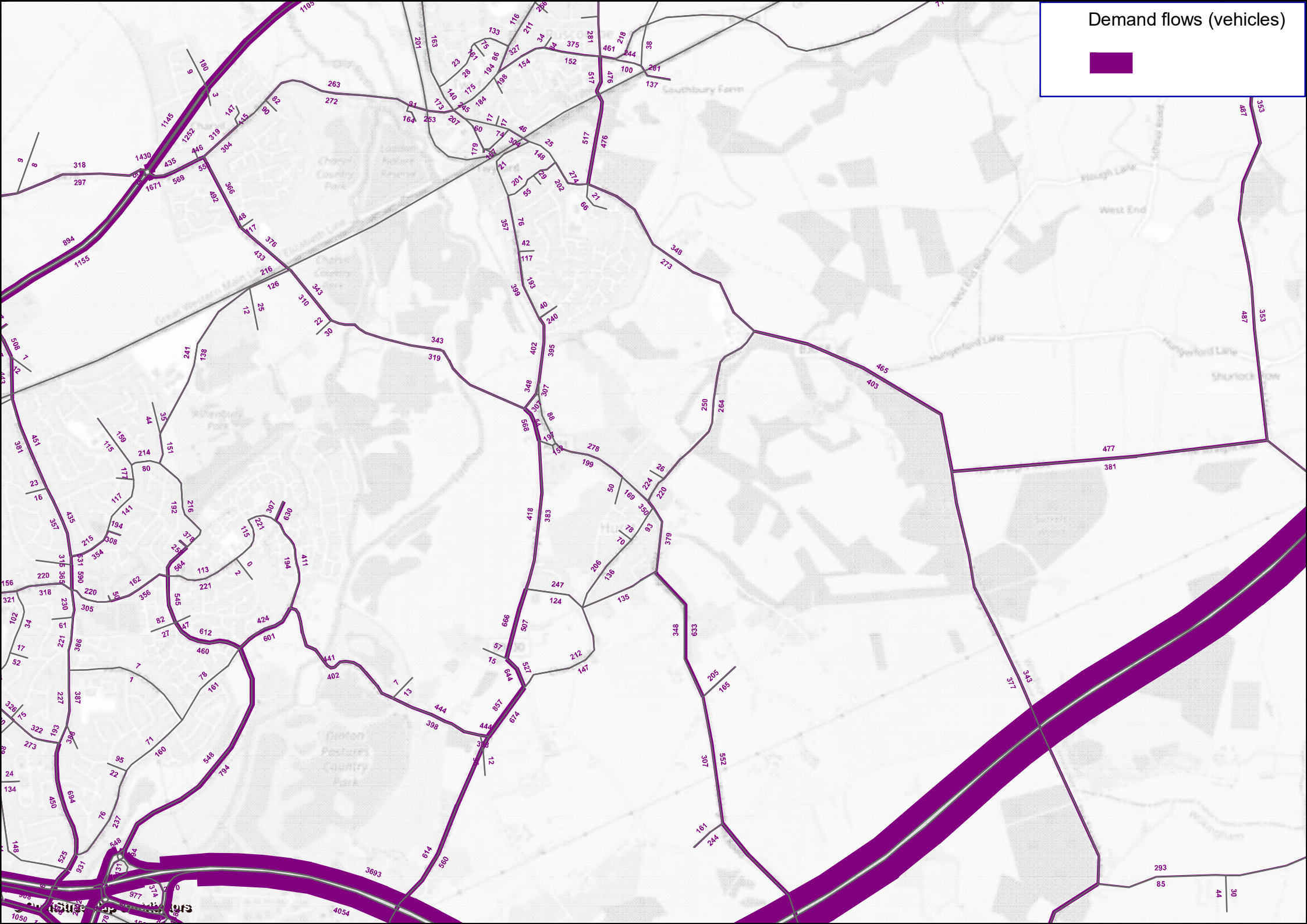
To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.

