

Uttlesford Transport Study

784-B029347

STANSTED MOUNTFITCHET MODEL OUTPUTS



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TABLE OF CONTENTS

1.0	BACKGROUND	6
1.1	Overview	6
1.2	Development Sites	6
1.3	Scenarios & Focus of Assessment.....	6
1.4	Further Reading.....	7
1.5	More Information	7
2.0	PERFORMANCE IN THE BASE YEAR (2021)	9
2.1	Volume of Traffic	9
2.2	Journey Times.....	9
2.3	Junction Delays.....	13
2.4	Summary	14
3.0	PERFORMANCE IN THE REFERENCE CASE (2040)	17
3.1	Volume of Traffic	17
3.2	Journey Times.....	17
3.3	Junction Delays.....	20
3.4	Summary	21
4.0	PERFORMANCE IN THE LOCAL PLAN GROWTH SCENARIO (2040)	25
4.1	Volume of Traffic	25
4.2	Journey Times.....	25
4.3	Junction Delays.....	30
4.4	Summary	33
5.0	MITIGATION: PACKAGE 1 – SUSTAINABLE TRANSPORT	35
5.1	Interventions	35
5.2	Volume of Traffic	36
5.3	Journey Times.....	36
5.4	Junction Delays.....	40
5.5	Summary	40
6.0	MITIGATION: PACKAGE 2 – HIGHWAY CAPACITY	44
6.1	Interventions	44
6.2	Volume of Traffic	44

6.3	Journey Times.....	47
6.4	Junction Delays.....	48
6.5	Summary	48
7.0	SUMMARY	52
7.1	Overview.....	52
7.2	Recommended Interventions.....	52

LIST OF TABLES

Table 2-1: Journey Time in the AM & PM Peak Periods	9
Table 2-2: Average Vehicle Speeds in Stansted Mountfitchet in the AM & PM Peak Periods	13
Table 3-1: Changes in Journey Times between Base Year (2021) and Reference Case (2040)	17
Table 3-2: Changes in Average Speeds between Base Year (2021) and Reference Case (2040)	20
Table 4-1: Changes in Journey Times between the Reference Case and Local Plan Growth Scenario	25
Table 4-2: Changes in Average Speeds between the Reference Case and Local Plan Growth Scenario	30
Table 5-1: Sustainable Transport Interventions in Stansted Mountfitchet.....	35
Table 5-2: Mode Shift Assumptions.....	36
Table 5-3: Changes in Journey Times between the Reference Case and Mitigation Package 1	39
Table 5-4: Changes in Average Speeds between the Reference Case and Mitigation Package 1.....	39
Table 6-1: Proposed Junction Improvements in Stansted Mountfitchet.....	44
Table 6-2: Changes in Journey Times between the Reference Case and Mitigation Package 2 (MP2).....	47
Table 6-3: Changes in Average Speeds between the Reference Case and Mitigation Package 2 (MP 2)	47
Table 7-1: List of Recommended Interventions & Indicative Costs.....	52

LIST OF FIGURES

Figure 2-1: Volume of Traffic (Link Flow) in the 2021 Base Year - AM	10
Figure 2-2: Volume of Traffic (Link Flow) in the 2021 Base Year - PM.....	11
Figure 2-3: Journey Time Routes in Stansted Mountfitchet.....	12
Figure 2-4: Junction Delays in Stansted Mountfitchet in the 2021 Base Year	15
Figure 3-1: Change in Volume of Traffic between Base Year (2021) and Reference Case (2040) - AM	18
Figure 3-2: Change in Volume of Traffic between Base Year (2021) and Reference Case (2040) - PM	19
Figure 3-3: AM Peak Junction Delays in Stansted Mountfitchet in the Reference Case (2040)	22
Figure 3-4: PM Peak Junction Delays in Stansted Mountfitchet in the Reference Case (2040)	23
Figure 4-1: Stansted Mountfitchet Local Plan Site Allocations.....	26
Figure 4-2: Change in Volume of Traffic between the Reference Case and Local Plan Growth Scenario - AM	27
Figure 4-3: Change in Volume of Traffic between the Reference Case and Local Plan Growth Scenario - PM	28
Figure 4-4: Distribution of Demand from Site Allocations in Stansted Mountfitchet (AM Peak).....	29
Figure 4-5: AM Peak Junction Delays in Stansted Mountfitchet in the Local Plan Growth Scenario	31
Figure 4-6: PM Peak Junction Delays in Stansted Mountfitchet in the Local Plan Growth Scenario	32
Figure 5-1: Change in Volume of Traffic between the Reference Case and Mitigation Package 1 - AM.....	37
Figure 5-2: Change in Volume of Traffic between the Reference Case and Mitigation Package 1 - PM	38
Figure 5-3: AM Peak Junction Delays in Stansted Mountfitchet Mitigation Package 1	41
Figure 5-4: PM Peak Junction Delays in Stansted Mountfitchet Mitigation Package 1	42
Figure 6-1: Change in Volume of Traffic between the Reference Case and Mitigation Package 2 - AM.....	45
Figure 6-2: Change in Volume of Traffic between the Reference Case and Mitigation Package 2 - PM	46
Figure 6-3: Stansted Mountfitchet AM Peak Junction Delays in Mitigation Package 2	49
Figure 6-4: Stansted Mountfitchet PM Peak Junction Delays in Mitigation Package 2	50



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1 | BACKGROUND

1.0 BACKGROUND

1.1 OVERVIEW

- 1.1.1 This technical note examines the transport impacts of the proposed Uttlesford Local Plan allocation sites, together with the sustainable transport interventions and highway capacity improvements required to mitigate the increase in travel demand within the district due to the Local Plan.
- 1.1.2 It focuses on how the Local Plan site allocations will impact upon the performance of the highway network in Stansted Mountfitchet. It details the mitigation required to address the increase in demand to travel and the interventions through which to maximise the proportion of trips which are undertaken by sustainable modes.

1.2 DEVELOPMENT SITES MODELLED & PROPOSALS IN THE LOCAL PLAN

- 1.2.1 The following sites and quantum of housing were modelled and assessed in Stansted Mountfitchet:
- Land east of High Lane, Stansted Mountfitchet
 - Land west of Cambridge Road and north of Walpole Meadows
 - Land east of High Lane, Stansted Mountfitchet
 - Land east of High Lane, Stansted Mountfitchet
- 1.2.2 Together the sites can accommodate some 800 dwellings.
- 1.2.3 Following the conclusion of the assessment, Uttlesford District Council reconsidered the location and quantum of development to come forward within the village and the wider A120 corridor.
- 1.2.4 A revised figure of 390 homes was subsequently included in the Regulation 18 Local Plan associated with the sites at:
- Land east of High Lane, Stansted Mountfitchet
 - Land west of Cambridge Road and north of Walpole Meadows
- 1.2.5 This represents more than a 50% reduction compared to the number of dwellings modelled. More broadly the quantum of housing included within the Local Plan is less than that modelled.
- 1.2.6 Changes in the reduced scale of growth proposed to come forward is partly off-set by the granting of planning permission for some 1,200 dwellings to the west of Great Dunmow at 'Easton Park'. This is also not captured in the assessment as planning permission wasn't granted prior to this technical note being produced.

1.3 SCENARIOS & FOCUS OF ASSESSMENT

- 1.3.1 The assessment of the impacts of the sites was undertaken using the A120 Corridor VISUM Model. Technical details of the model and the methodology applied in the assessment of the network are detailed in separate technical notes.
- 1.3.2 Five scenarios have been assessed within the town focusing upon:
- The performance of the network in the 2021 (Base Year) and 2040 (Reference Case).
 - The comparative performance of the network with Local Plan sites in place (in 2040).
 - Interventions to encourage sustainable travel and the impacts on network performance.
 - Highway capacity improvements and the impacts on network performance.

- 1.3.3 The assessment of the performance of the network was based upon the following metrics:
- The volume of traffic on the network in both the AM and PM peak periods.
 - Journey times on the network in both the AM and PM peak periods, and the associated speed of traffic.
 - Junction delays in both the AM and PM peak periods.

1.4 FURTHER READING

- 1.4.1 This technical note focuses on the performance of the network in Stansted Mountfitchet. It should be read in conjunction with the following technical notes:
- TN110 | Uttlesford Transport Study Baseline Report
 - TN401 | Strategic Impacts Technical Note
 - TN402 | Saffron Walden Model Outputs Technical Note.
 - TN403 | Great Dunmow Model Outputs Technical Note.
 - TN404 | Takeley Model Outputs Technical Note.
 - TN406 | Thaxted & Newport Model Outputs Technical Note.
 - TN407 | A120 Corridor Model Outputs Technical Note.

1.5 MORE INFORMATION

- 1.5.1 For more information on the content of this technical note please contact:

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2 | PERFORMANCE IN THE BASE YEAR (2021)

2.0 PERFORMANCE IN THE BASE YEAR (2021)

2.1 VOLUME OF TRAFFIC

2.1.1 The volume of traffic in the AM and PM peak periods in the 2021 Base Year Model is shown in **Figure 2-1** and **Figure 2-2**. They highlight that:

- To the south of the village, the Bishop’s Stortford Bypass (the A120) carries the highest volume of traffic on the network, in both peak periods, with a flow of over 1,200 vehicles in the AM peak travelling eastbound towards M11 J8.
- There are also substantial flows on the B1383 to the south of the village, but particularly travelling southbound in the AM peak period and northbound in the PM peak period.
- Flows within the village itself are more modest with broadly similar number of vehicles travelling east-west along Chapel Hill and north-south along Cambridge Road (B1383).

2.2 JOURNEY TIMES

2.2.1 Selected journey times in the AM peak in the 2021 Base Year Model are shown in **Table 2-1**, alongside the comparative journey times for the PM peak period. The average speed of traffic on each route is shown in **Table 2-2**.

2.2.2 A map showing the location of the routes is shown in **Figure 2-3**. In each instance, the journey times are averaged over the peak hour and so it is acknowledged that traffic may be faster or slower at times within that period. Delays can be identified when comparing the journey times and average speeds between the direction of flow and the time of day. Traffic was not surveyed outside of the main peak periods.

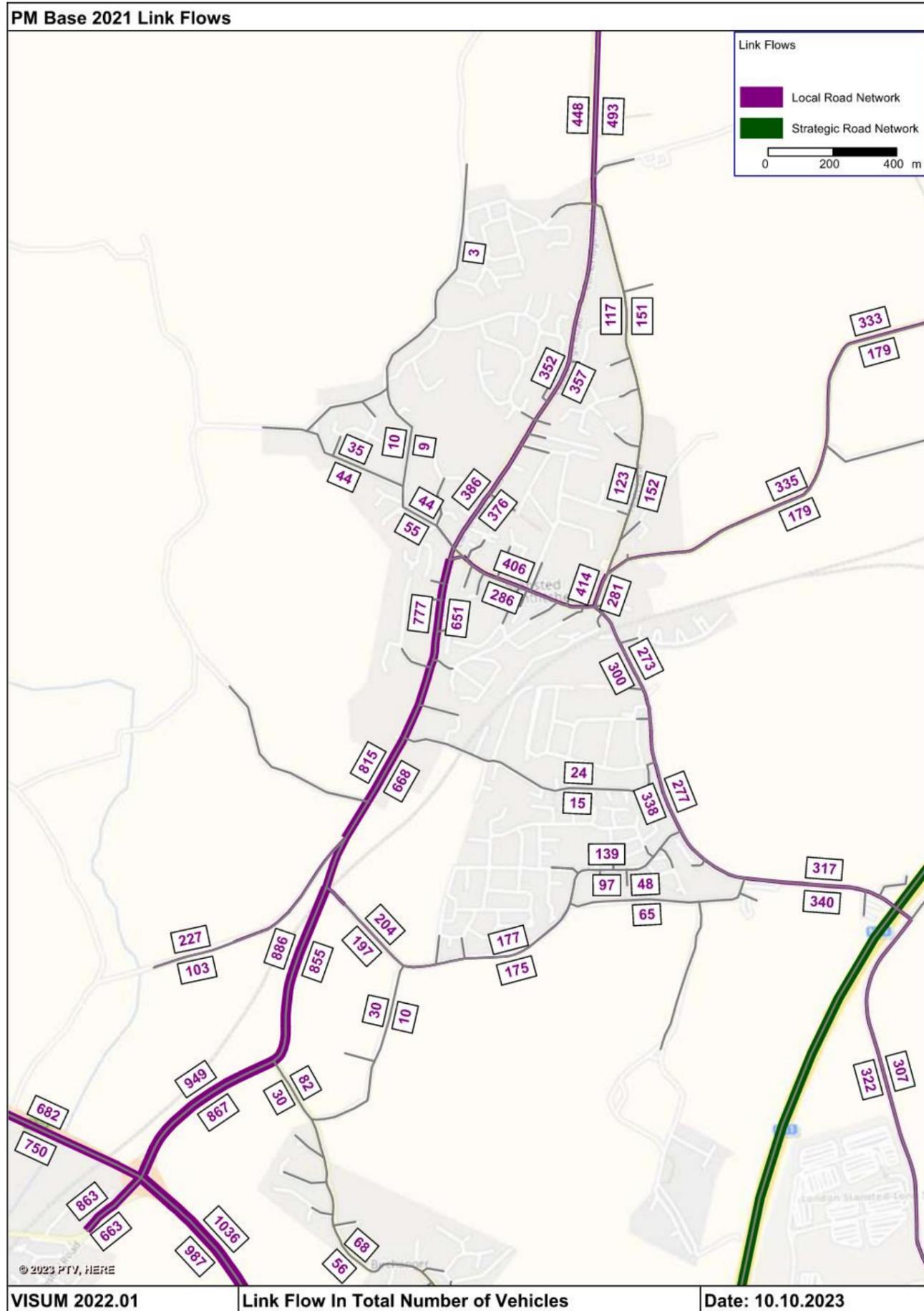
Table 2-1: Journey Time in the AM & PM Peak Periods

Route (No.)	Direction	Distance (miles)	Journey Time (seconds)	
			2021 (AM Peak)	2021 (PM Peak)
(1) A120 Eastern Section - A1250/A1184 Roundabout to M11 J8	Eastbound	3.6	468	360
	Westbound	3.6	331	288
(4) B1383 - A120 to High Lane	Northbound	2.4	285	301
	Southbound	2.4	332	292
(5) Bury Lodge Lane/Church Road - A120 to B1383	Northbound	3.7	440	432
	Southbound	3.7	461	452
(6) B1051 - B1383 to Mill Road	Northbound	2.8	390	395
	Southbound	2.8	413	398

Figure 2-2: Volume of Traffic (Link Flow) in the 2021 Base Year - PM

Notes:

- Volume of traffic is presented in vehicles per hour.
- Weight of bar reflects size of flow.
- Purple represents links on the local road network.
- Green represents links on the Strategic Road Network (SRN)



