

# TW Local Plan Stage 2 Reporting

18.08.2023  
Final

# NTEM 7.2 vs NTEM 8 Comparison

- Comparison has been undertaken at a Reference Case level to understand underlying difference between the scenarios in terms of model run performance
- Highway trip matrix comparison – the trip totals are very similar. Though the NTEM 7.2 and NTEM 8 growth factors have been identified as different in Stage 1 reporting, as the model is primarily focussed on Tunbridge Wells where the data is derived from known local developments the difference is total highway trip demand ends up being relatively minor
- Junction arm congestion comparison - a high level analysis of all key junction arms in the model simulation area shows that the resulting congestion (as represented in junction arms with Volume over Capacity of over 95%) is very similar between NTEM 7.2 and NTEM 8.
- We conclude that from the modelling results it reinforces the decision to use NTEM 7.2 for background growth for the latest Local Plan analysis.

Highway total trip matrices for TW LP modelling	Model year	AM Matrix Totals	PM Matrix Totals
Updated Reference Case 7.2	2038	46,550	44,521
Updated Reference Case 8	2038	45,986	44,015

Junction arms with V/C above 95%	AM Peak	PM Peak
Ref Case NTEM v 7.2	59	43
Ref Case NTEM v8	57	42

# Hotspot Junctions - Summary

## Scenarios Reviewed

- **Local Plan Scenario 1:**
  - comprises the full quantum of development in the current proposed allocations spreadsheet provided – Includes all pre- and post-2034 housing allocations into a single “10 year post-adoption” model run.
- **Local Plan Scenario 2:**
  - as per scenario 1 plus the additional allowance for further housing post-2034 to provide housing growth to meet the full 15-year housing need, based on a continuation of the revised strategy, and thus, the full “15 year post-adoption” (2038) model run.

The analysis of the LP modelling has identified junction capacity hotspots based on the following criteria:

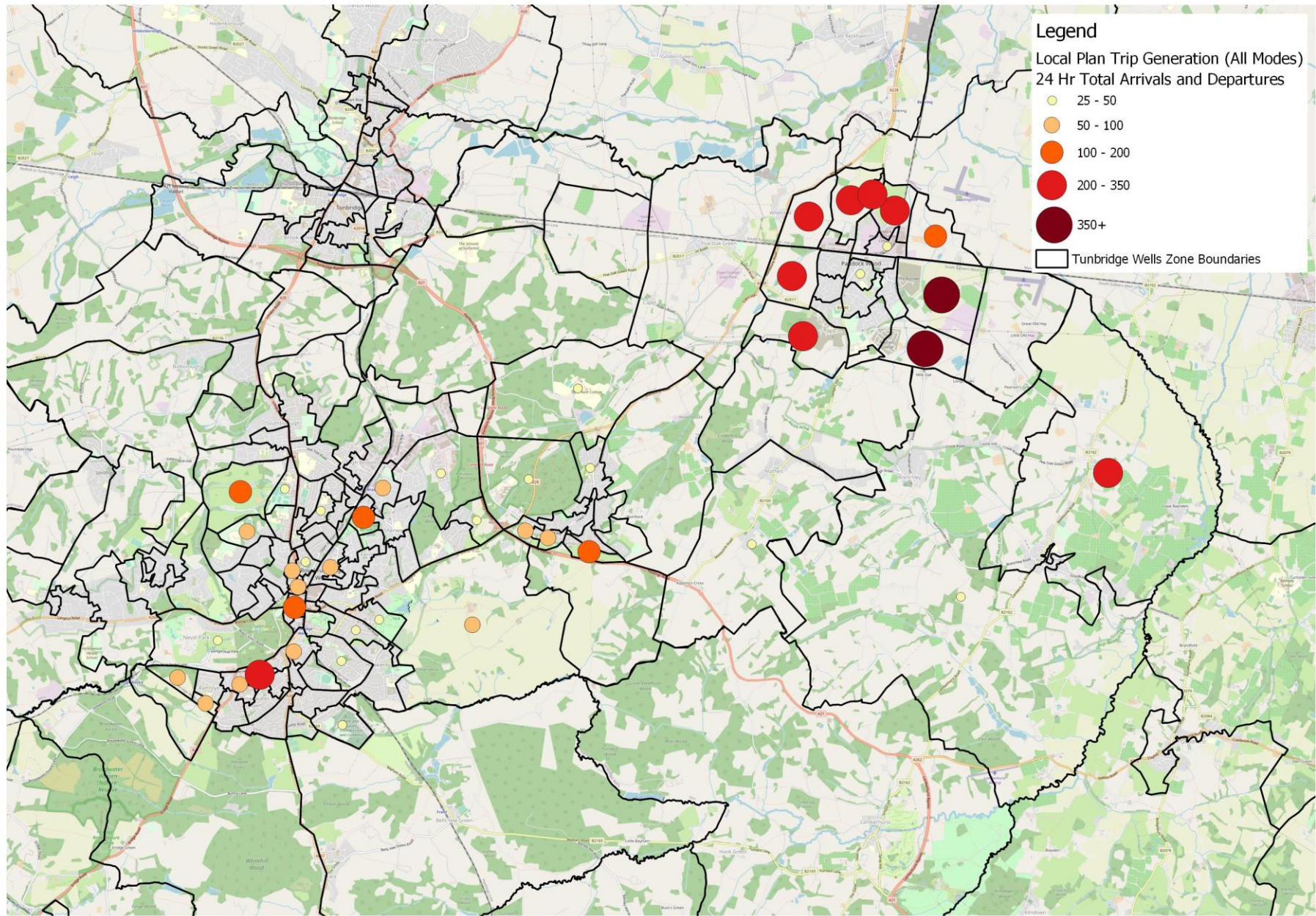
- Initial sifting - any junction arm that has a volume over capacity (V/C) over 95% (approaching maximum capacity) is identified as a “hotspot”.
- Next stage sifting - Of these identified junction arms:
  - Those within a junction that at least 50 additional vehicles pass through in total, as a result of the Local Plan implementation, are categorised as being a **“Minor” LP Hotspot**.
  - Of the “minor” hotspots, any of the arms V/C in the LP scenario also 5% or greater than its Ref. Case equivalent are considered to be a **“Major” LP Hotspot**.
  - Those arms that see no significant change in V/C in the LP scenario compared to the Reference Case are marked as **“Same as Ref Case”**