BOLD print indicates peak (busiest) period

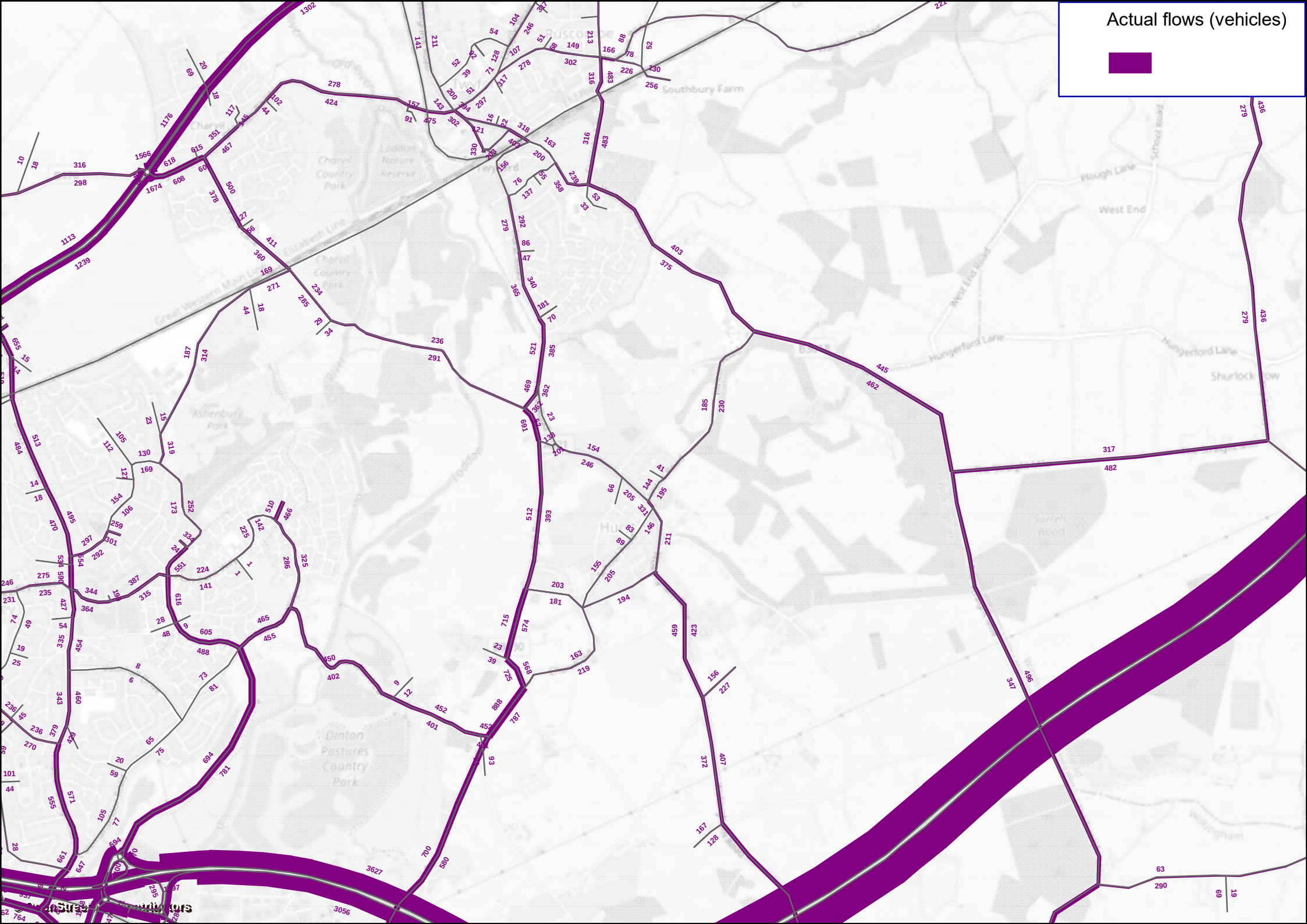
To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP*FACT$. Trip rates are then rounded to 3 decimal places.