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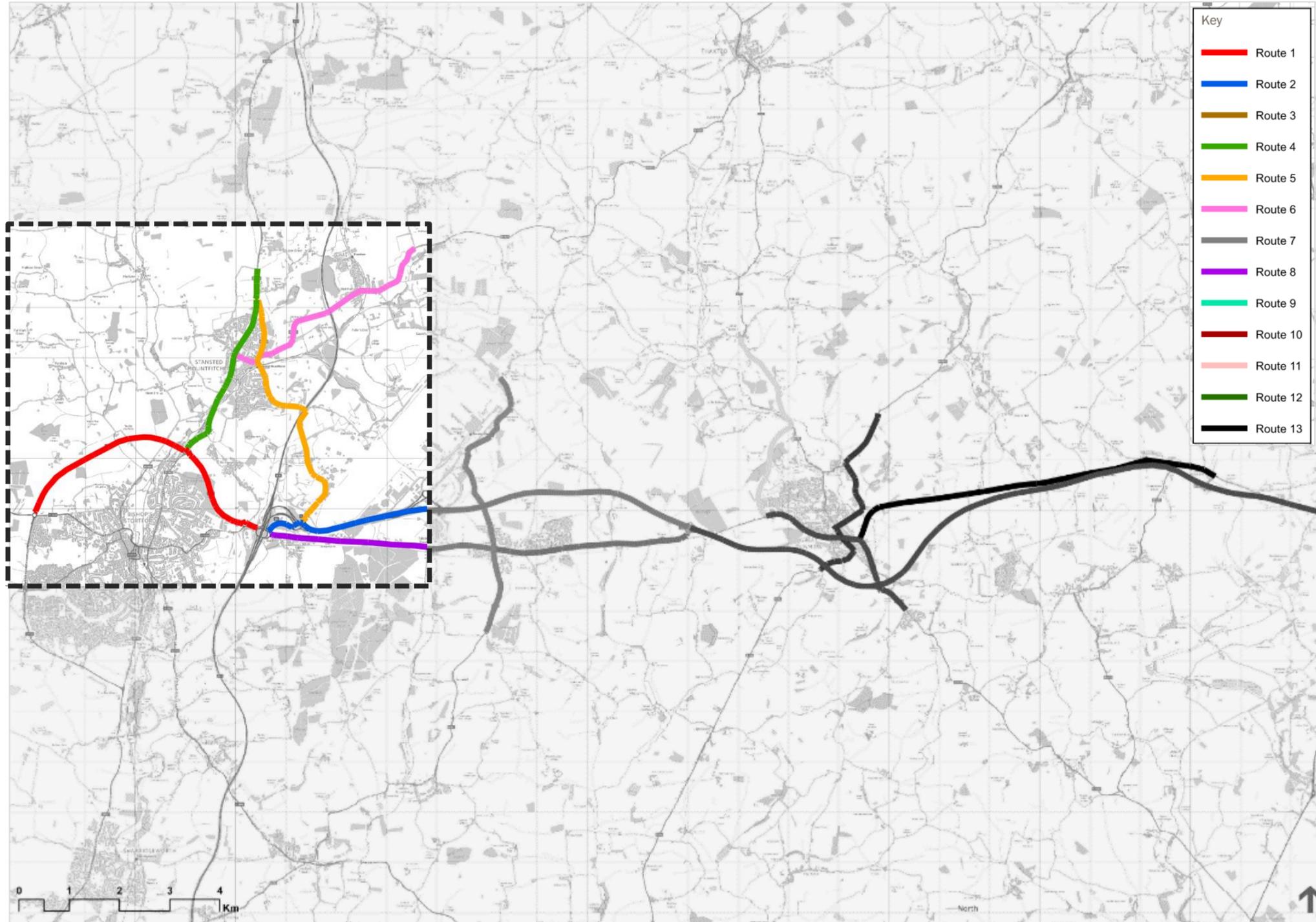
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Figure 2-3: Journey Time Routes in Stansted Mountfitchet


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Table 2-2: Average Vehicle Speeds in Stansted Mountfitchet in the AM & PM Peak Periods

Route (No.)	Direction	Distance (miles)	Average Sped (MPH)	
			2021 (AM Peak)	2021 (PM Peak)
(1) A120 Eastern Section - A1250/A1184 Roundabout to M11 J8	Eastbound	3.6	28.7	37.3
	Westbound	3.6	40.5	46.6
(4) B1383 - A120 to High Lane	Northbound	2.4	31.4	29.7
	Southbound	2.4	27.0	30.6
(5) Bury Lodge Lane/Church Road - A120 to B1383	Northbound	3.7	31.5	32.1
	Southbound	3.7	29.6	30.2
(6) B1051 - B1383 to Mill Road	Northbound	2.8	27.0	26.6
	Southbound	2.8	25.5	26.4

2.2.9 The main findings of the journey time analysis are that:

- There are large differences in the speed of traffic on the A120 where it forms the Bishop’s Stortford northern bypass, from around 29mph in the AM peak period for eastbound traffic to 47mph in the PM peak period for westbound traffic.
- Elsewhere, differences in journey times and vehicle speeds differ little between direction of travel and peak period.

2.2.10 To provide some context for the average speed of traffic in the town, data available from the Department for Transport (DfT) highlights that:

- The average speed on Local ‘A’ roads in England during the weekday morning peak (assumed by the DfT to be 7am to 10am – this study focuses on the 8am to 9am peak) was 23.4 mph in 2021.
- For the weekday evening peak (4pm to 7pm), the average speed in 2021 was 22.4 mph. The average speed in 2021 for weekday inter peak (10am to 4pm) was 23.2mph.
- The weekday off peak (7pm to 7am) average speed was 28.0 mph¹.

2.2.11 This highlights that traffic in Stansted Mountfitchet is generally faster than that across the rest of the country in the peak periods. However, the focus herein, is not how speeds compare to the national picture, but between growth scenarios within the town itself.

2.3 JUNCTION DELAYS

2.3.1 In seeking to understand the differences in journey times, an analysis of the performance of the junctions on the network was undertaken. **Figure 2-4** and **Error! Reference source not found.** illustrate the level of delay associated with the worse performing arm/approach to each junction in the AM and PM peak periods in Stansted Mountfitchet.

2.3.2 The key findings are that:

- There are no substantial delays in either the AM or PM peak periods within the village.
- However, to the south of the town there are delays of over a minute at the junction of the B1383 and the A120 Bishop’s Stortford Northern Bypass.

¹ [Travel time measures for local 'A' roads: January to December 2021 report - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/92111/Travel_time_measures_for_local_A_roads_January_to_December_2021_report.pdf)

- In addition, traffic on Gypsy Lane trying to access the B1383 is also subject to a degree of queuing in the AM peak period in particular.

2.4 SUMMARY

- 2.4.1 The Base Year Model simulates the performance of the highway network in Stansted Mountfitchet in typical present day (2021) conditions, across the morning and evening peak hours.
- 2.4.2 The analysis of the volume of traffic, the journey times and average speed of vehicles, together with the efficiency of operation of several junctions within the town shows a network that can broadly accommodate current levels of demand.
- 2.4.3 The exception is the A120 where it forms the Bishop's Stortford Northern Bypass. Vehicle speeds fluctuate, and delays occur in the peak periods.



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3 | PERFORMANCE IN THE REFERENCE CASE (2040)

3.0 PERFORMANCE IN THE REFERENCE CASE (2040)

3.1 VOLUME OF TRAFFIC

- 3.1.1 The Reference Case highlights how the road network will perform in a future year (2040) with all committed planning and transport schemes taken into account. It does not include the Local Plan site allocations.
- 3.1.2 The changes in the volume of traffic between the Base Year (2021) and Reference Case (2040) are shown in **Figure 3-1** and **Figure 3-2** for the AM peak and the PM peak periods.
- 3.1.3 It highlights that:
- To the north of Bishop’s Stortford traffic on the A120 will increase by almost 400 vehicles in each direction in the AM peak period.
 - Within Stansted Mountfitchet itself, the demand generated by committed schemes will have less impact. In the AM peak period, increases in flows in the town will equate to around 100 vehicles on several links including the B1383 Cambridge Road and the B1351 High Lane.
 - In the PM peak period however, the increase in the volume of traffic is greater with almost 200 additional vehicles on some routes including Forest Hall Road to the south of the village.

3.2 JOURNEY TIMES

- 3.2.1 The comparative journey times and average vehicle speed in the 2040 Reference Case are shown alongside those in the 2021 Base Year in **Table 3-1** and **Table 3-2** respectively.

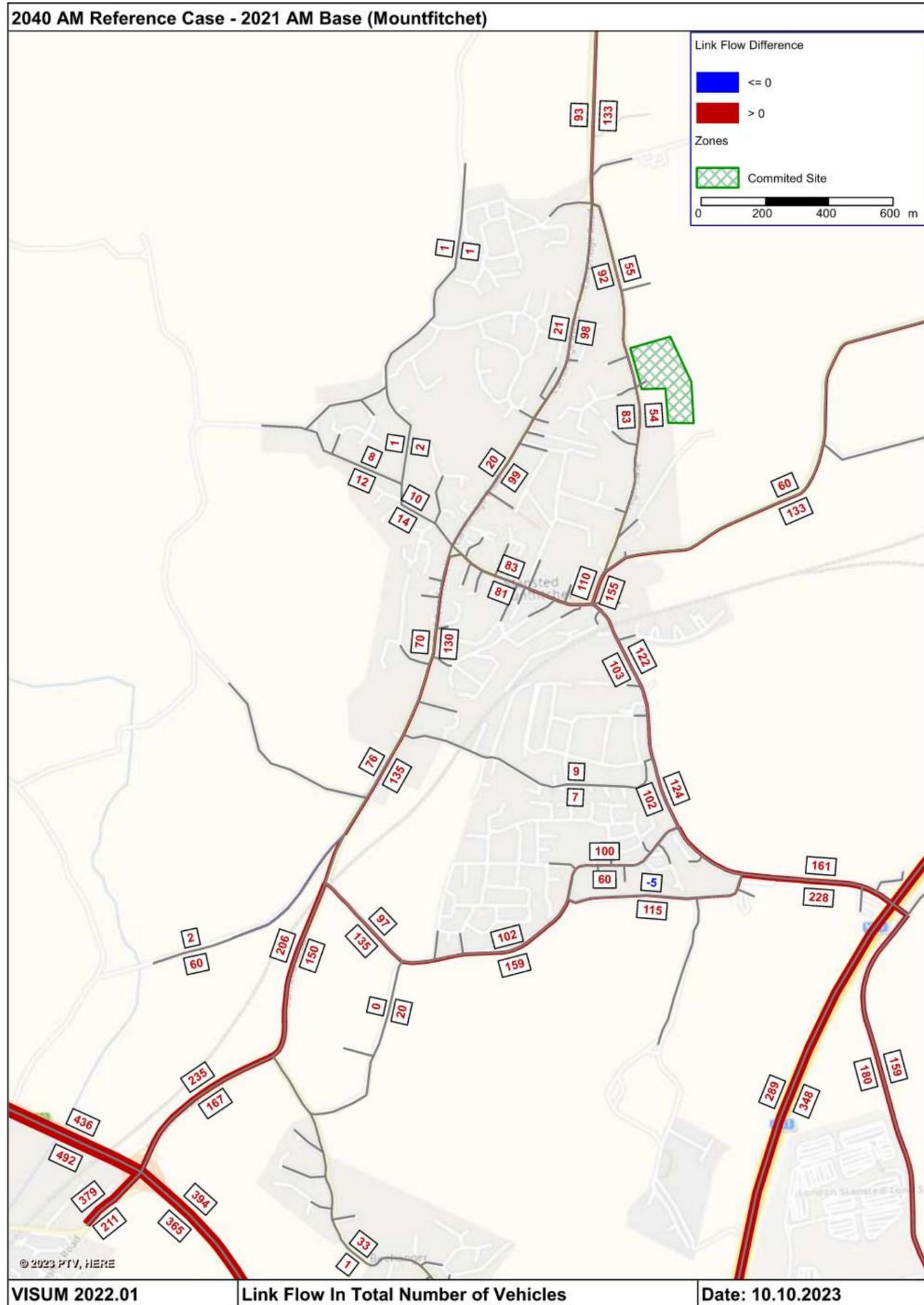
Table 3-1: Changes in Journey Times between Base Year (2021) and Reference Case (2040)

Route	Direction	Journey Time (in seconds)					
		AM Peak			PM Peak		
		2021	2040	Change	2021	2040	Change
(1) A120 Eastern Section - A1250/A1184 Roundabout to M11 J8	Eastbound	468	428	-40	360	385	+25
	Westbound	331	417	+86	288	386	+98
(4) B1383 - A120 to High Lane	Northbound	285	305	+20	301	311	+10
	Southbound	332	378	+46	292	282	-10
(5) Bury Lodge Lane/Church Road - A120 to B1383	Northbound	440	427	-13	432	432	-
	Southbound	461	483	+22	452	498	+46
(6) B1051 - B1383 to Mill Road	Northbound	390	420	+30	395	465	+70
	Southbound	413	525	+112	398	429	+31

Figure 3-1: Change in Volume of Traffic between Base Year (2021) and Reference Case (2040) - AM

Notes:

- Volume of traffic is presented in vehicles per hour.
- Weight of bar reflects size of flow.
- Red lines represent an increase in flow.
- Blue lines represent a decrease in flow.
- Green hatching represents committed sites.



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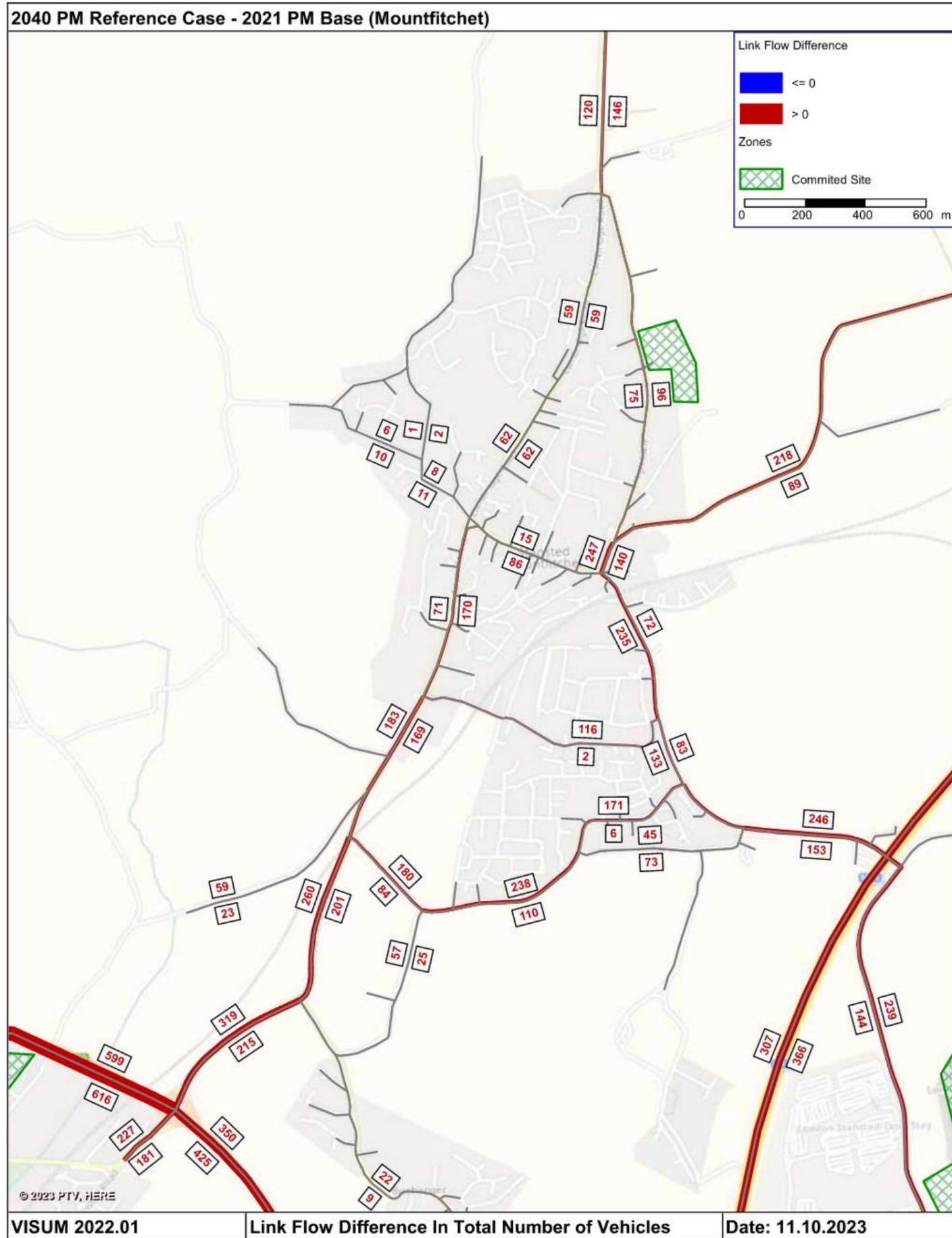
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Figure 3-2: Change in Volume of Traffic between Base Year (2021) and Reference Case (2040) - PM

Notes:

- Volume of traffic is presented in vehicles per hour.
- Weight of bar reflects size of flow.
- Red lines represent an increase in flow.
- Blue lines represent a decrease in flow.
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Table 3-2: Changes in Average Speeds between Base Year (2021) and Reference Case (2040)

Route	Direction	Average Speeds (in MPH)					
		AM Peak			PM Peak		
		2021	2040	Change	2021	2040	Change
(1) A120 Eastern Section - A1250/A1184 Roundabout to M11 J8	Eastbound	28.7	31.4	+2.7	37.3	34.9	-2.4
	Westbound	40.5	32.2	-8.3	46.6	34.8	-10.8
(4) B1383 - A120 to High Lane	Northbound	31.4	29.3	-2.1	29.7	28.8	-0.9
	Southbound	27.0	23.7	-4.3	30.6	31.7	+1.1
(5) Bury Lodge Lane/Church Road - A120 to B1383	Northbound	31.5	32.5	+1.0	32.1	32.1	-
	Southbound	29.6	28.3	-1.3	30.2	27.4	-2.8
(6) B1051 - B1383 to Mill Road	Northbound	27.0	25.0	-2.0	26.6	22.6	-4.0
	Southbound	25.5	20.0	-5.5	26.4	24.5	-1.9

3.2.8 The tables highlight that:

- Journey times will increase on almost all routes in both peak periods between 2021 and 2040.
- The biggest impact will be for westbound traffic on the A120 heading towards M11 J8 (Route 1). Average speeds will reduce by more than 9mph in the AM peak period and circa 8mph in the PM peak.
- Whilst there will be marginal improvements in journey times for some traffic (travel travelling away from M11 J8 in the AM peak period, on Route 1 and Route 5), the overall picture shows reduced vehicle speeds and the operation of the network becoming less efficient.