# Hotspot Junctions - Summary

The data shows the AM Peak has more hotspots than the PM Peak.

- The main summary is:
  - Increase in number of “hotspots” within the 2023 reference case model.
  - Fall in the number of hotspots in the Local Plan Scenario 1, with a fall of 24 hotspots in the AM Peak and 28 hotspots in the PM Peak.
  - In Local Plan Scenario 2, the AM peak sees an increase in 9 hotspots and the PM Peak sees an increase of 10 hotspots in the latter scenario compared to Local Plan Scenario 1.

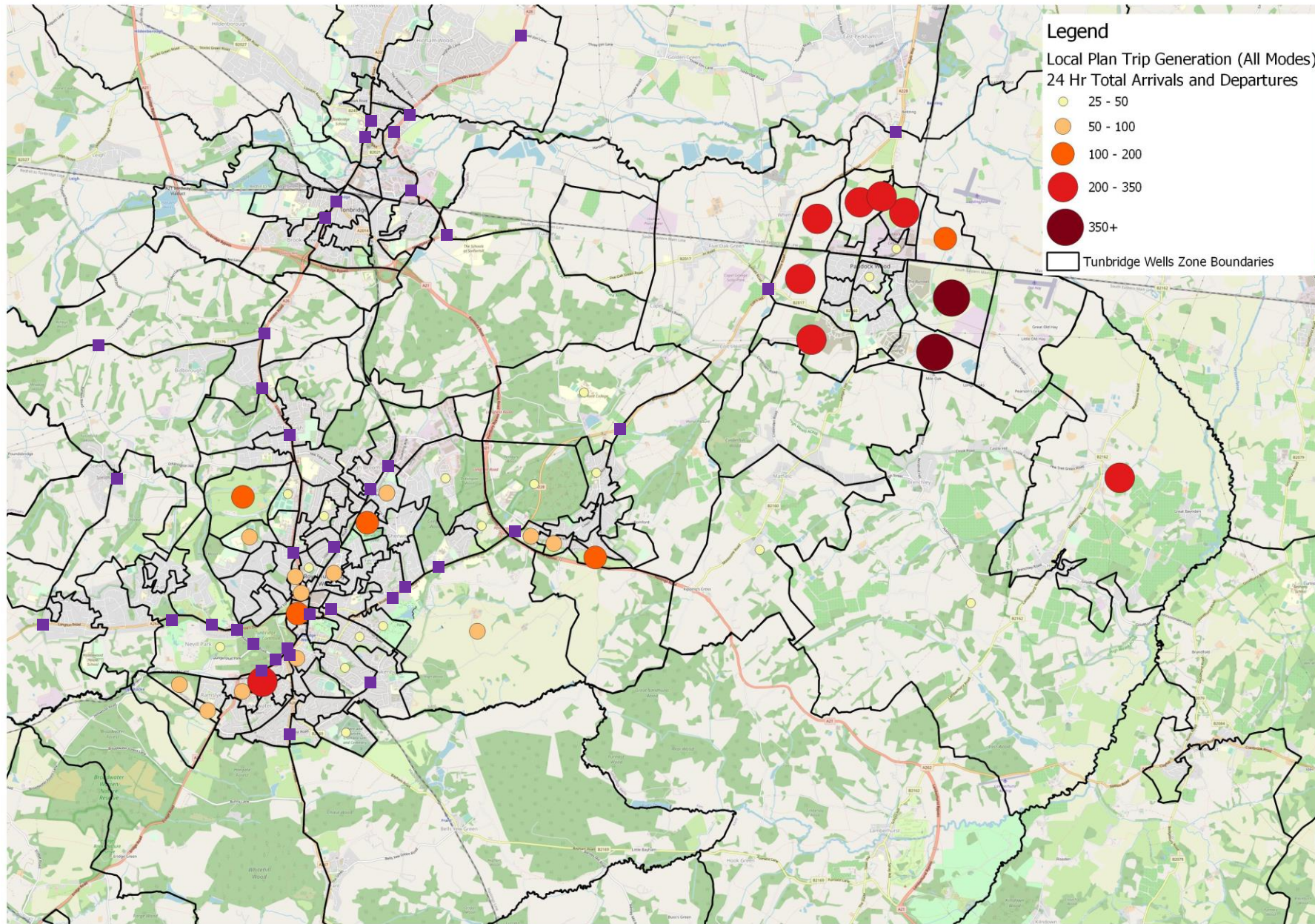
Local Plan Model Runs Local Plan Demand + RC Demand RC network (no mitigations for LP Development)	AM Peak				
	Ref Case	Local Plan			
	All	Total	Same as Ref Case	"Minor" LP Hotspot	"Major" LP Hotspot
Submitted Local Plan Scenario 2022	54	75	18	36	21
Local Plan Scenario 1	59	71	38	20	13
Local Plan Scenario 2	59	76	34	21	21
	PM Peak				
	Ref Case	Local Plan			
	All	Total	Same as Ref Case	"Minor" LP Hotspot	"Major" LP Hotspot
Submitted Local Plan Scenario 2022	33	65	11	35	19
LP unmitigated model 23 S1	43	55	29	17	9
LP unmitigated model 23 S2	43	59	23	17	19



## Local Plan

### Trips generated by Local Plan Development sites

This diagram shows the scale of trips being added to the local Tunbridge Wells highway network by the proposed Local Plan developments