APPENDIX G.WSTM4 Link Flow Outputs

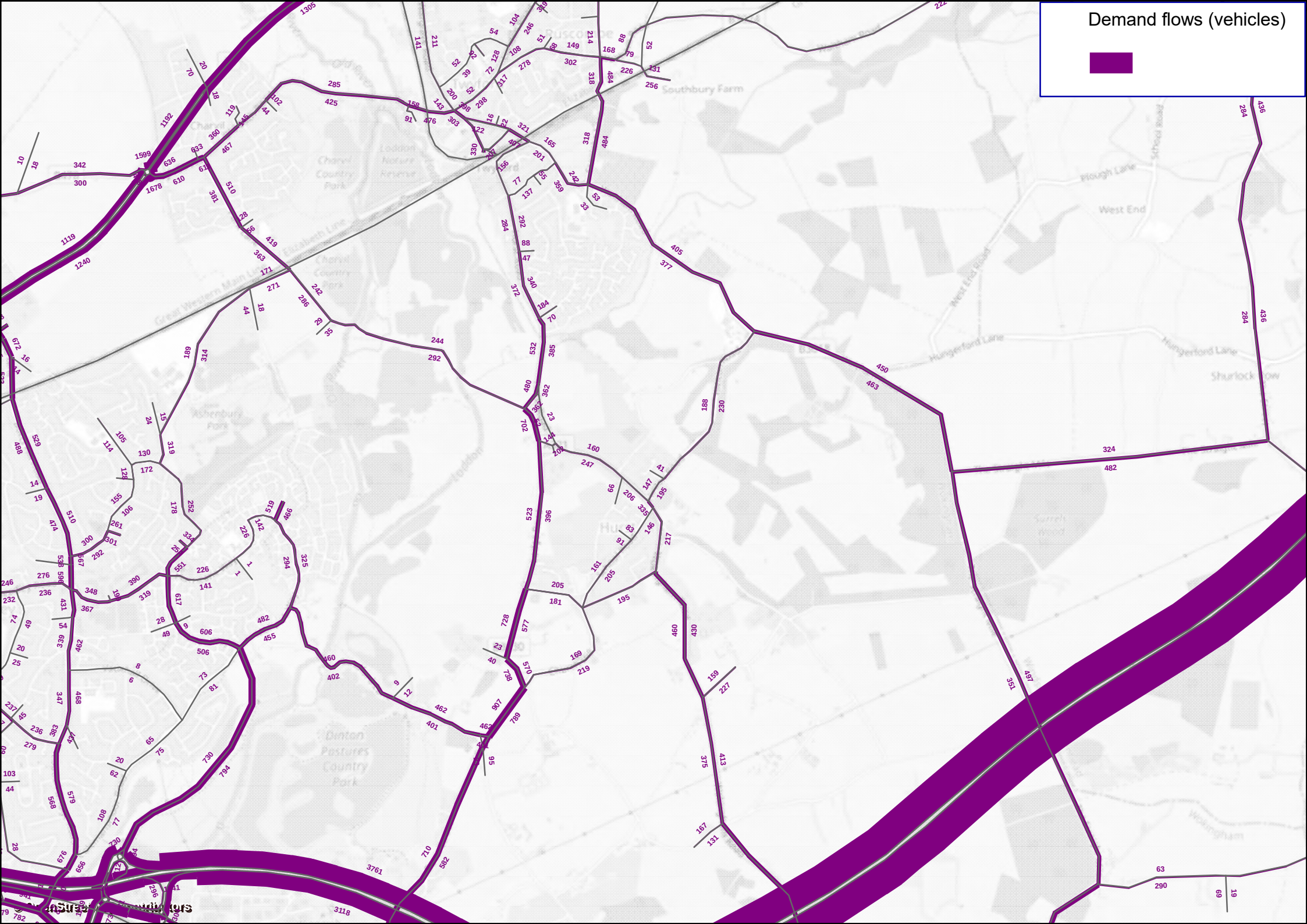
Demand flows (vehicles)