3.3 JUNCTION DELAYS

3.3.1 In seeking to understand the changes in journey times, an analysis of the performance of the junctions on the network was undertaken.

3.3.2 **Figure 3-3** and **Figure 3-4** illustrate the level of delay associated with the worse performing arm/approach to each junction in the AM and PM peak periods in Stansted Mountfitchet in the 2040 Reference Case, alongside the changes in delay when compared to the 2021 Base Year.

3.3.3 The key findings are that:

- In the AM peak period, a substantial issue becomes apparent at the junction of Gypsy Lane with the B1383 Stansted Road. Traffic wishing to exit Gypsy Lane will struggle to do so due to the volume of traffic on the B1383 and in theory will be subject to delays of over 20 minutes. Delays in the PM peak will be less severe.
- Increases in delay will also occur within the centre of Stansted Mountfitchet, at the junction of the B1351 Lower Street and Grove Hill in both the AM and PM peaks, whilst delays will also occur on the adjoining junction with Church Road and Chapel Hill immediately to the south in the PM peak. The proximity of these two junctions could generate significant issues for traffic in the area.

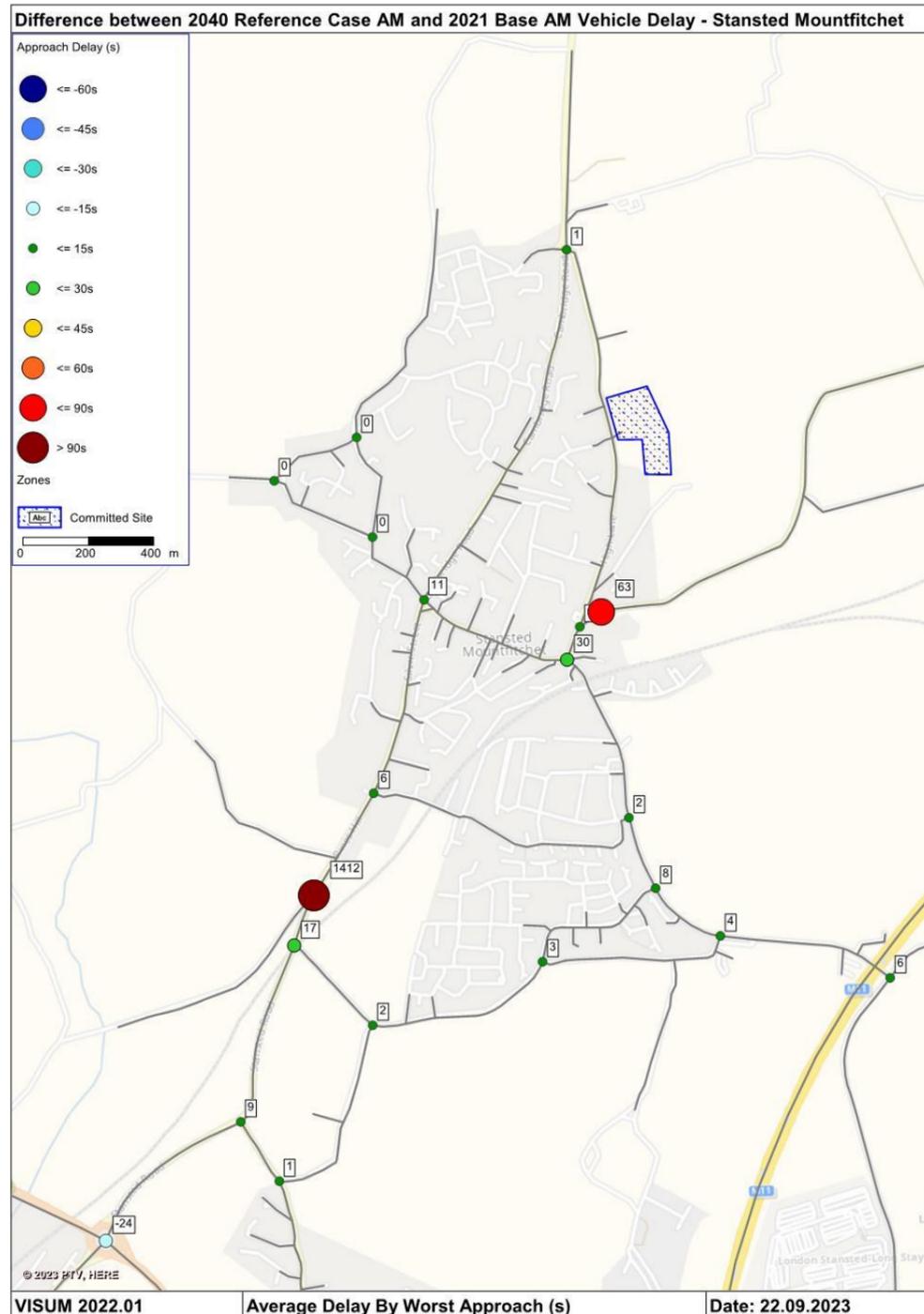
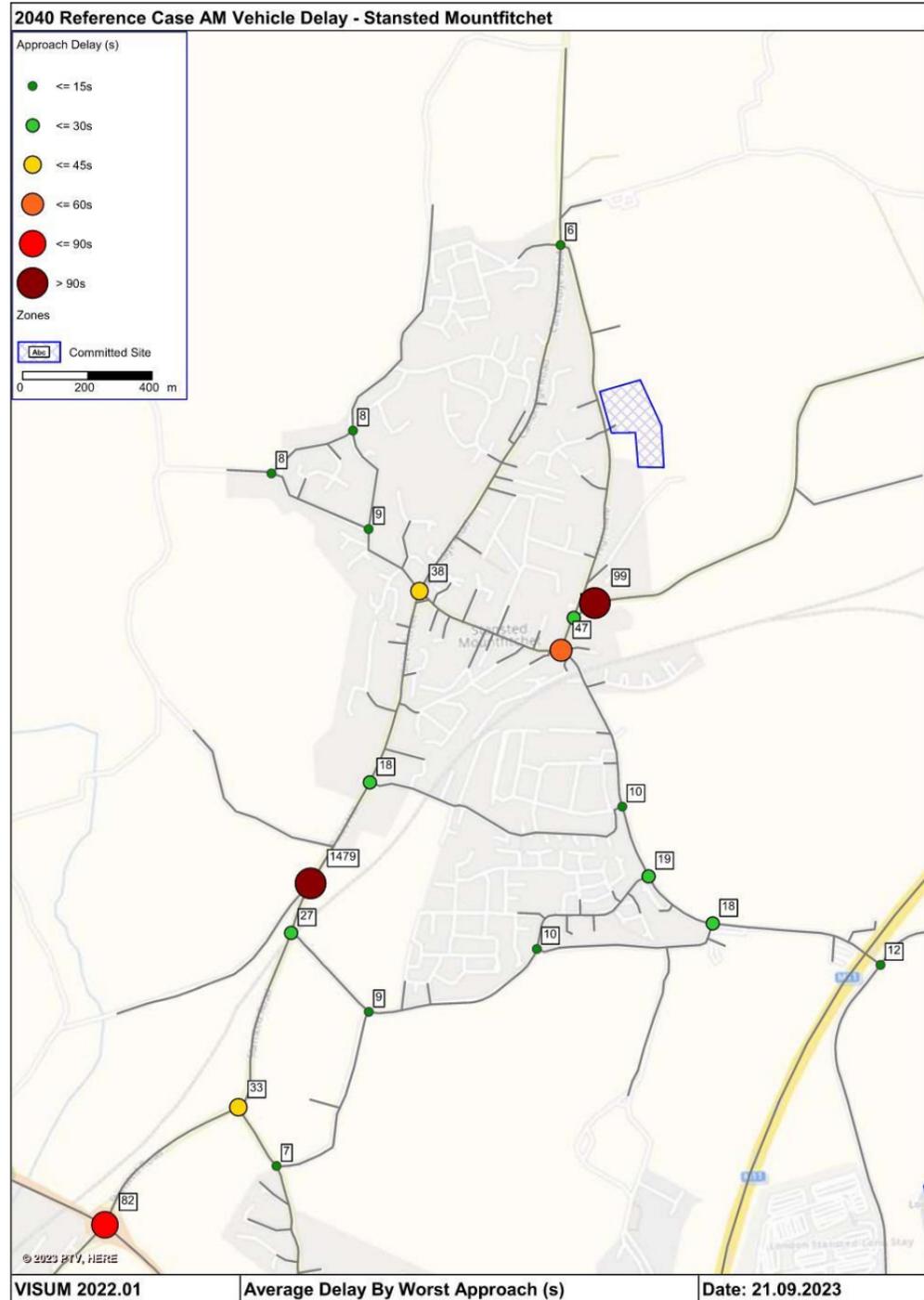
3.4 SUMMARY

- 3.4.1 The Reference Case identifies how the highway network in Stansted Mountfitchet will perform in 2040 before Local Plan related traffic is taken into account. It demonstrates that there will be more traffic on the network, longer delays at junctions and that journey times will increase as a result.
- 3.4.2 As opposed to widespread delays, the network in the area appears to have several specific pinch points where significant delays will occur. However, addressing these pinch points could conceivably have implications elsewhere by shifting traffic 'downstream' at a faster rate.

Figure 3-3: AM Peak Junction Delays in Stansted Mountfitchet in the Reference Case (2040)

Notes:

- Delays are in seconds per vehicle.
- Represents average queue time in the respective peak period.
- Delays on all approaches are shown on selected junctions in the inserts.
- Delays on all approaches are shown on selected junctions in the inserts.
- Blue hatching represents committed development sites.