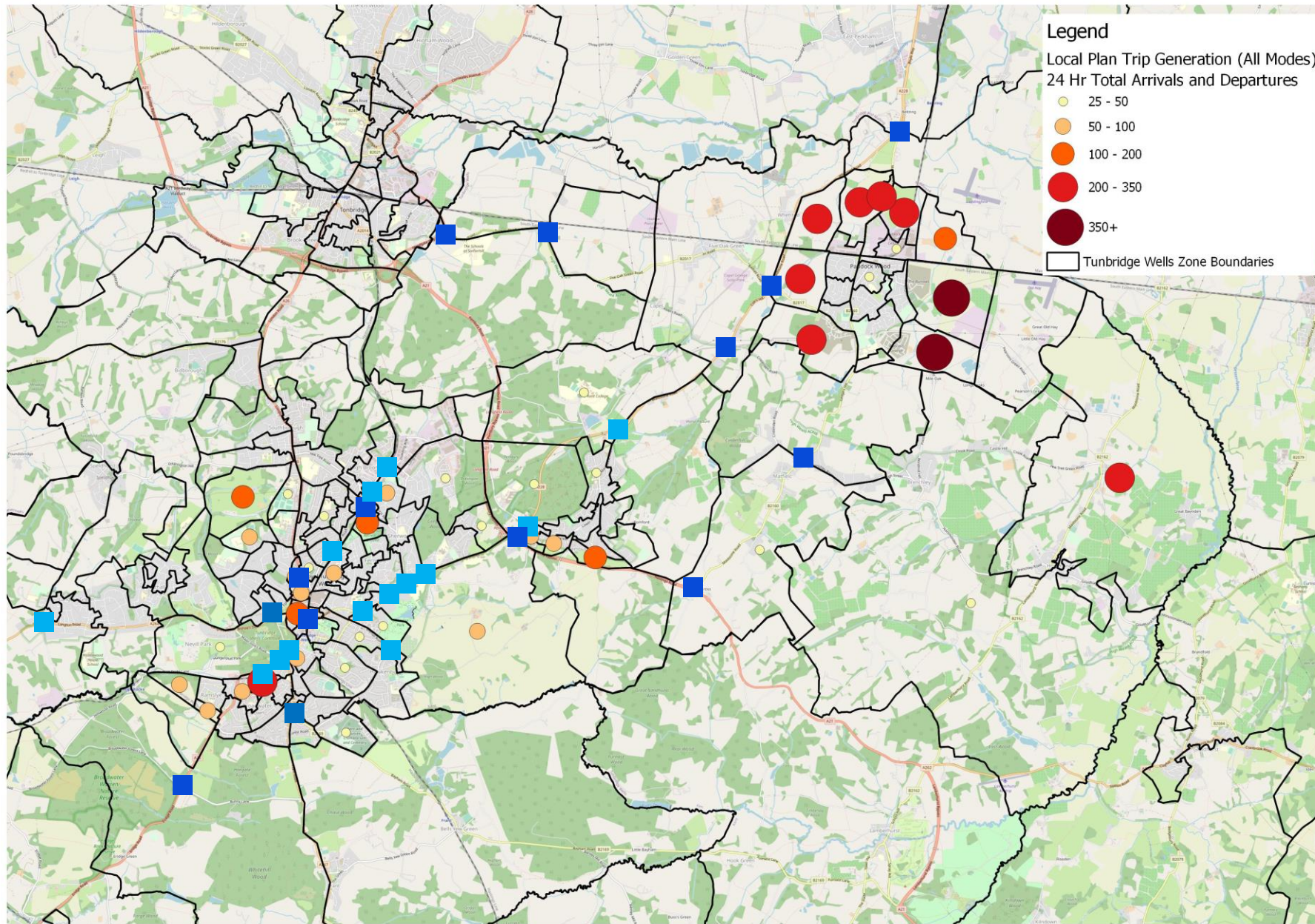


## Reference Case 2023 model runs

Junction with at least one arm with V/C over 95%

This image illustrates the location and extent of congestion on the existing highway network. These are already hotspot locations prior to adding Local Plan development trips to the network.

The main concentrations of congestion are in and around the urban areas of Royal Tunbridge Wells (RTW) and Tonbridge.