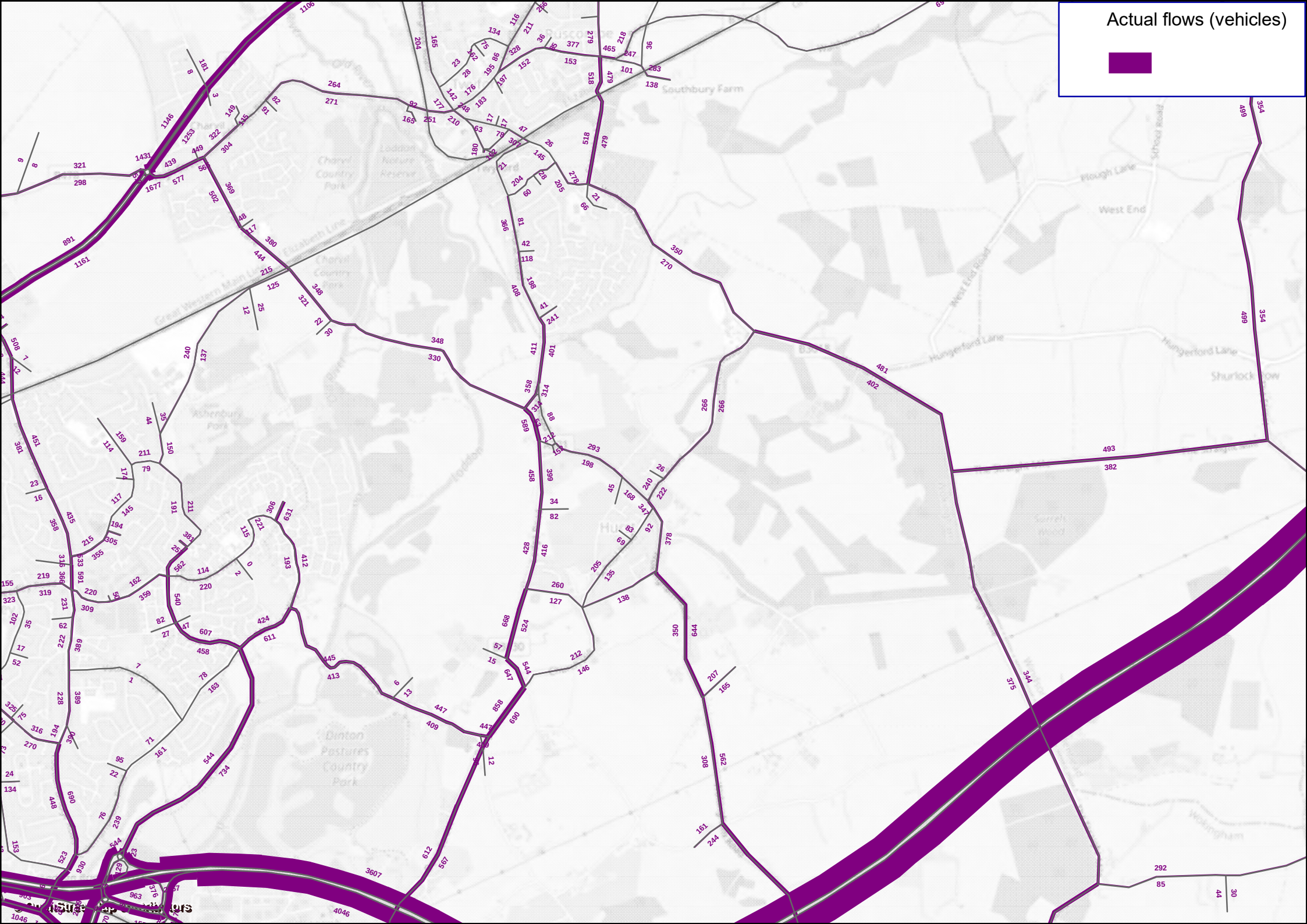
Actual flows (vehicles)



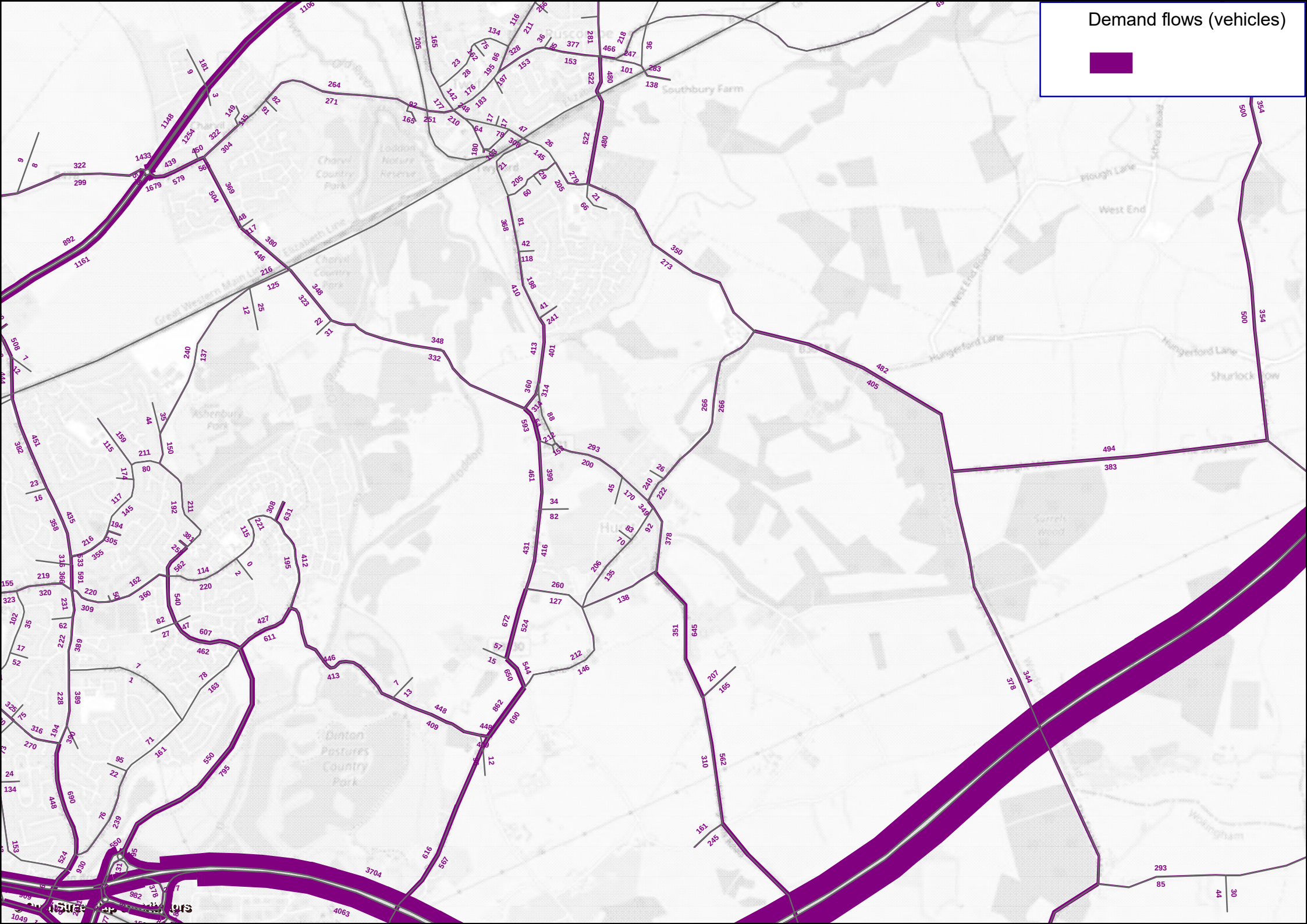