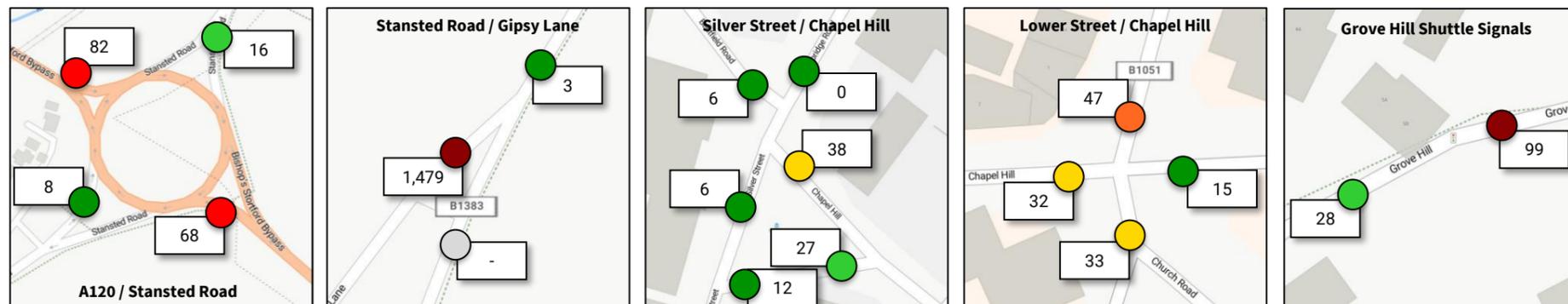


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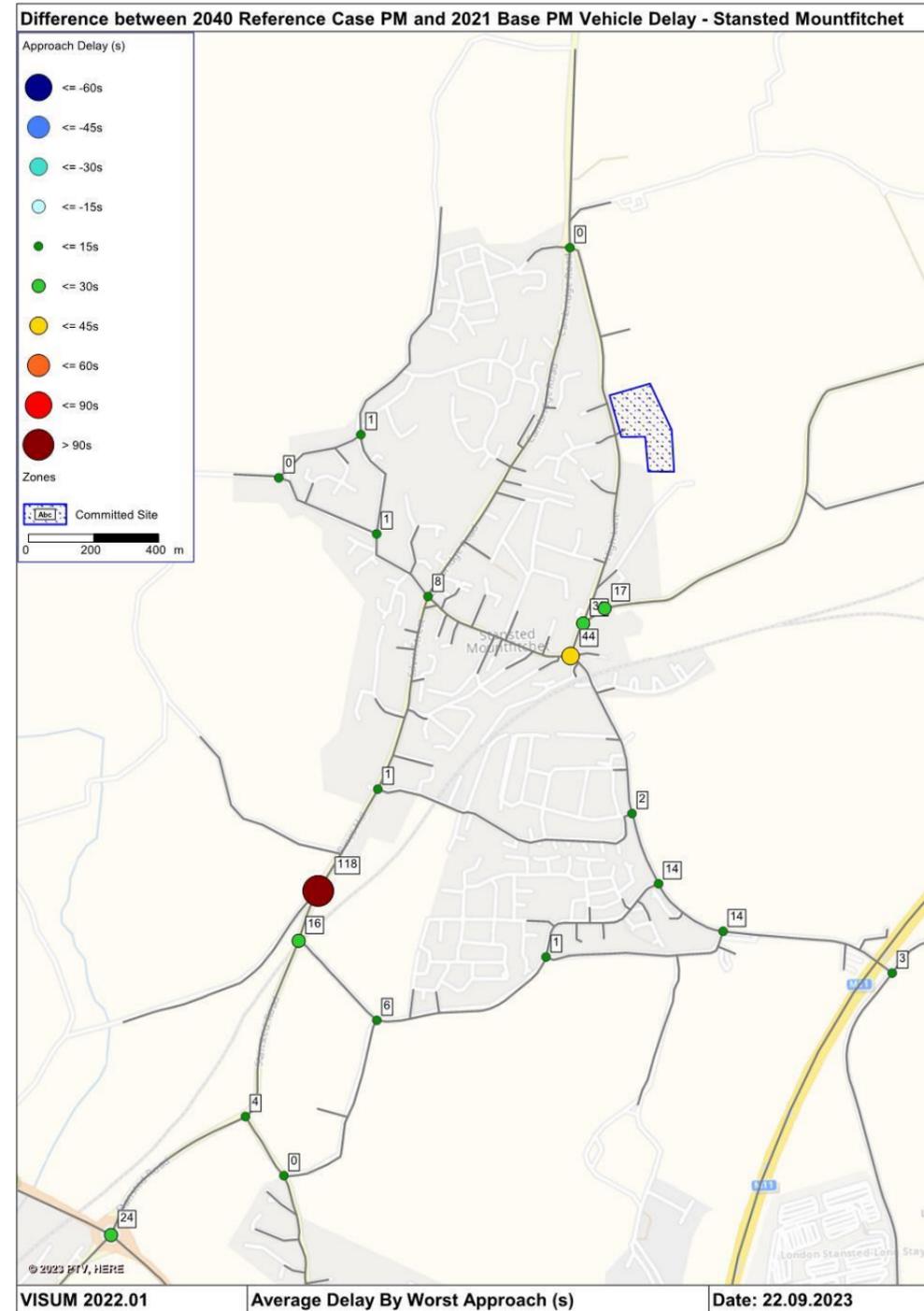
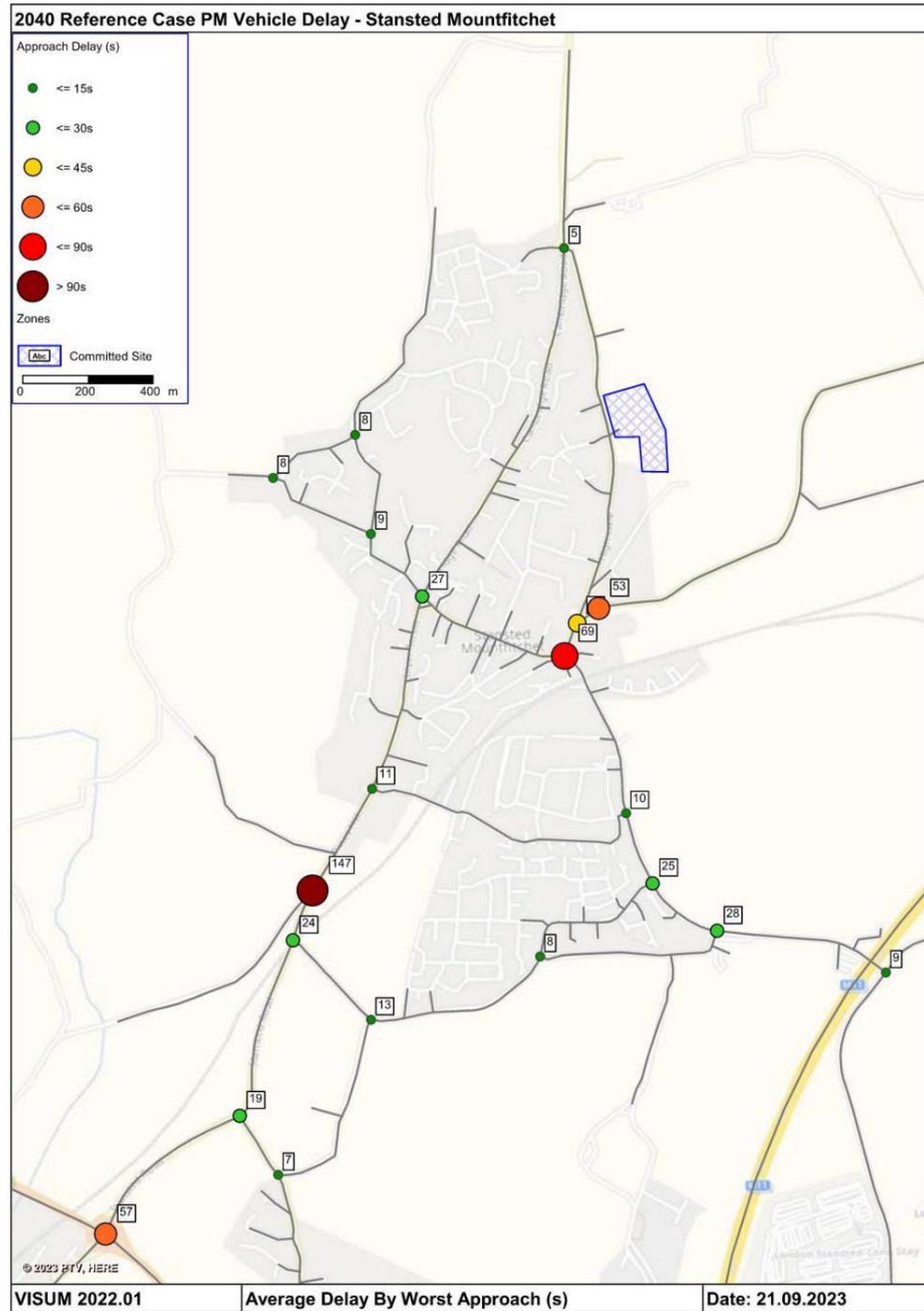
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Figure 3-4: PM Peak Junction Delays in Stansted Mountfitchet in the Reference Case (2040)

Notes:

- Delays are in seconds per vehicle.
- Represents average queue time in the respective peak period.
- Delays on the worst approach shown in main figure.
- Delays on all approaches are shown on selected junctions in the inserts.
- Blue hatching represents committed development sites.



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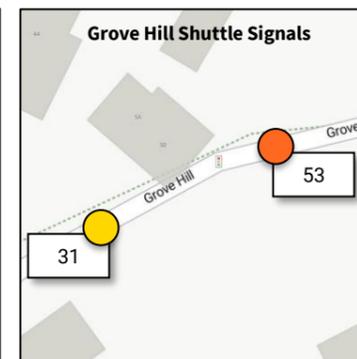
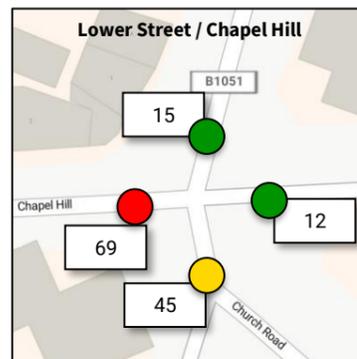
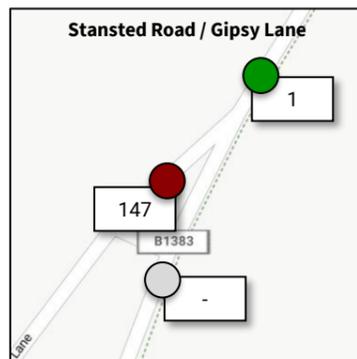
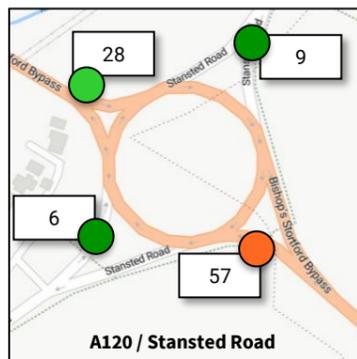
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4 | PERFORMANCE IN THE LOCAL PLAN GROWTH SCENARIO (2040)

4.0 PERFORMANCE IN THE LOCAL PLAN GROWTH SCENARIO (2040)

4.1 VOLUME OF TRAFFIC

4.1.1 The Local Plan Growth Scenario highlights how the road network will perform in a future year (2040) with Local Plan traffic in place (see **Figure 4-1**). To understand the impact of Local Plan traffic comparisons are drawn with the performance of the network in the Reference Case.

4.1.2 The changes in the volume of traffic between the Reference Case and Local Plan Growth Scenario are shown in **Figure 4-2** and **Figure 4-3** for the AM and PM peak periods. **Figure 4-4** illustrates where traffic from the site allocations will disperse across the network.

4.1.3 It highlights that:

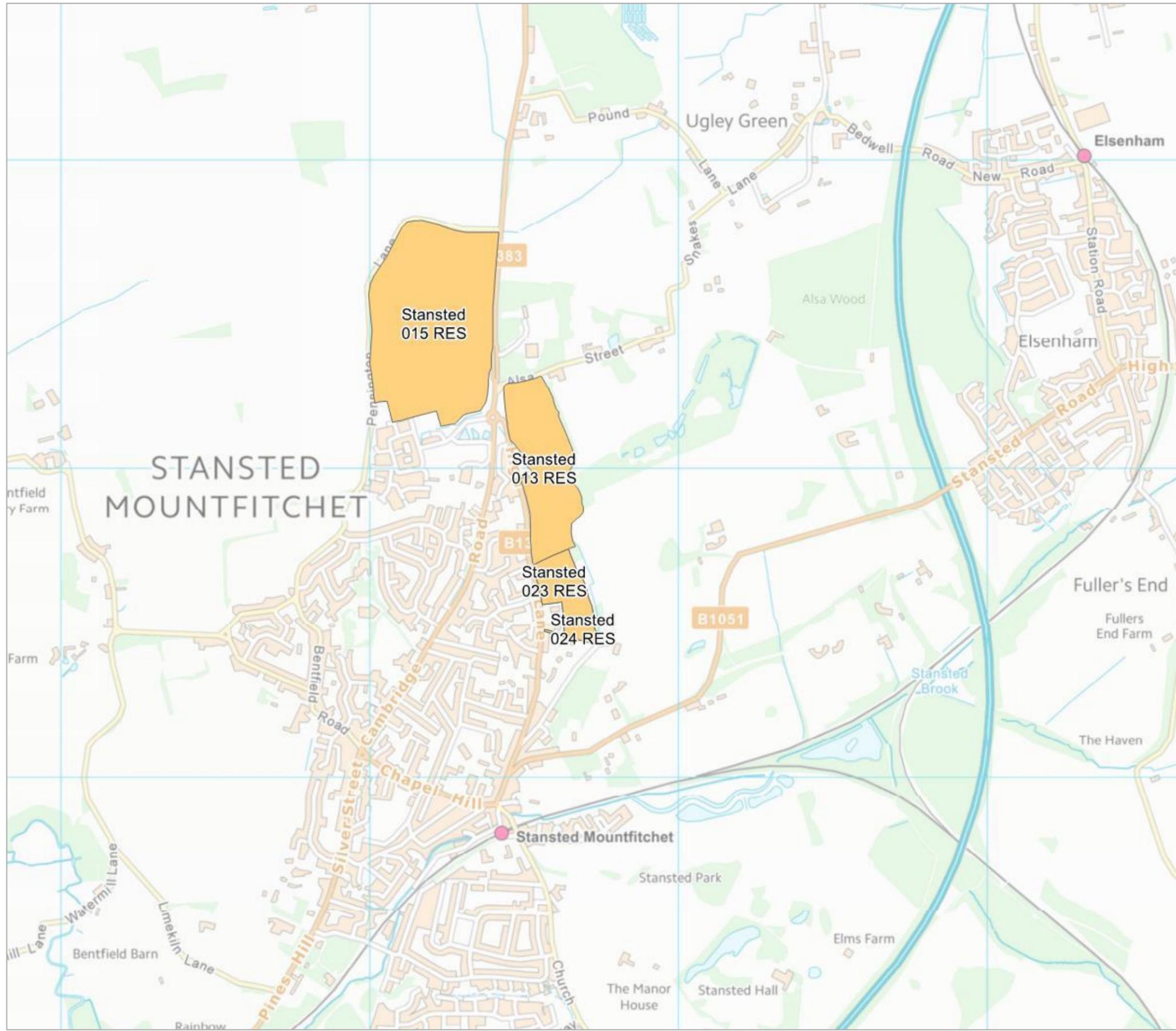
- In the AM peak period Local Plan development will result in more traffic on the B1383 Cambridge Road and B1351 High Lane due to the proposed allocations to the north of the town. This traffic dissipates further south with the number of additional vehicles less than half what it was immediately adjacent to the sites (around 80 vehicles within the hour compared to around 200 vehicles further north).
- In the PM peak period, both the B1383 Cambridge Road and B1351 High Lane see an increase in traffic flow which reflects a tidal pattern, returning north at the end of the day.
- In terms of the distribution of trips from the site allocations in the AM peak period, the largest proportion of movements are south along Cambridge Road (B1383), most of which travel through the village to the A120.
- A number of vehicles use High Lane (B1351) to travel south through the village before turning east towards Stansted Airport via Church Road or Stansted Road (via Elsenham).

4.2 JOURNEY TIMES

4.2.1 The comparative journey times and average speeds of traffic in the 2040 Local Plan Growth Scenario are shown alongside those in the Reference Case in **Table 4-1** and **Table 4-2** respectively.

Table 4-1: Changes in Journey Times between the Reference Case and Local Plan Growth Scenario

Route	Direction	Journey Time (in seconds)					
		AM Peak			PM Peak		
		Ref Case	LP	Change	Ref Case	LP	Change
(1) A120 Eastern Section - A1250/A1184 Roundabout to M11 J8	Eastbound	428	427	-1	385	396	+11
	Westbound	417	464	+47	386	386	-
(4) B1383 - A120 to High Lane	Northbound	305	305	-	311	393	+82
	Southbound	378	451	+73	282	482	+200
(5) Bury Lodge Lane/Church Road - A120 to B1383	Northbound	427	476	+49	432	511	+79
	Southbound	483	580	+97	498	545	+47
(6) B1051 - B1383 to Mill Road	Northbound	420	448	+28	465	491	+26
	Southbound	525	615	+90	429	470	+41

Figure 4-1: Stansted Mountfitchet Local Plan Site Allocations


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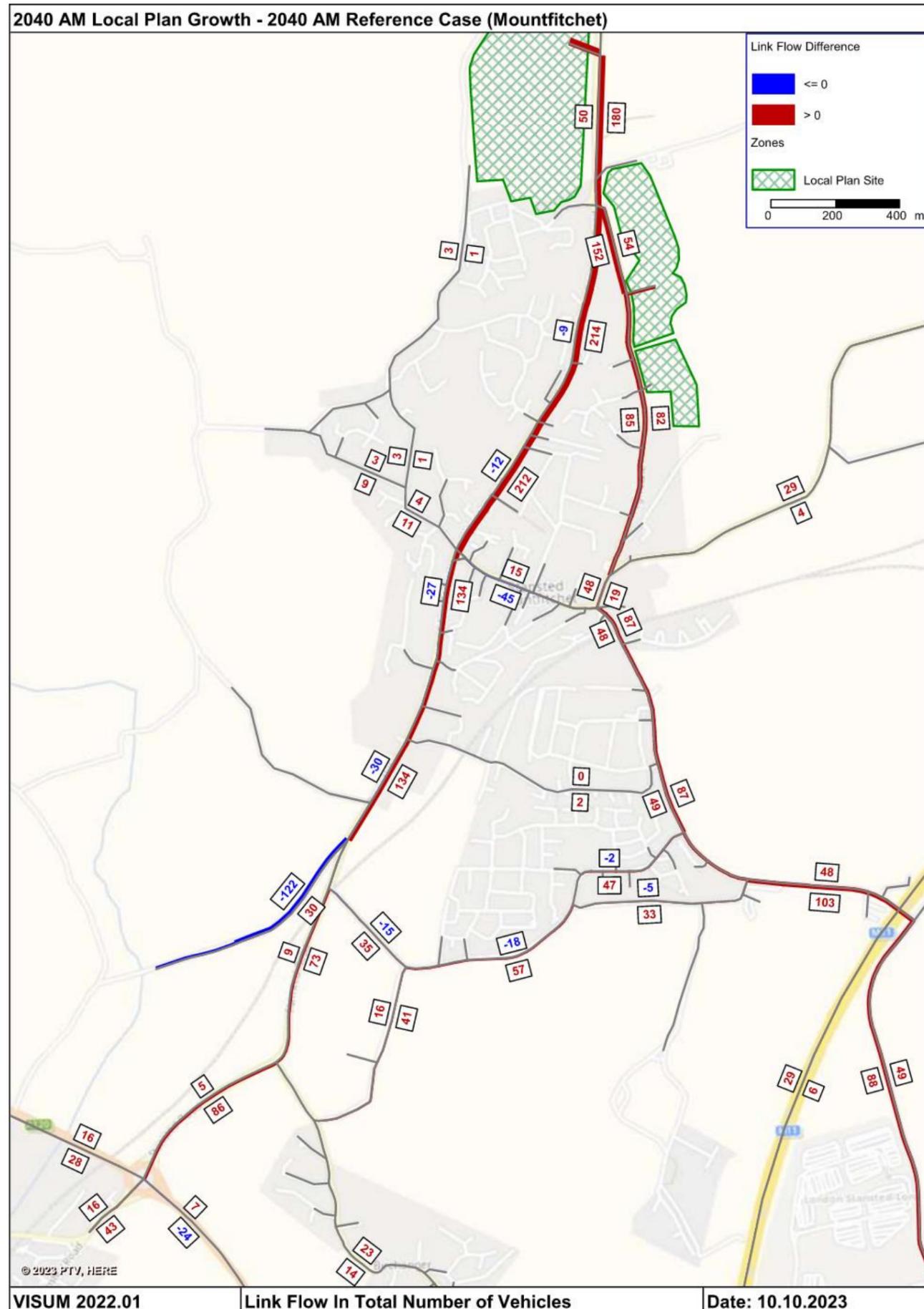


North

Figure 4-2: Change in Volume of Traffic between the Reference Case and Local Plan Growth Scenario – AM

Notes:

- Volume of traffic is presented in vehicles per hour.
- Weight of bar reflects size of flow.
- Red lines represent an increase in flow.
- Blue lines represent a decrease in flow.
- Green hatching represents Local Plan site allocations.