## Local Plan All Day

## Local Plan Scenario 1

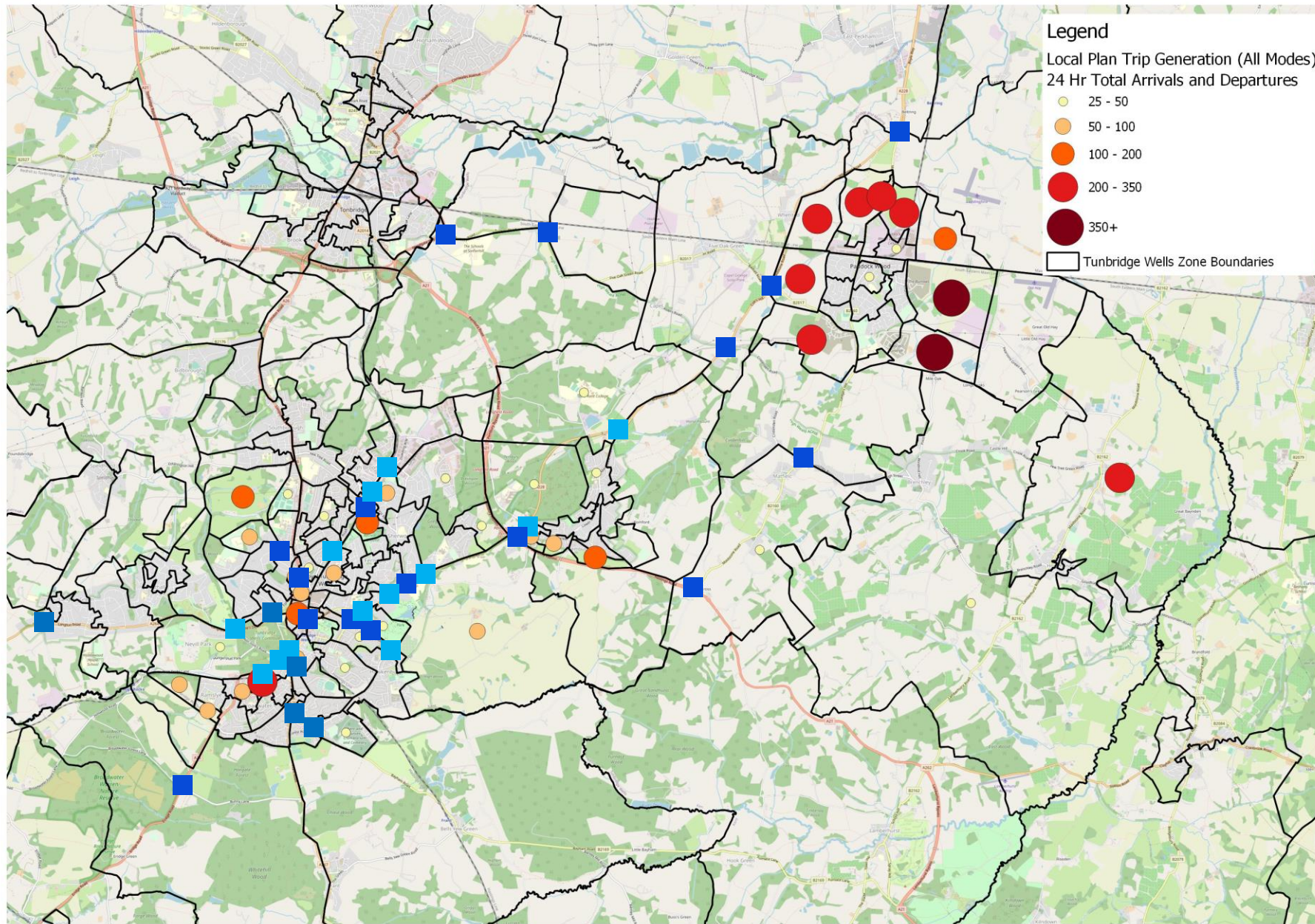
### Junction key

**“Major” Hotspots**  
Increase in flow at junction (>50 vehicles) and at least one Junction arm V/C has increased by >5%