Demand flows (vehicles)



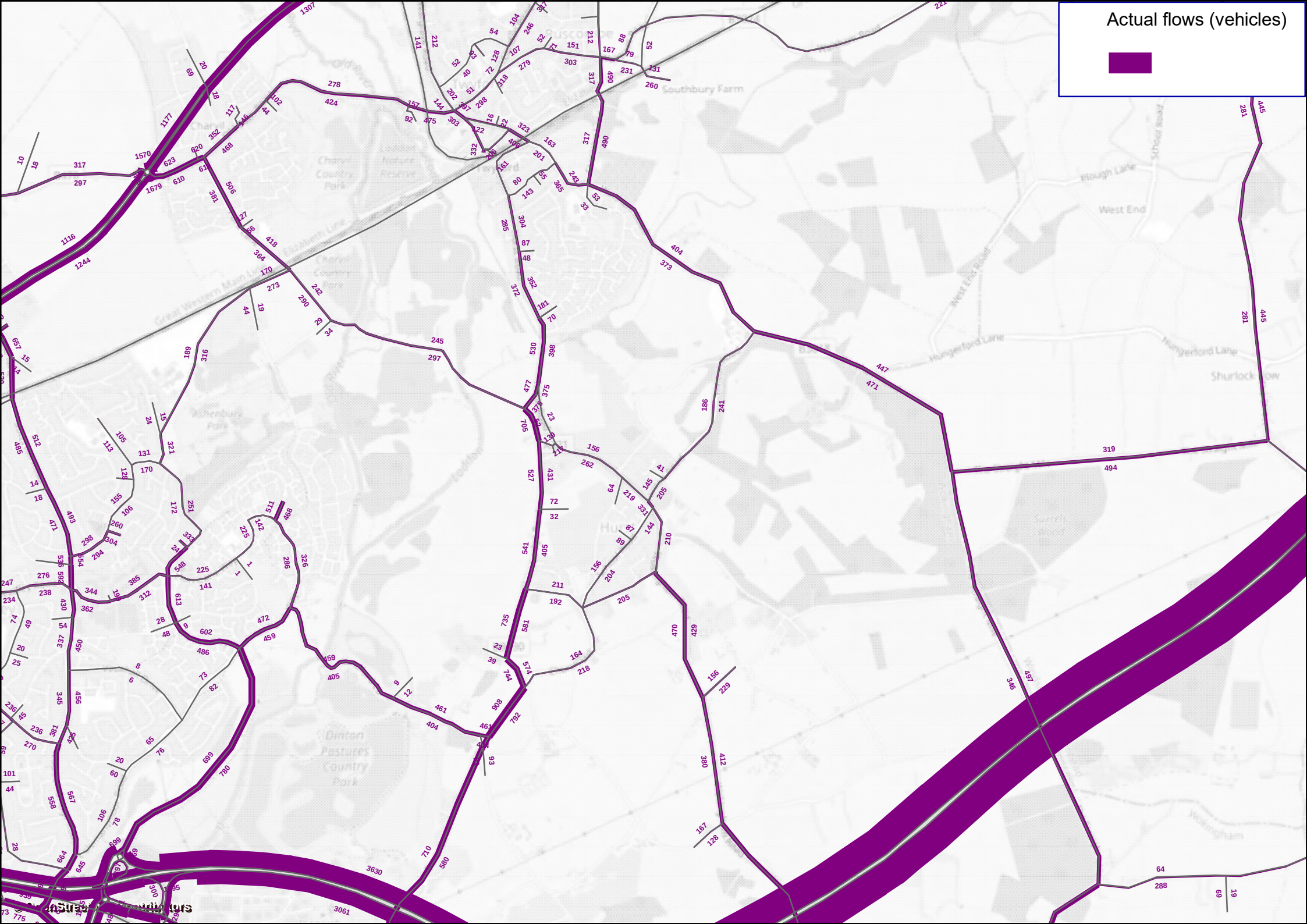
Actual flows (vehicles)