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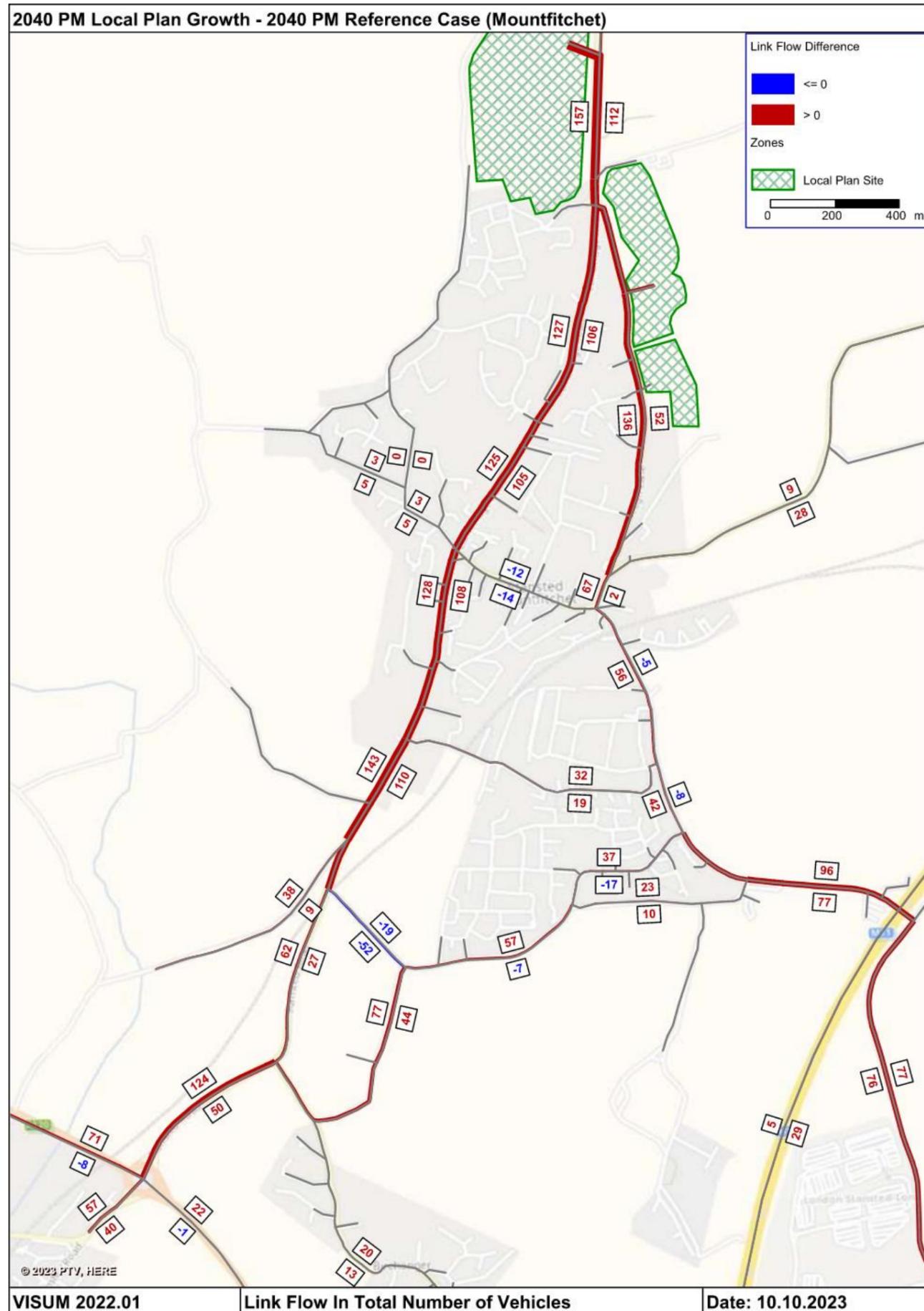
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Figure 4-3: Change in Volume of Traffic between the Reference Case and Local Plan Growth Scenario – PM

Notes:

- Volume of traffic is presented in vehicles per hour.
- Weight of bar reflects size of flow.
- Red lines represent an increase in flow.
- Blue lines represent a decrease in flow.
- Green hatching represents Local Plan site allocations.



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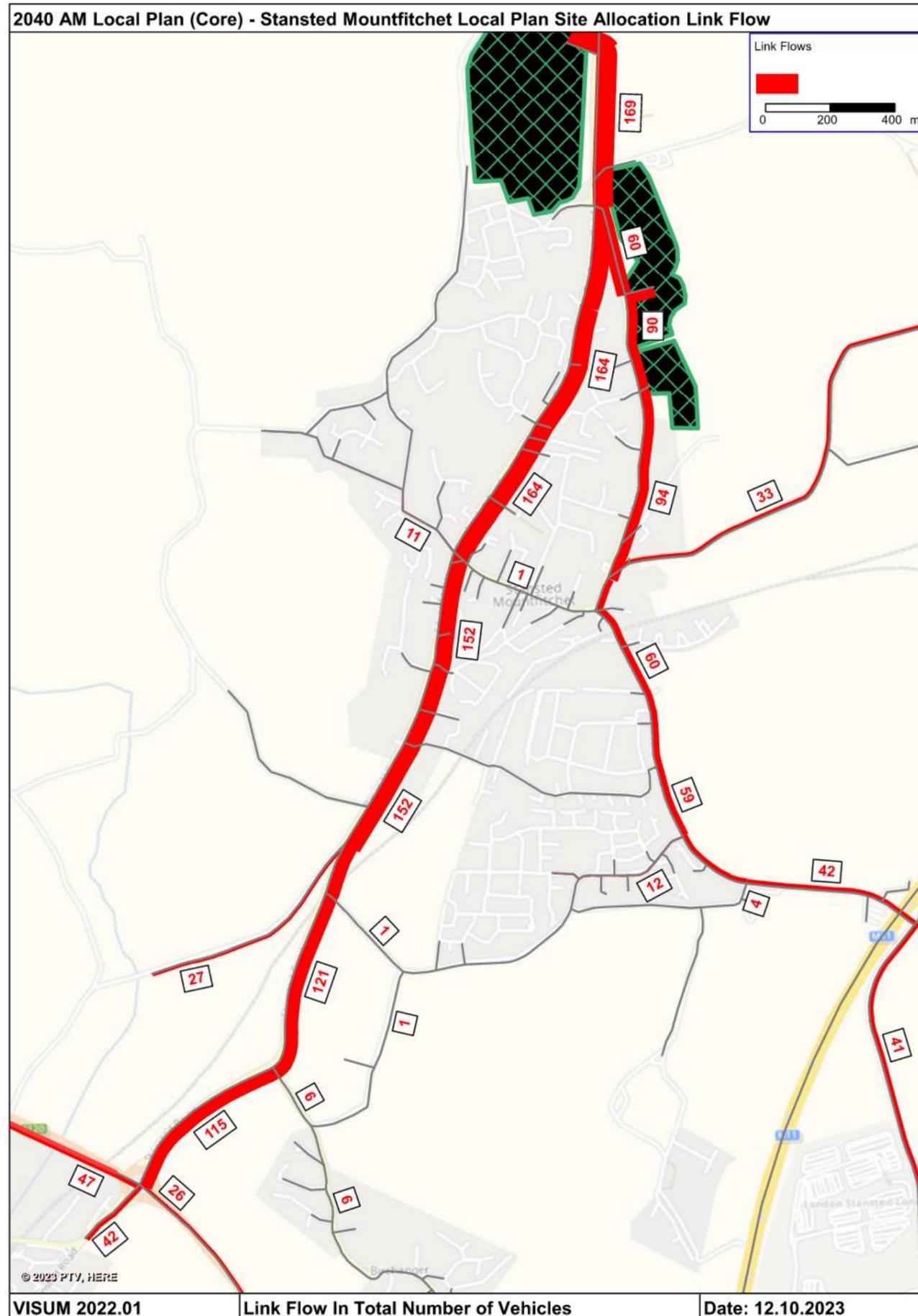
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Figure 4-4: Distribution of Demand from Site Allocations in Stansted Mountfitchet (AM Peak)

Notes:

- Volume of traffic is presented in vehicles per hour.
- Weight of bar reflects size of flow.
- Red lines represent an increase in flow.
- Black hatching represents Local Plan site allocations.



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Table 4-2: Changes in Average Speeds between the Reference Case and Local Plan Growth Scenario

Route	Direction	Average Speeds (in MPH)					
		AM Peak			PM Peak		
		Ref Case	LP	Change	Ref Case	LP	Change
(1) A120 Eastern Section - A1250/A1184 Roundabout to M11 J8	Eastbound	31.4	31.4	-	34.9	33.9	-1.0
	Westbound	32.2	28.9	-3.3	34.8	34.8	-
(4) B1383 - A120 to High Lane	Northbound	29.3	29.3	-	28.8	22.8	-6.0
	Southbound	23.7	19.8	-3.9	31.7	18.6	-13.1
(5) Bury Lodge Lane/Church Road - A120 to B1383	Northbound	32.5	29.1	-3.4	32.1	27.1	-5.0
	Southbound	28.3	23.5	-4.8	27.4	25.0	-2.4
(6) B1051 - B1383 to Mill Road	Northbound	25.0	23.5	-1.5	22.6	21.4	-1.2
	Southbound	20.0	17.1	-2.9	24.5	22.4	-2.1

4.2.8 The tables highlight that:

- The speed of traffic will reduce on all routes as a consequence of Local Plan related growth. This is seen most prominently on the B1383 through the centre of Stansted Mountfitchet where in the PM peak average vehicle speeds reduce by circa 13mph.
- Whilst other routes also see journey time increases, none are substantial and represent relatively modest changes.

4.3 JUNCTION DELAYS

4.3.1 In seeking to understand the changes in journey times, an analysis of the performance of the junctions on the network was undertaken. **Figure 4-5** illustrates the level of delay associated with the worse performing arm/approach to each junction in the AM peak period in the Local Plan Growth Scenario, alongside the changes in delay when compared to the 2040 Reference Case. The comparative illustrations for the PM peak period are provided in **Figure 4-6**.

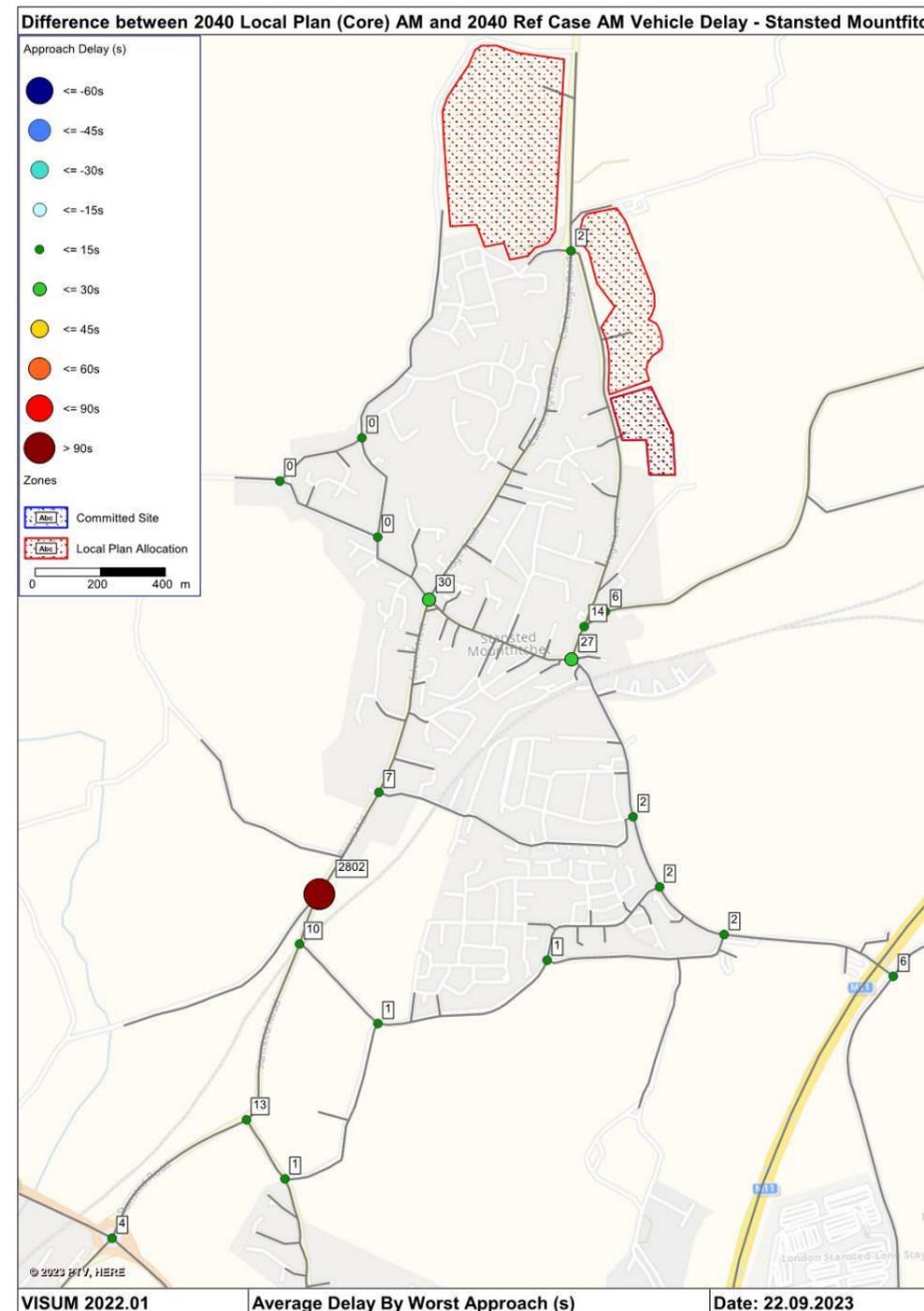
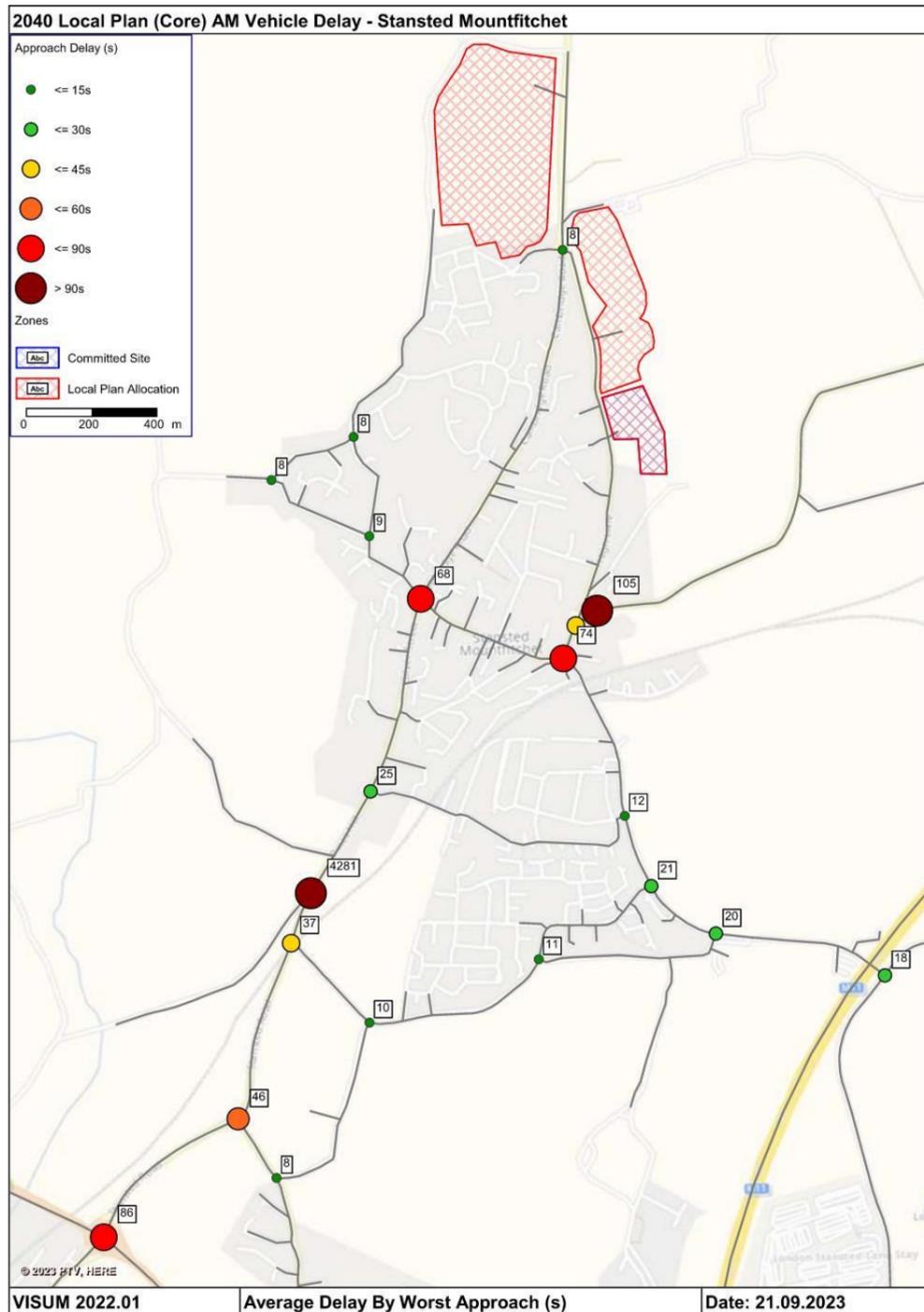
4.3.2 The key findings are that:

- The theoretical level of delay at the junction of the B1383 and Gypsy Lane will equate to over 60 minutes in the AM peak, largely as a result of Local Plan growth. The volume of traffic on the B1383 means that traffic from the priority give-way side road will be unable to join the B1383 north or south.
- The same location will also be subject to problems in the PM peak, albeit the theoretical level of demand will be much smaller. We say ‘theoretical’ because in reality, traffic will find alternative routes. It cannot do this in the model because the cut-off point of the modelled network is just to the south of the A120 in Bishop’s Stortford.
- The Local Plan will marginally increase delays at the trio of junctions on Lower Street – Grove Hill in the centre of the village.

Figure 4-5: AM Peak Junction Delays in Stansted Mountfitchet in the Local Plan Growth Scenario

Notes:

- Delays are in seconds per vehicle.
- Represents average queue time in the respective peak period.
- Delays on the worst approach shown in main figure.
- Delays on all approaches are shown on selected junctions in the inserts.
- Red hatching represents site allocations.
- Blue hatching represents committed development sites.

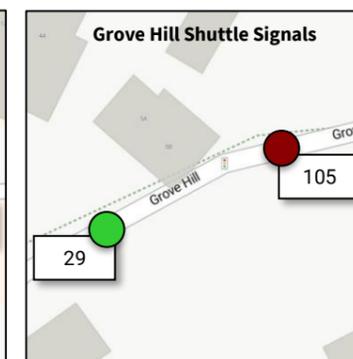
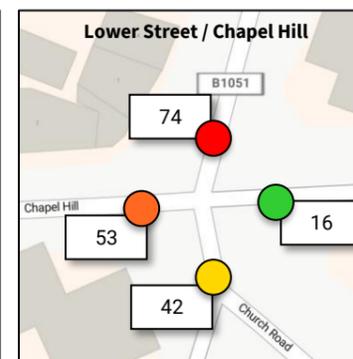
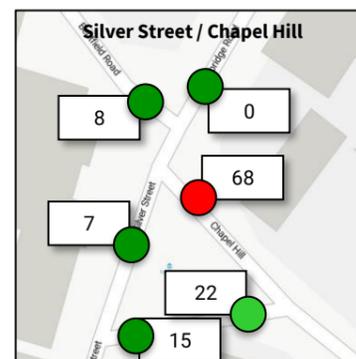
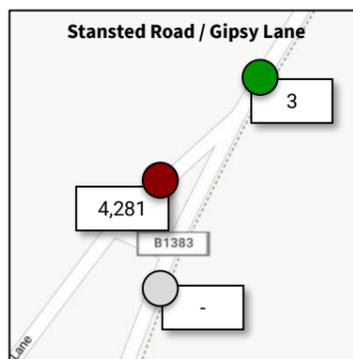
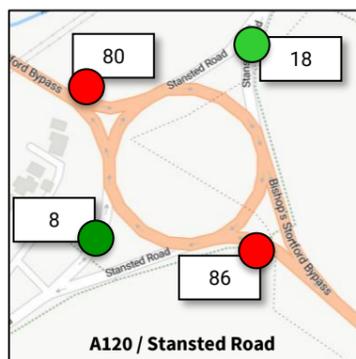


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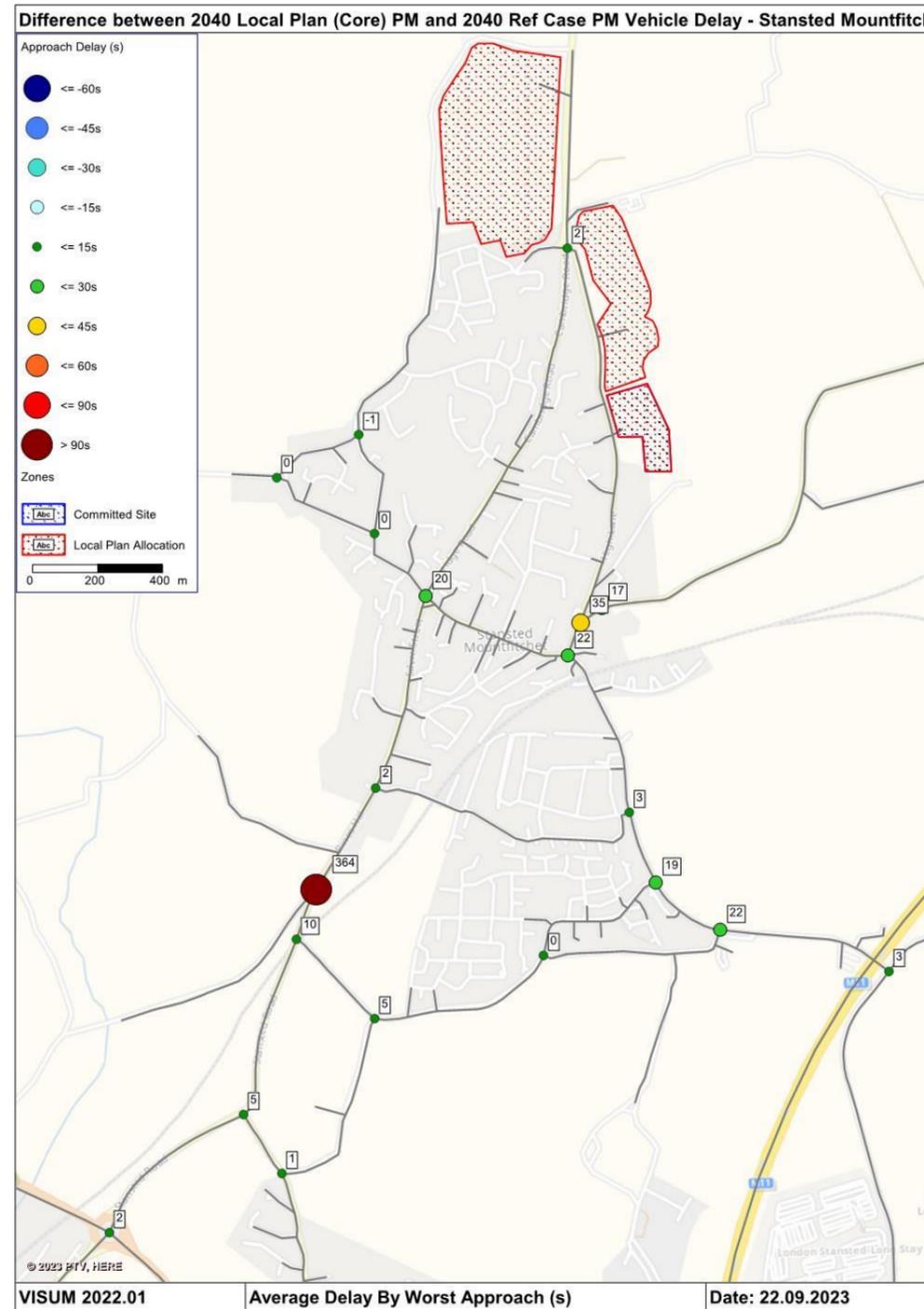
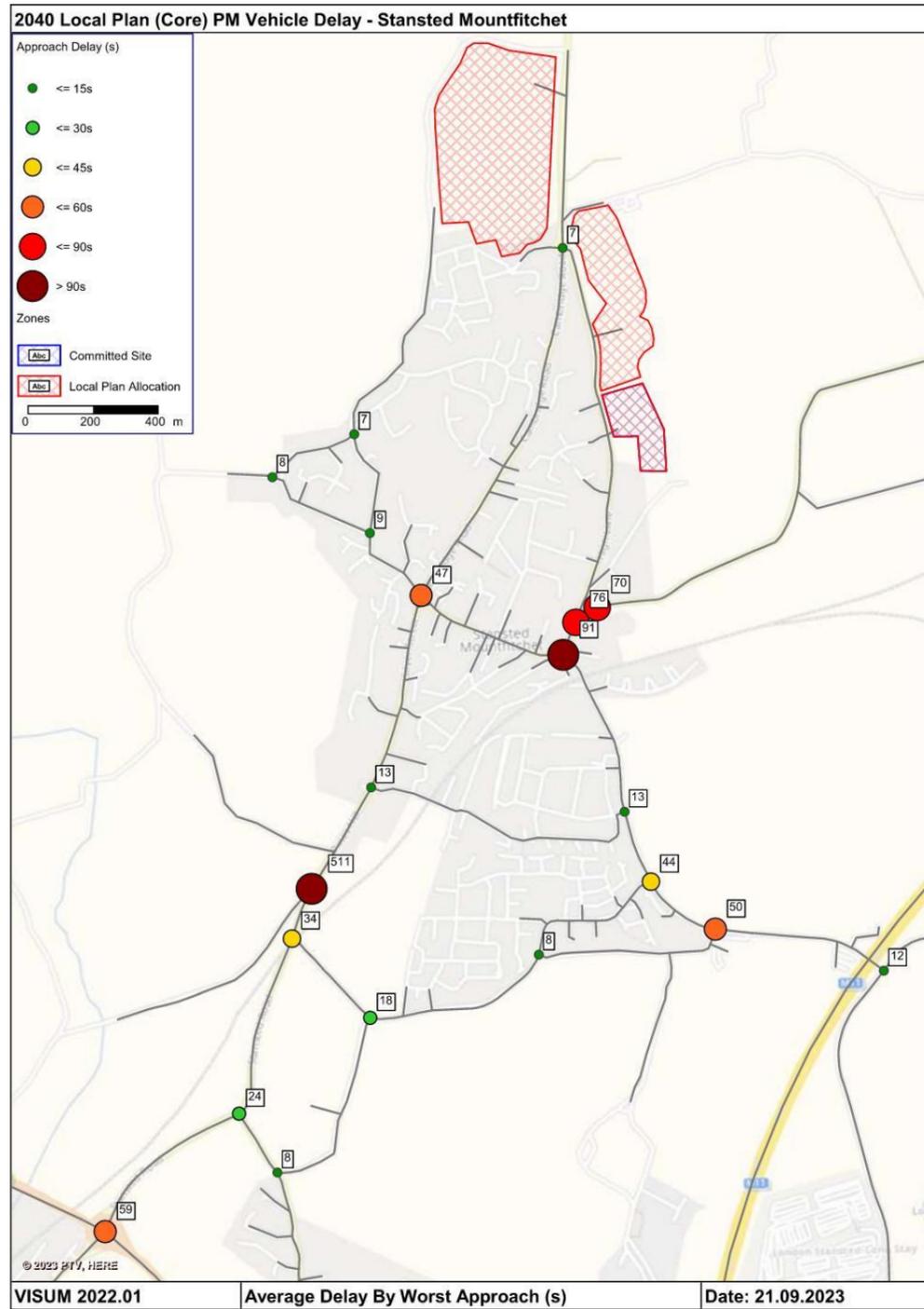
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Figure 4-6: PM Peak Junction Delays in Stansted Mountfitchet in the Local Plan Growth Scenario



Notes:

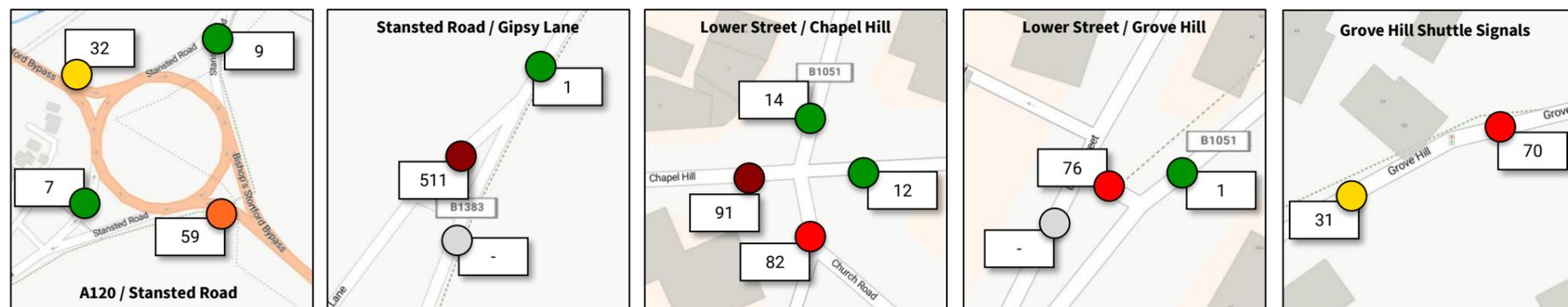
- Delays are in seconds per vehicle.
- Represents average queue time in the respective peak period.
- Delays on the worst approach are shown in main figure.
- Delays on all approaches are shown on selected junctions in the inserts.
- Red hatching represents site allocations.

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4.4 SUMMARY

- 4.4.1 The Local Plan Growth Scenario will result in more traffic on the network and delays at particular pinch points, typically locations where priority give-way junctions do not allow side road traffic to join an increasingly heavily trafficked major road.
- 4.4.2 More broadly however, the Local Plan only marginally contributes towards more strategic issues on the network that are already apparent in the Reference Case, certainly in terms of the A120 to the north of Bishop's Stortford.



TETRA TECH

5 | MITIGATION PACKAGE 1 – SUSTAINABLE TRANSPORT

5.0 MITIGATION: PACKAGE 1 – SUSTAINABLE TRANSPORT

5.1 INTERVENTIONS

- 5.1.1 Following the identification of the impacts of the Local Plan Growth Scenario on the highway network, a package of interventions to accommodate the increased travel demand within the town was identified focused on the delivery of sustainable travel improvements.
- 5.1.2 The adverse effects of an increase in traffic associated with new development aren't limited to additional queuing and journey times for vehicles but extend to:
- Undermining the availability of more sustainable travel choices.
 - Emissions and air quality, particularly in residential areas.
 - Severance and the dominance of traffic on the public realm.
 - Healthy lifestyles and the quality of life for residents.
- 5.1.3 In this context, merely focusing on the provision of additional highway capacity will fail to address many of the wider implications of increases in travel demand in the village. Subsequently, and in line with the overarching vision for transport detailed within the Local Plan, a package of multi-modal sustainable transport interventions was identified. A list of the individual measures is provided in **Table 5-1**.