**“Minor Hotspots**  
Increase in flow at junction (>50 vehicles) only





Local Plan All Day

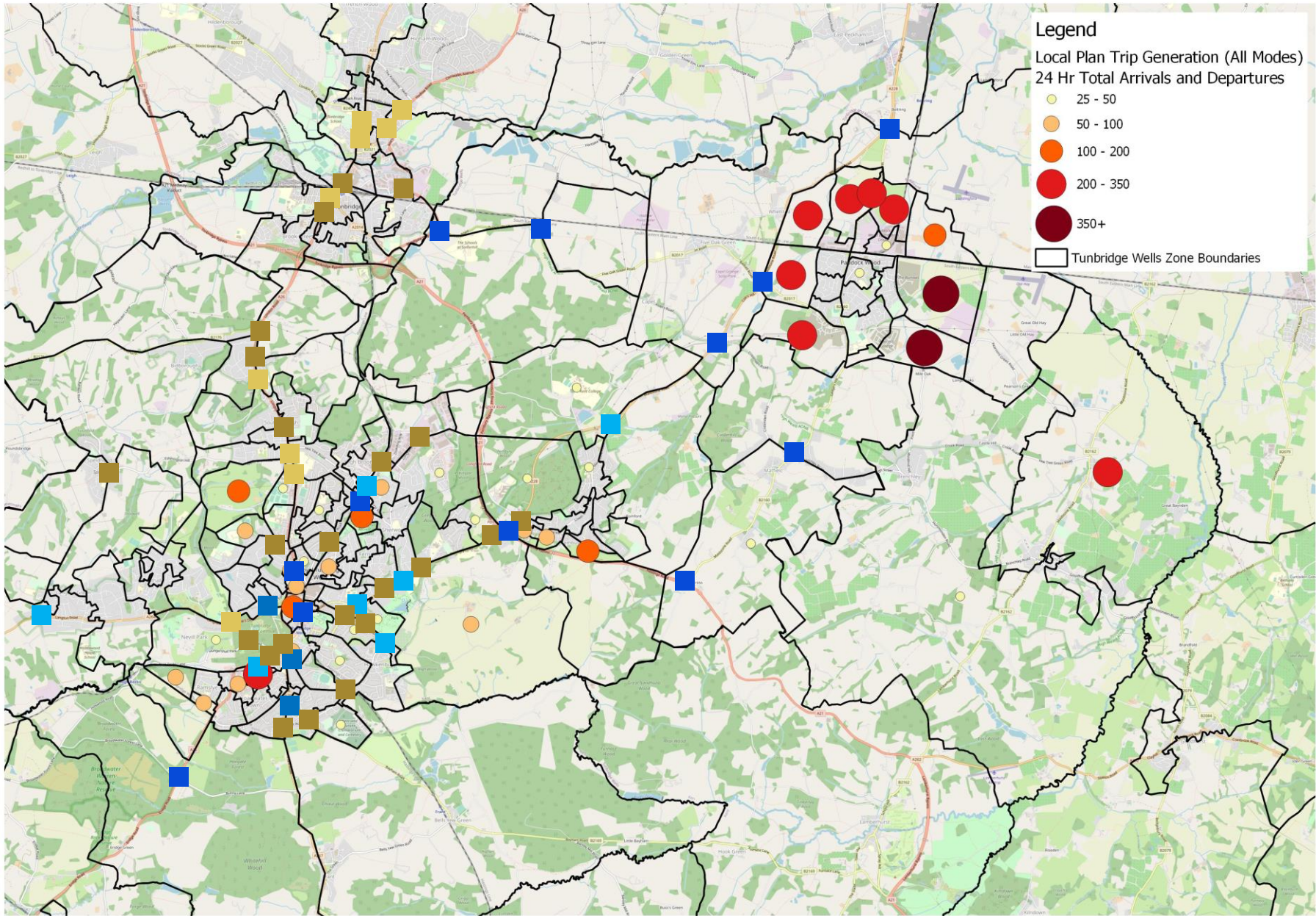
Local Plan Scenario 2

Junction key

**“Major” Hotspots**  
Increase in flow at junction (>50 vehicles) and at least one Junction arm V/C has increased by >5%

**“Minor Hotspots**  
Increase in flow at junction (>50 vehicles) only





**Local Plan All Day Comparison of Local Plan Scenario 1 and Submitted Local Plan 2022 hotspots**

**Junction key**

Remaining LP S1 Hotspots	Removed Submitted LP Hotspots
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**“Major” Hotspots**  
Increase in flow at junction (>50 vehicles) and at least one Junction arm V/C has increased by >5%

Remaining LP S1 Major Hotspots	Removed Submitted LP Major Hotspots
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**“Minor” Hotspots**  