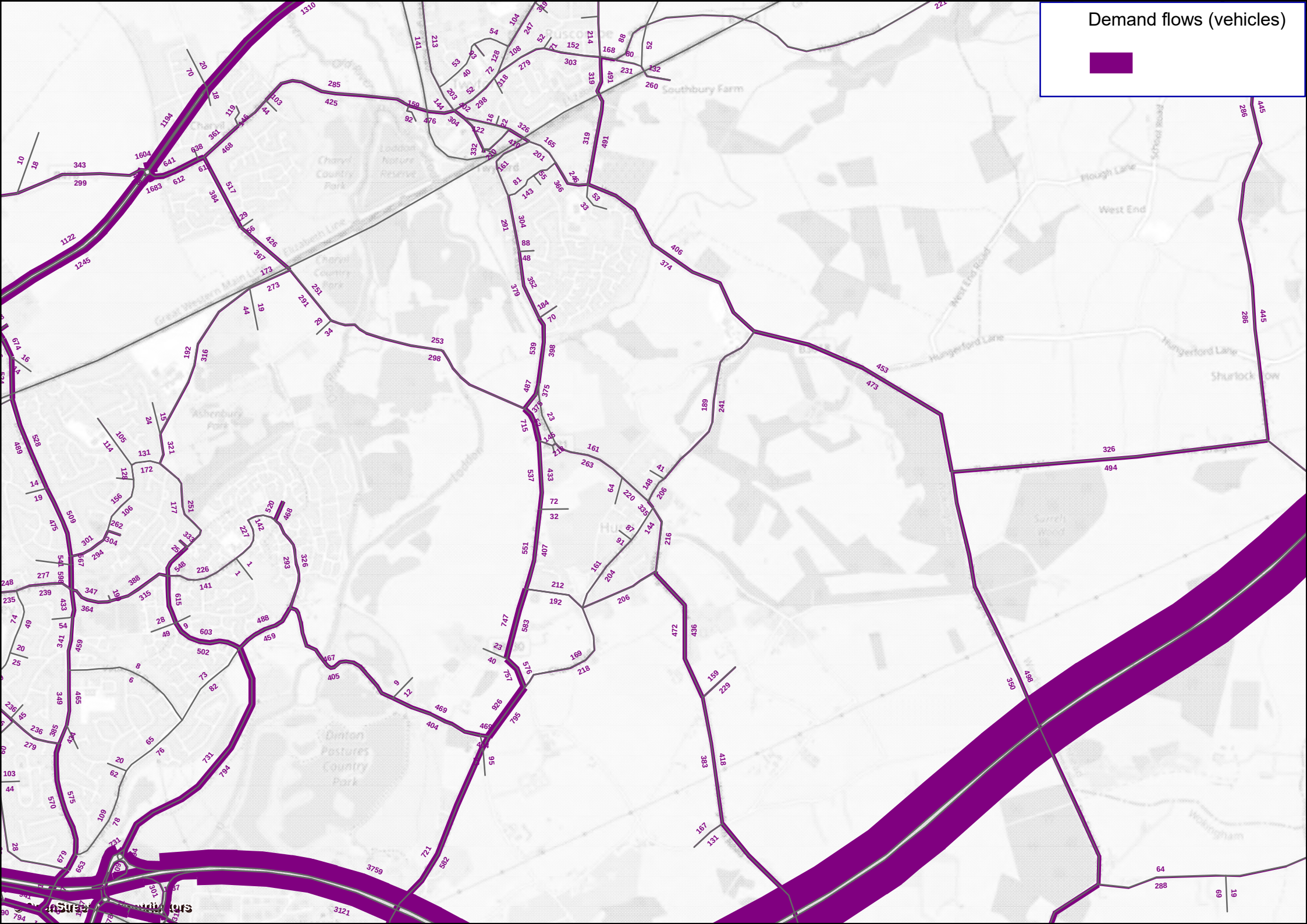
Demand flows (vehicles)