Table 5-1: Sustainable Transport Interventions in Stansted Mountfitchet

Ref	Scheme
Public Transport	
PT.01	Increase the frequency of the no.301 to at least 1 bus every 30 minutes.
PT.02	Provide Real Time information and timetables at existing stops, and a new stop at the northern edge of Site 015 RES.
PT.03	Improve pedestrian access between High Lane and Norman Way to make walking to bus service provision more attractive.
PT.04	Offer discounted (or free) bus travel to all new residents for 12 months.
PT.05	Improve station facilities.
PT.06	Offer discounted (or free) rail travel to all new residents for 12 months.
Walking & Cycling	
WC.01	Provide a fully segregated and continuous cycle link between the sites and the station.
WC.02	Provision of a new e-bike for every household.
WC.03	Provide a segregated cycle path running parallel to High Lane and then connecting onto Gall End Lane and Lower Street to enhance the cycle route to the station.
WC.04	Improve right of way between High Lane and Normans Way for better pedestrian access to bus services.

- 5.1.4 Based upon the above schemes coming forward, assumptions were made relating to the extent to which modal shift could be achieved both from within the site allocations themselves and elsewhere within the village, as a result of indirect benefits beyond the sites themselves (such as through the provision of a more frequent bus service for example).

- 5.1.5 A high level of modal shift was applied to reflect the nature and scale of investment that would be provided. Given the bespoke package of interventions and the specific locations in question, it is difficult to find directly comparable case studies upon which to base any mode shift assumptions.
- 5.1.6 However, following a literature review of the available evidence, the reductions applied to the number of trips undertaken by vehicles within Stansted Mountfitchet are set out in **Table 5-2**.

Table 5-2: Mode Shift Assumptions

Origin & Destination Pairs	Vehicle Trip Reduction Applied
Site Allocations to Town Centre	15% to 25% reduction
Between Local Plan allocations within Stansted Mountfitchet	25% to 50% reduction (up to 80% to neighbouring zones)
Site Allocations to Stansted Airport	10% reduction

- 5.1.7 The impacts on the performance of these measures on the highway network are presented herein.

5.2 VOLUME OF TRAFFIC

- 5.2.1 Sustainable Transport Mitigation Package 1 highlights how the road network will perform in a future year (2040) with all Local Plan site allocations and sustainable transport mitigation in place. To understand the effectiveness of the interventions to be delivered as part of the package, comparisons are drawn with the performance of the network in the Reference Case.
- 5.2.2 The changes in the volume of traffic between the Reference Case and Mitigation Package 1 are shown in **Figure 5-1** and **Figure 5-2** for the AM peak and the PM peak periods.
- 5.2.3 It highlights that:
 - Investment in sustainable transport measures has the potential to negate many of the adverse effects of the increased travel demand associated with the Local Plan site allocations.
 - In the AM peak period, it will help reduce the volume of traffic to below Reference Case levels on the A120 north of Bishop’s Stortford (westbound) and on the B1383 into Stansted Mountfitchet (northbound).
 - Elsewhere increases in traffic over and above the Reference Case will persist.

5.3 JOURNEY TIMES

- 5.3.1 The comparative journey times and average speed of traffic in the Mitigation Package 1 scenario and the Reference Case are shown in **Table 5-3** and **Table 5-4** respectively.

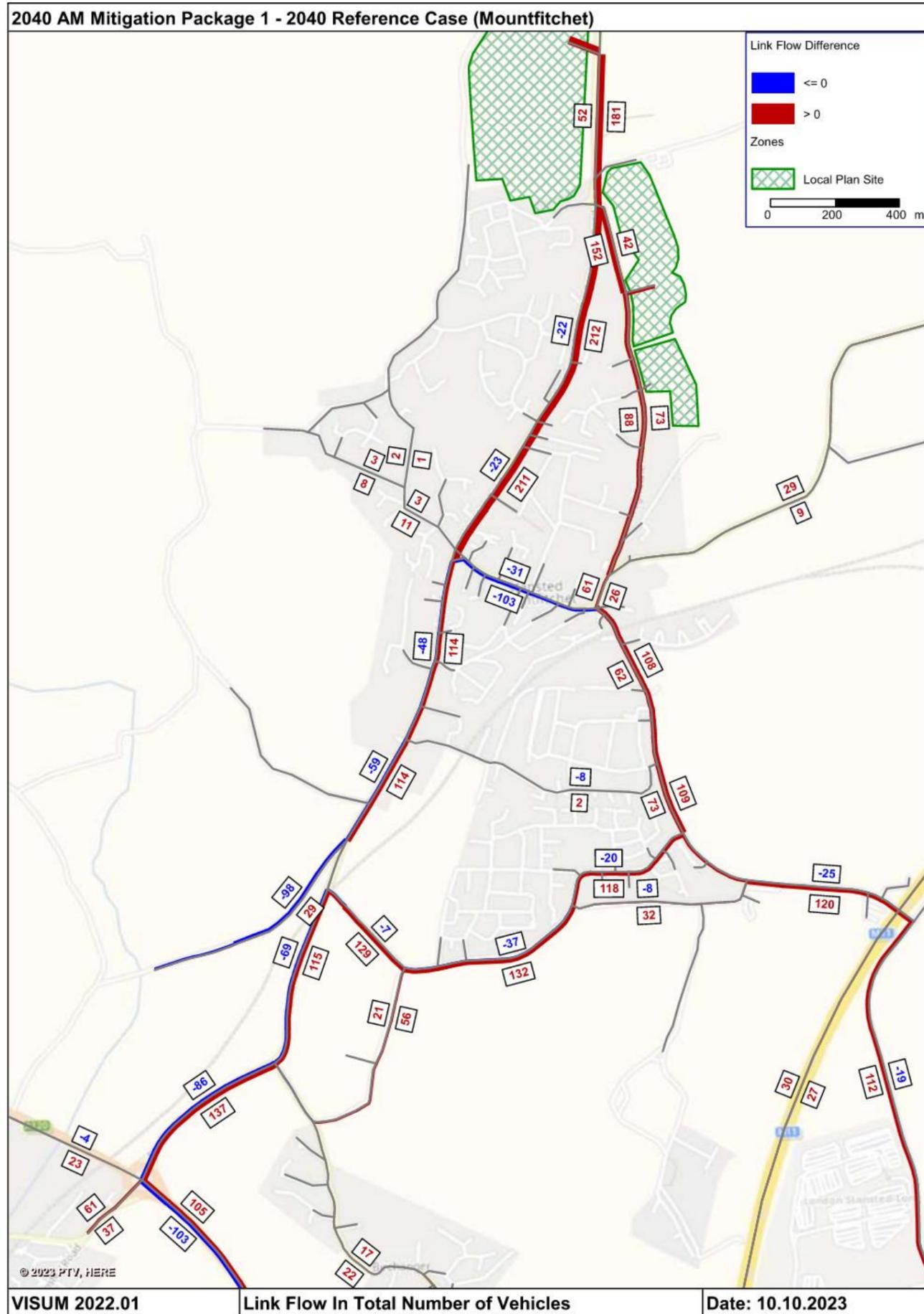


Figure 5-1: Change in Volume of Traffic between the Reference Case and Mitigation Package 1 - AM

Notes:

- Volume of traffic is presented in vehicles per hour.
- Weight of bar reflects size of flow.
- Red lines represent an increase in flow.
- Blue lines represent a decrease in flow.
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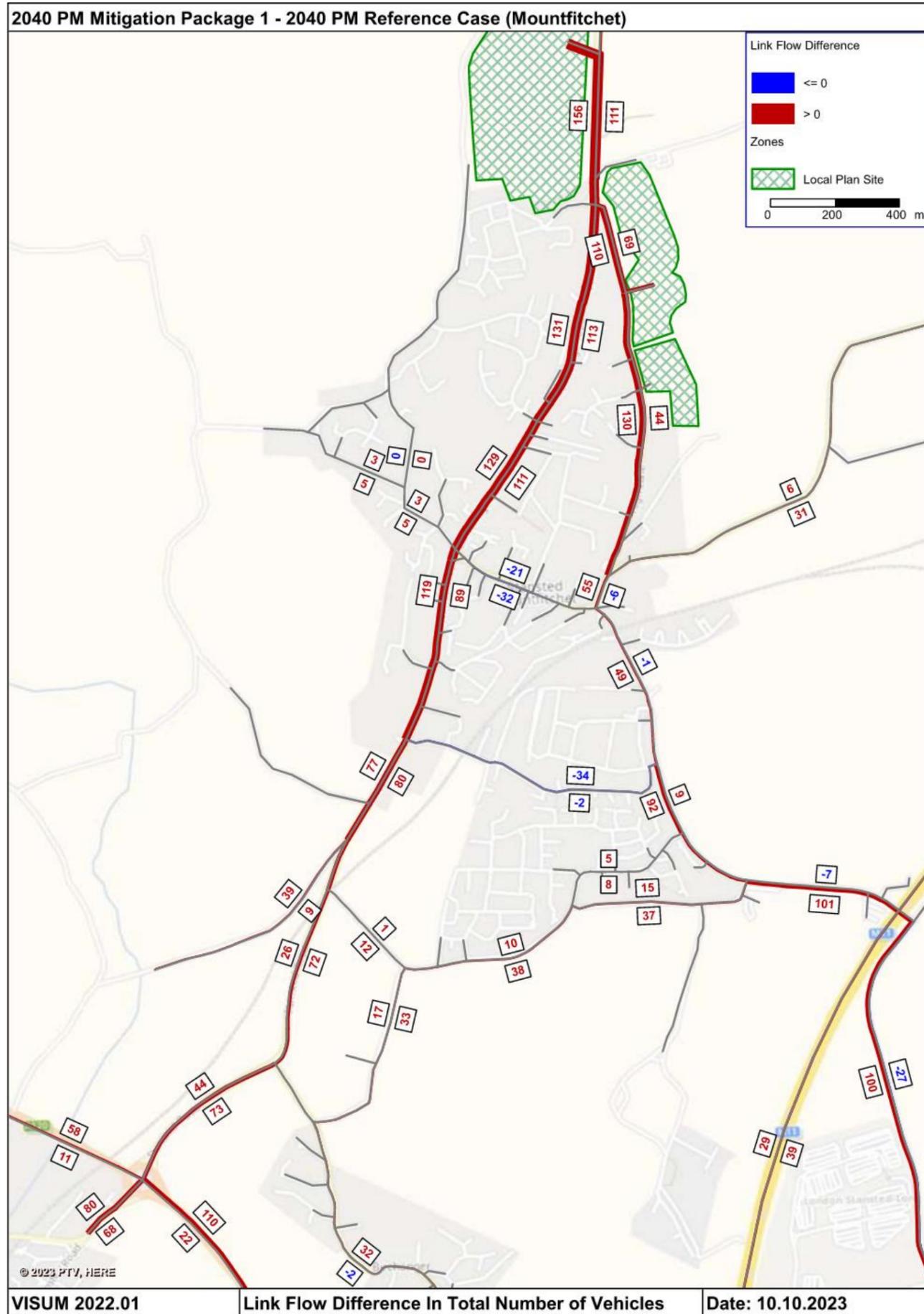


Figure 5-2: Change in Volume of Traffic between the Reference Case and Mitigation Package 1 - PM

Notes:

- Volume of traffic is presented in vehicles per hour.
- Weight of bar reflects size of flow.
- Red lines represent an increase in flow.
- Blue lines represent a decrease in flow.
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Table 5-3: Changes in Journey Times between the Reference Case and Mitigation Package 1

Route	Direction	Journey Times (in seconds)					
		AM Peak			PM Peak		
		Ref Case	STMP1	Change	Ref Case	STMP1	Change
(1) A120 Eastern Section - A1250/A1184 Roundabout to M11 J8	Eastbound	428	458	+30	385	438	+53
	Westbound	417	504	+87	386	389	+3
(4) B1383 - A120 to High Lane	Northbound	305	298	-7	311	381	+70
	Southbound	378	458	+80	282	342	+60
(5) Bury Lodge Lane/Church Road - A120 to B1383	Northbound	427	466	+39	432	502	+70
	Southbound	483	557	+74	498	551	+53
(6) B1051 - B1383 to Mill Road	Northbound	420	440	+20	465	499	+34
	Southbound	525	608	+83	429	487	+58

Table 5-4: Changes in Average Speeds between the Reference Case and Mitigation Package 1

Route	Direction	Average Speeds (in MPH)					
		AM Peak			PM Peak		
		Ref Case	STMP1	Change	Ref Case	STMP1	Change
(1) A120 Eastern Section - A1250/A1184 Roundabout to M11 J8	Eastbound	31.4	29.3	-2.1	34.9	30.6	-4.3
	Westbound	32.2	26.6	-5.6	34.8	34.5	-0.3
(4) B1383 - A120 to High Lane	Northbound	29.3	30.0	+0.7	28.8	23.5	-5.3
	Southbound	23.7	19.5	-4.2	31.7	26.2	-5.5
(5) Bury Lodge Lane/Church Road - A120 to B1383	Northbound	32.5	29.8	-2.7	32.1	27.6	-4.5
	Southbound	28.3	24.5	-3.8	27.4	24.8	-2.6
(6) B1051 - B1383 to Mill Road	Northbound	25.0	23.9	-1.1	22.6	21.1	-1.5
	Southbound	20.0	17.3	-2.7	24.5	21.6	-2.9

5.3.8 The tables highlight that:

- Sustainable transport improvements will reduce some of the demand to travel by car, but not to the extent that the network will operate as efficiently as in the Reference Case, with traffic slower on all routes within Stansted Mountfitchet.
- In some cases, the average speed of traffic remains more than 10% slower including on the A120 north of Bishop's Stortford.

5.4 JUNCTION DELAYS

- 5.4.1 In seeking to understand the changes in journey times, an analysis of the performance of the junctions on the network was undertaken. **Figure 5-3** and **Figure 5-4** illustrate the level of delay associated with the worse performing arm/approach to each junction in the AM and PM peak periods in the Sustainable Transport Mitigation Package for Stansted Mountfitchet, alongside the changes in delay when compared to the 2040 Reference Case.
- 5.4.2 The key findings are that:
- Providing more attractive alternatives to the car will help to reduce some of the delays experienced in the centre of Stansted Mountfitchet in the AM and PM peak periods, although junctions at Chapel Hill – Silver Street and on Lower Street – Grove Hill will still experience delays over and above the Reference Case.
 - More significant delays will persist at the junction of the B1383 and Gypsy Lane. It is clear that a reconfiguration of the junction to include traffic signals is required here.