Increase in flow at junction (>50 vehicles) only

Remaining LP S1 Minor Hotspots	Removed Submitted LP Minor Hotspots
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# Findings

## Major Hotspots

- A228 / A264 corridor and junction demand
- B2017 corridor demand
- B2160 corridor including Matfield and Kippings Cross

Focus needs to be tackling the underlying congestion issues in the “major” hotspot locations along the A228, A264, B2017 and B2160. By tackling these issues, it is anticipated that other “major” and “minor” hotspots will also dissipate without the need for more targeted interventions in these locations.

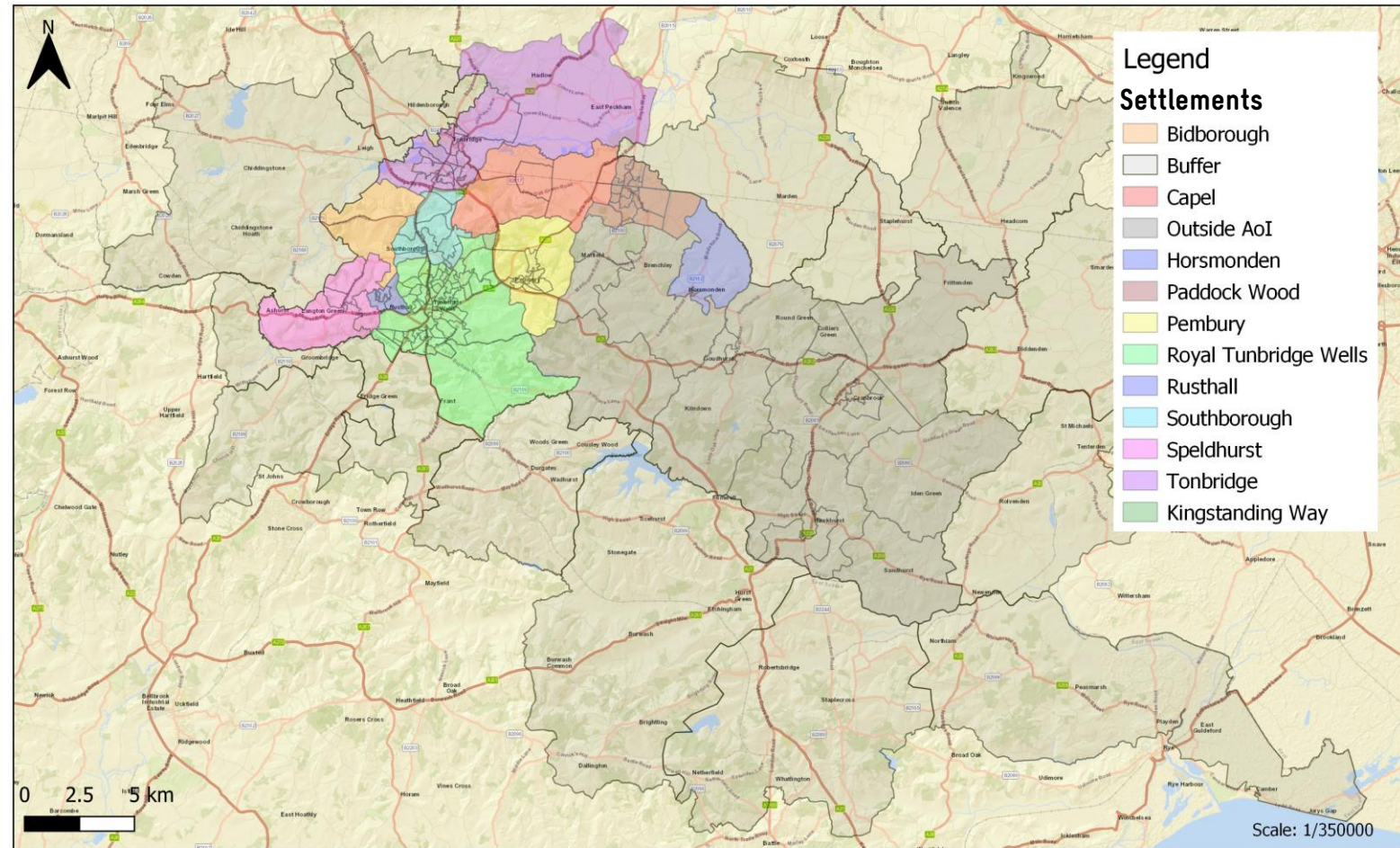
It is anticipated that to fix the major hotspots there will be a need for significant investment to support some, or all, of the following measures:

- Measures to ensure high levels of trips remain local within Paddock Wood (both new and existing trips).
- Modal shift from car to other modes and maximise capacities at hotspots when considering all modes, not simply highway.
- Where appropriate, physical junction improvement works to increase capacity in key junctions to mitigate LP impacts (not address existing issues).

# Local Plan Trip Distribution and Modal Shift Considerations

# Map - Settlements

- Map identifies where key areas are in relation to Paddock Wood
- Highlighted settlements are within model simulation area
- Focus on OD pairs that relate to corridors subject to sustainable transport interventions and thus, offer the greatest potential for modal shift.



Map Title: Tunbridge Wells 2038 Model Parishes  
 Map Description:  
 Parishes within the Tunbridge Wells 2038 Model. Zones are aggregated by parish in later analysis. This is used to assess trips between major Local Plan developments, as well as intra- and inter-zonal trips. "Outside AoI" stands for Outside Area of Interest and includes the parishes of Benenden, Brenchley and Matfield, Cranbrook and Sissinghurst, Goudhurst, Hawkhurst, Lamberhurst and Sandhurst.

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 Checked By: Dermot Hanney, 16/08/2023  
 Approved By: Joe Charlesworth, 16/08/2023

# OD Analysis – Paddock Wood

- The highest two-way trip demand is between Paddock Wood and Royal Tunbridge Wells (RTW). The RTW area includes:
  - Town centre.
  - North Farm.
- Next highest trip demand are trips within Paddock Wood.
- Tonbridge also has significant demand for two-way trips with Paddock Wood
- Finally significant two-way trip demand is for external north (trips to strategic highway network to M25 and greater London).
- The data shows that where applicable the largest benefits from any modal shift from around Paddock Wood Local Plan development will be on connections...
  - Within Paddock Wood
  - With Royal Tunbridge Wells
  - With Tonbridge

Parish	AM Total Trips to Paddock Wood	AM Total Trips from Paddock Wood	PM Total Trips to Paddock Wood	PM Total Trips from Paddock Wood
Benenden	11	1	1	15
Bidborough	5	25	11	7
Brenchley and Matfield	19	8	20	29
Capel	33	19	38	50
Cranbrook and Sissinghurst	64	15	35	122
Goudhurst	27	11	18	52
Hawkhurst	25	4	4	8
Horsmonden	30	11	12	35
Lamberhurst	4	4	8	7
Paddock Wood	393	393	427	427
Pembury	4	72	262	66
Royal Tunbridge Wells	461	654	464	423
Rusthall	10	18	19	15
Sandhurst	6	1	1	2
Southborough	29	25	51	28
Speldhurst	11	43	27	33
Tonbridge	289	505	524	305
Tunbridge Wells (NCP)	0	84	13	1
Buffer North	57	75	138	47
Buffer South	27	27	30	30
Buffer East	13	11	20	57
Buffer West	6	29	26	10
Buffer	103	143	214	144
External North	864	726	763	595
External South	24	26	31	43
External East	19	8	6	44
External West	100	151	129	55
External	1,007	911	928	736
Total	2,532	2,947	3,076	2,505