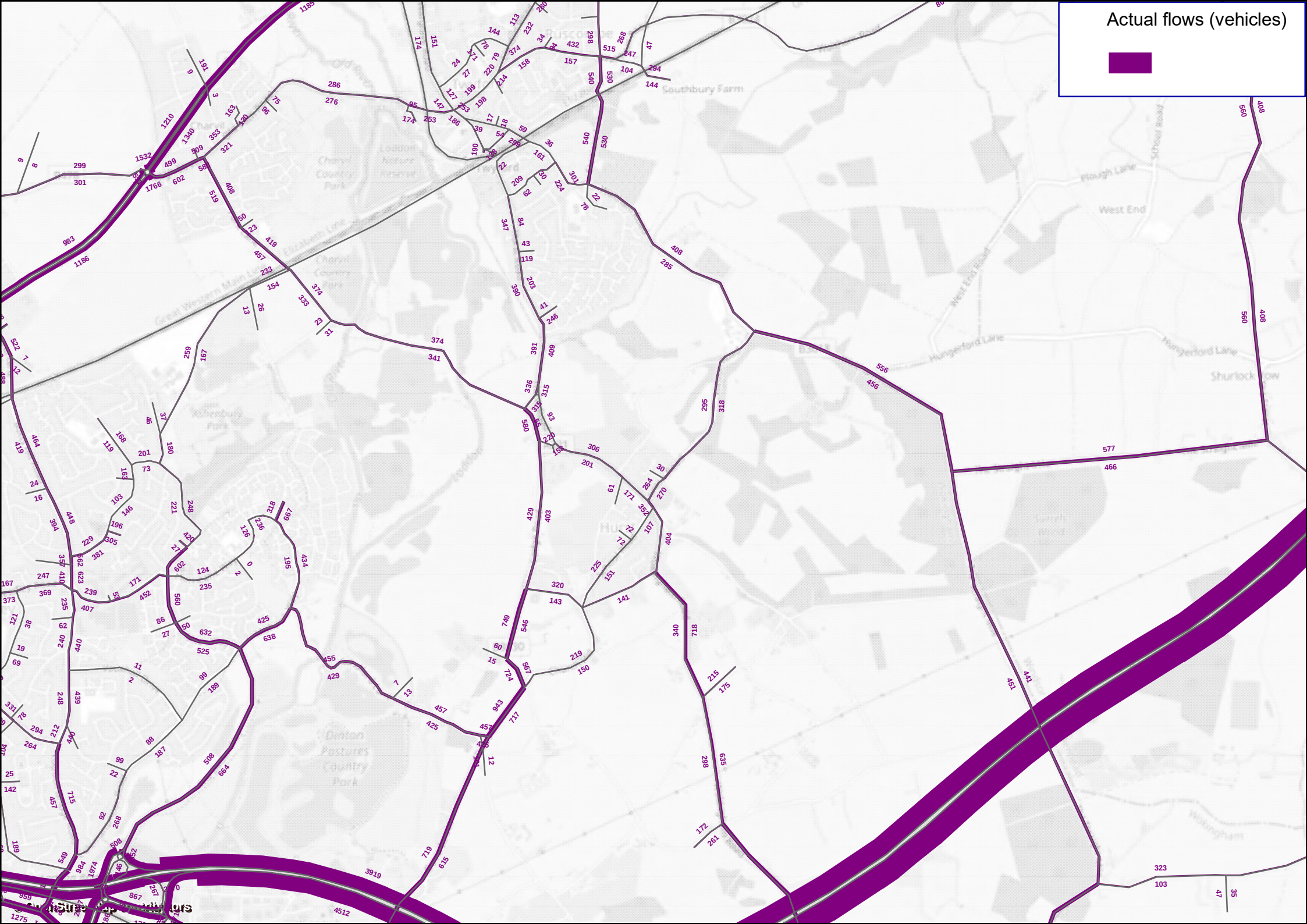
Actual flows (vehicles)



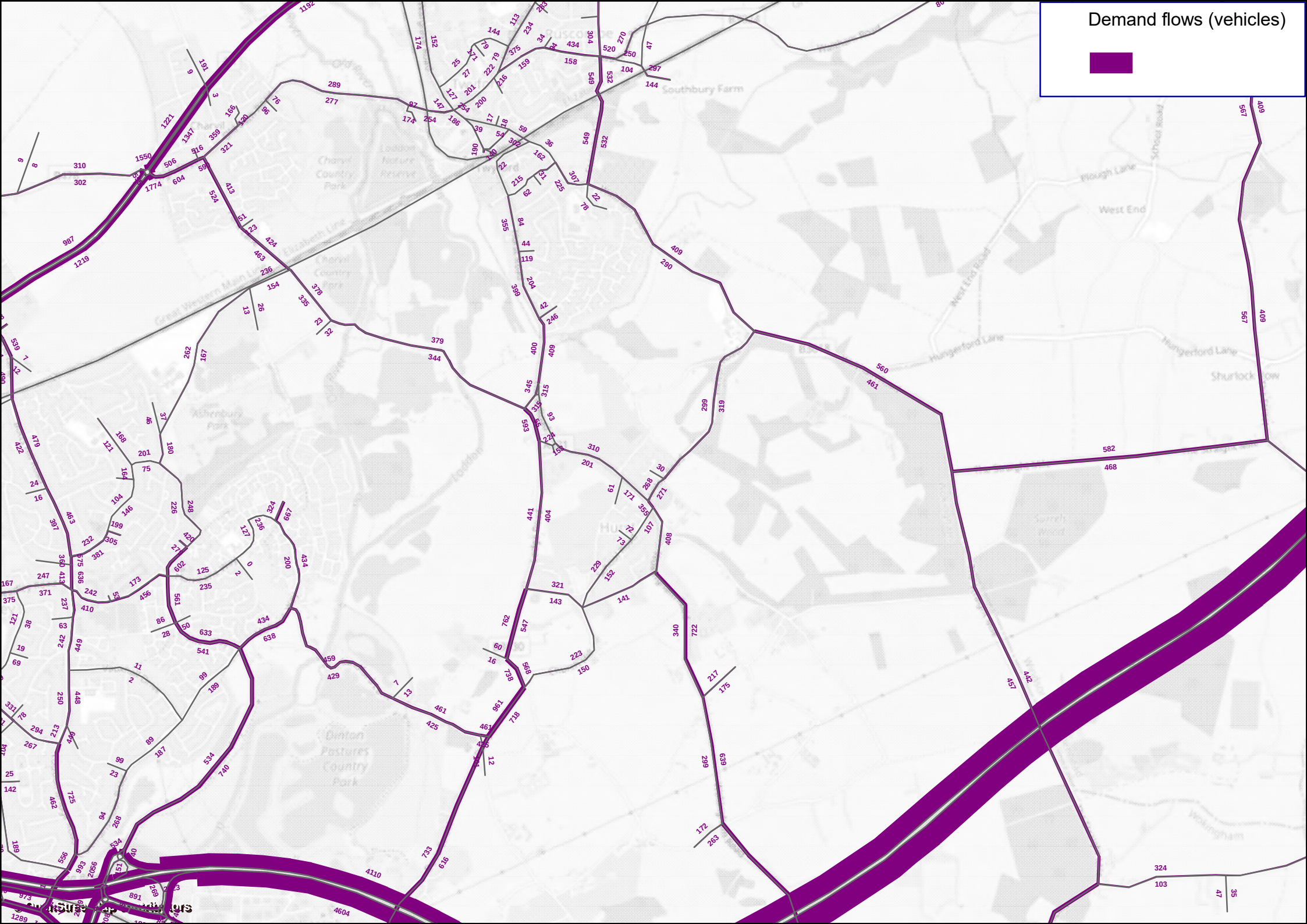
Demand flows (vehicles)



Actual flows (vehicles)



Demand flows (vehicles)



Actual flows (vehicles)