# Summary

# Model Outputs Summary

- Submitted 2021 LP (unmitigated) model vs 2023 LP Scenario 1 model:
  - Tonbridge out as a hotspot.
  - Less hotspot pressure observed around Royal Tunbridge Wells.
- Focus on 2023 LP Scenario 1 model:
  - No new “major” hotspots identified.
  - “Major” hotspots on network primarily on corridors A264/A228, B2017 and B2160 remain as per previous modelling.
- 2023 LP Scenario 1 vs 2023 LP Scenario 2:
  - The ‘what if’ additional dwellings within LP Scenario 2 puts additional pressure on key junctions around Royal Tunbridge Wells, with more links and junctions going over capacity, as well as overloading some local roads around Paddock Wood and Pembury with additional traffic looking to bypass hotspots already identified in LP Scenario 1.

# Stage 3 – Outline of Mitigation Analysis Next Steps

## 1. Change in car trips

- Modal shift from car based on sustainable transport note provided by TWBC and subsequent spreadsheet analysis to identify the associated reduction in vehicle trips to be adopted within the Stage 3 Part 1 model.
- Appraise Stage 3 Part 1 model outputs for change in hotspots from reduction in car trips.
- Identify areas where further mitigation will be required in Stage 3 Part 2.
- Programme for completion of model is 2-weeks from receipt of agreed modal shift and modelling inputs/methodology.

## 2. Additional scheme appraisal (following completion of Stage 3 Part 1)

- Residual congestion on network that justify capacity enhancement schemes. This can include junction upgrades or new highway links.
- Feasibility and deliverability appraisals of highway mitigation, including junction modelling and preliminary design work as required for certain hotspots – work to take account of that undertaken for submitted Local Plan where appropriate.
- Final strategic model run to confirm all mitigation schemes work collectively on strategic network.

*KCC and NH sign off required at each stage and certainly prior to the commencement of the Stage 3 Part 1 strategic modelling.*



# Mitigation schemes from previous 2021 analysis that potentially remain applicable

ID	Scheme	Main modes	Reason
1	Colts Hill Bypass	<b>New link</b> - Primarily highway but benefits for walk/cycle/bus	Takes traffic from built up areas / collision hotspots whilst increasing accessible priority network for sustainable transport
2	Five Oak Green Bypass	<b>New link</b> - Primarily highway but benefits for walk/cycle/bus	Takes traffic from built up areas / collision hotspots whilst increasing accessible priority network for sustainable transport
3	A228 Maidstone Road / B2017 Badsell Road (Colts Hill) roundabout	<b>Junction upgrade</b> - Highway but also may require bus priority as well	Junction is identified from modelling as a "major" congestion hotspot
4	A26 Woodgate Way/B2017 Tudeley Rd roundabout	<b>Junction upgrade</b> - Highway but also may require bus priority as well	Junction is identified from modelling as a "major" congestion hotspot
5	A228 / B2160 Hop Farm roundabout	<b>Junction upgrade</b> - Highway	Junction is identified from modelling as a "major" congestion hotspot
6	A228 Pembury Northern Bypass / High Street / Tonbridge Road (Woodsgate Corner signals)	<b>Junction upgrade</b> - All modes	Key location for improving connectivity for non-car modes whilst also a need to relieve at as a "major" hotspot
7	T junction – A264 Pembury Road / Sandhurst Road	<b>Junction upgrade</b> - Primarily highway but benefits for walk/cycle/bus	Corridor is a "major" congestion hotspot and traffic needs to be managed to allow for priority for sustainable modes
8	T junction – A264 Pembury Road / Sandrock Road	<b>Junction upgrade</b> - Primarily highway but benefits for walk/cycle/bus	Corridor is a "major" congestion hotspot and traffic needs to be managed to allow for priority for sustainable modes
9	A21 Kippings Cross roundabout	<b>Junction upgrade</b> - Highway	Junction is identified from modelling as a "major" congestion hotspot
10	Bus services Paddock Wood - Pembury - Royal Tunbridge Wells	<b>New bus service and bus corridor priority measures</b>	Generate modal shift from car on high demand link. Needs associated bus priority mitigations
11	Bus services Paddock Wood - Tonbridge	<b>New bus service and bus corridor priority measures</b>	Generate modal shift from car on high demand link. Needs associated bus priority mitigations
12	Cycling corridor Paddock Wood - Pembury - Royal Tunbridge Wells	<b>New Cycling Route</b>	Generate modal shift from car on high demand link. Needs associated cycle priority mitigations