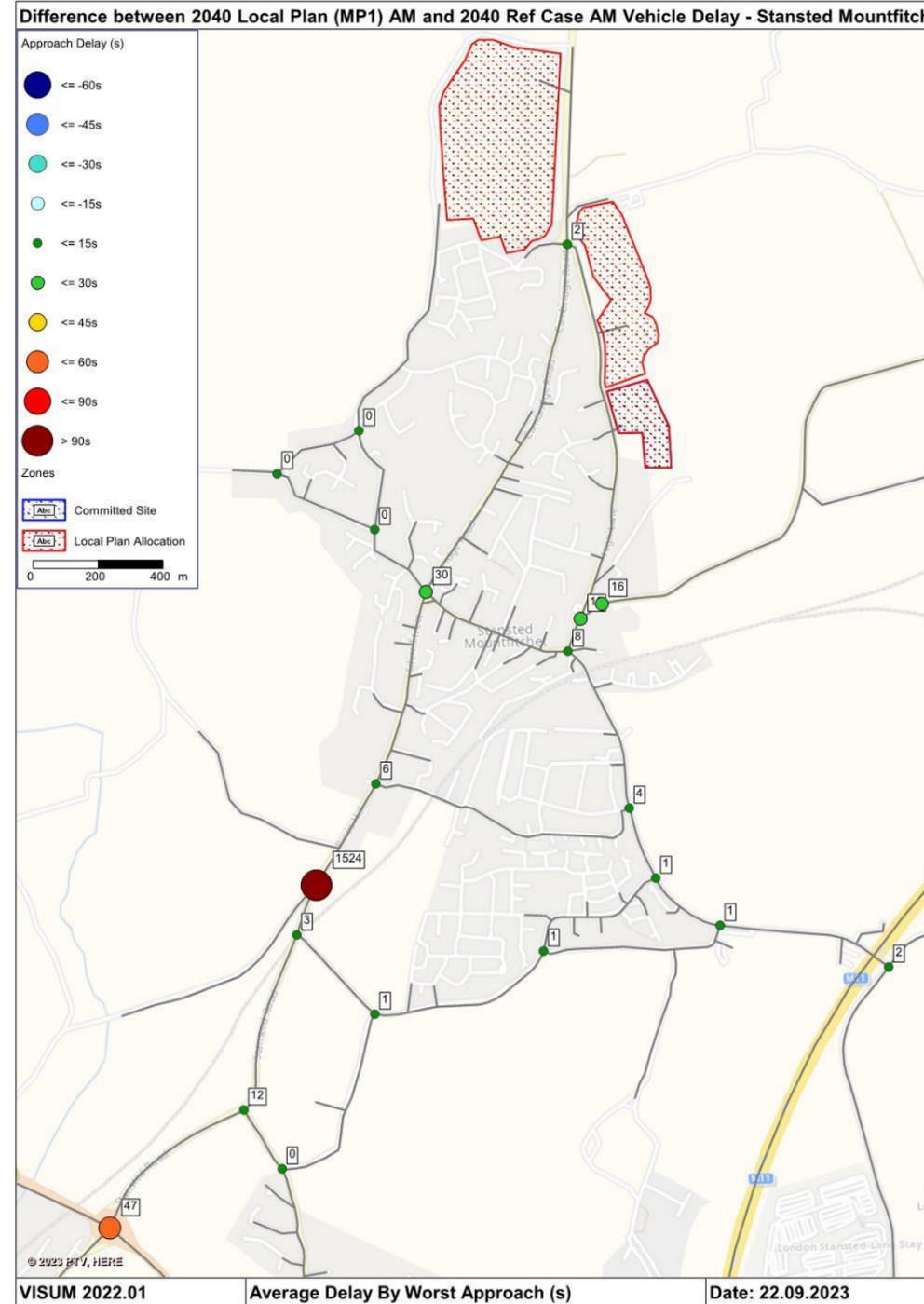
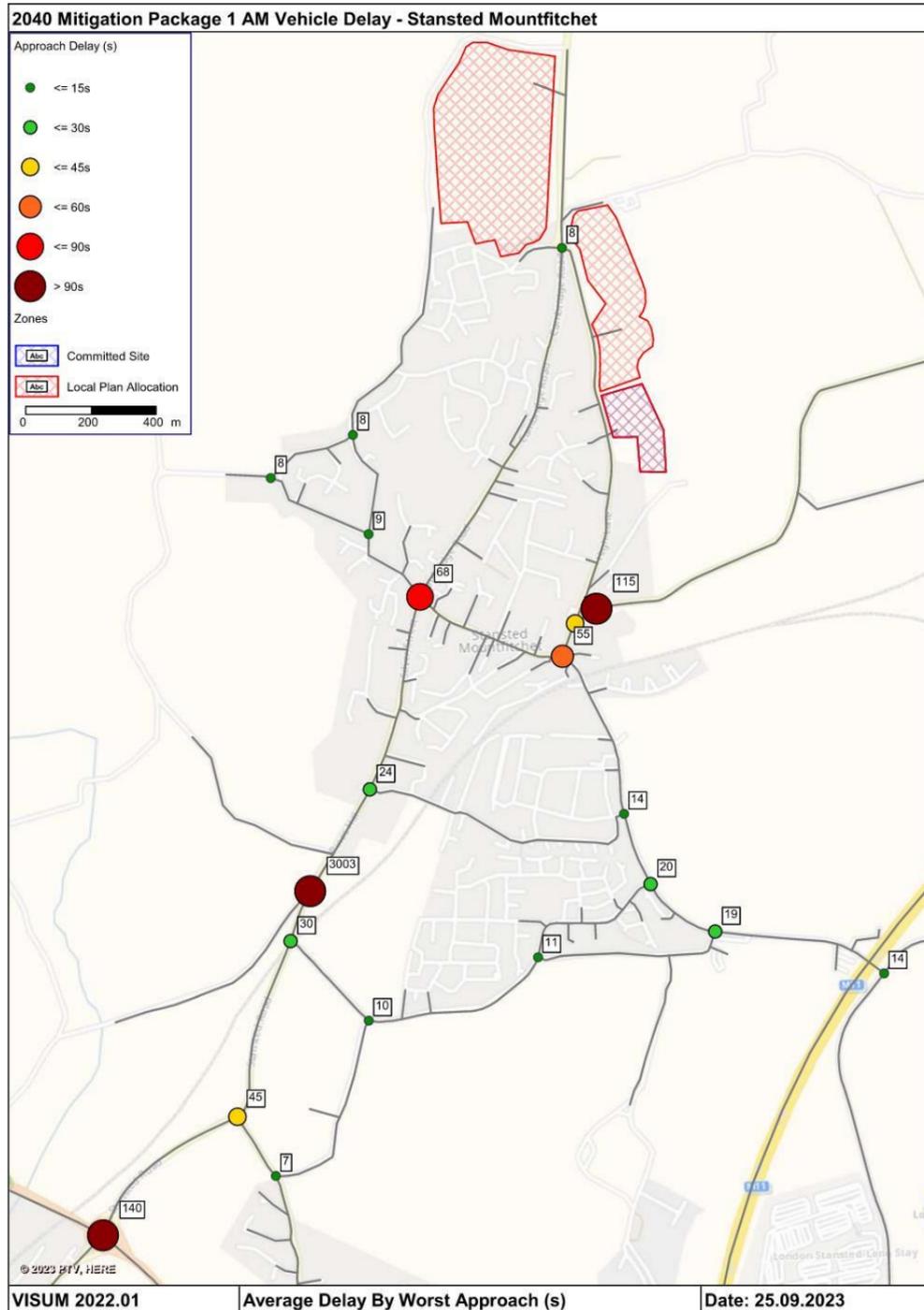
5.5 SUMMARY

- 5.5.1 Providing a package of intervention to mitigate the impacts of the Local Plan site allocations which focuses on the provision of attractive sustainable travel options which provides realistic alternatives to the car will provide many benefits to the travel offering in the town, beyond the performance of the highway network.
- 5.5.2 Making walking and cycling safer and more convenient, and public transport more frequent and accessible will support wider ambitions to improve the health and well-being of residents, support moves to address the climate emergency, and cater for all sections of society, particularly those without access to a car.
- 5.5.3 Notwithstanding the wider benefits of focusing mitigation on sustainable travel, its ability to reduce demand to travel by car will benefit the performance of the highway network itself, albeit only marginally around Stansted Mountfitchet. This is likely to be as a consequence of the nature of the trips, in seeking to access the airport or commute south towards London.
- 5.5.4 As such, where capacity issues and delays will persist on the network, local junction enhancement schemes are likely to be required to help regulate demand and maximise the efficiency of their operation.

Figure 5-3: AM Peak Junction Delays in Stansted Mountfitchet Mitigation Package 1

Notes:

- Delays are in seconds per vehicle.
- Represents average queue time in the respective peak period.
- Delays on the worst approach shown in main figure.
- Delays on all approaches are shown on selected junctions in the inserts.
- Red hatching represents site allocations.

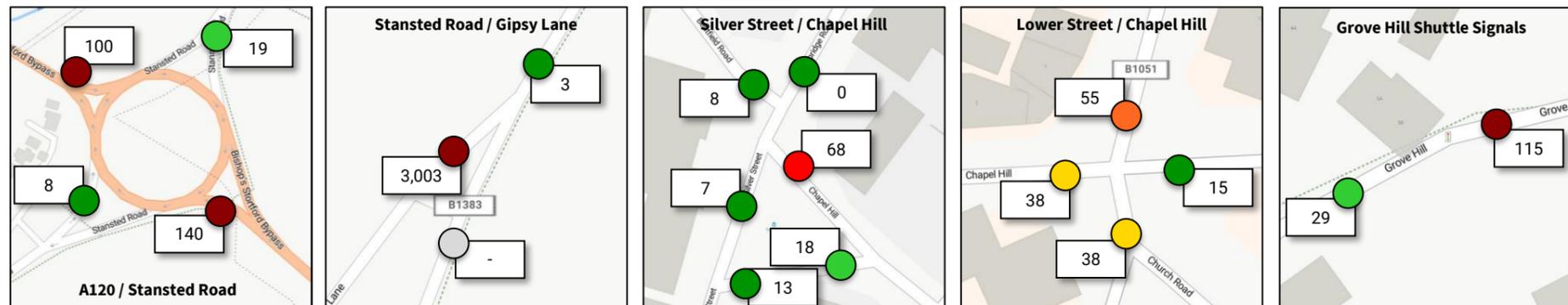


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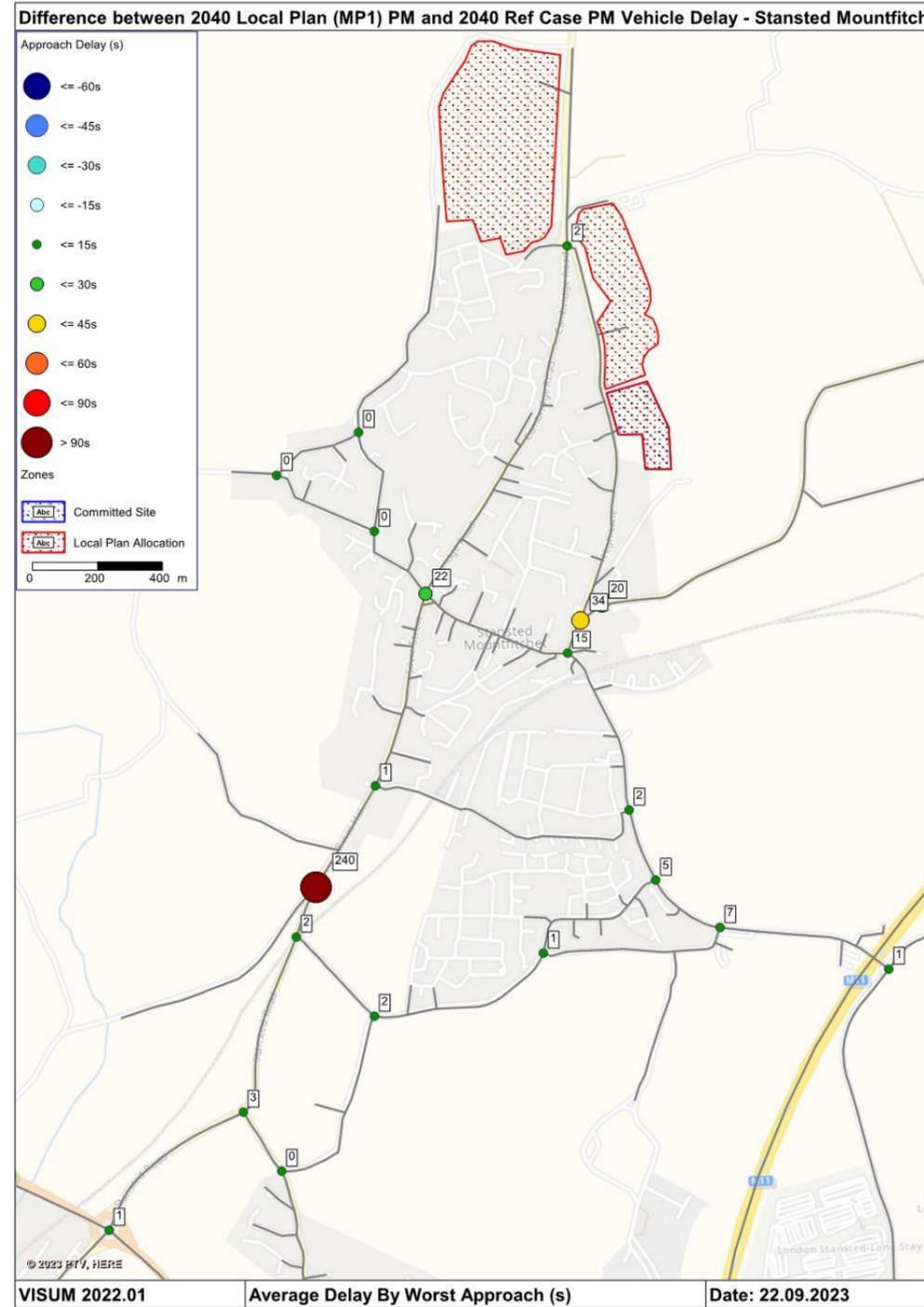
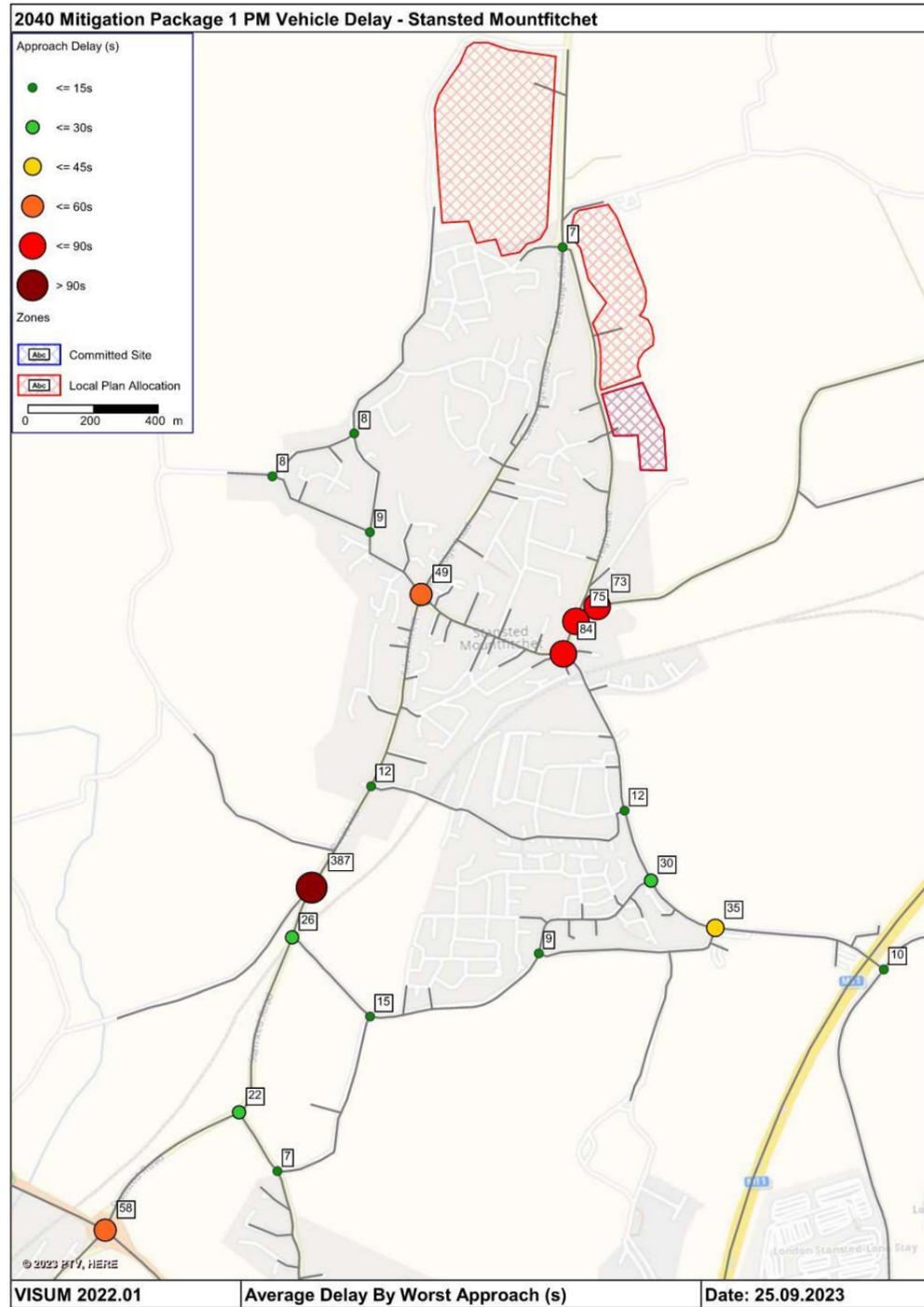
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Figure 5-4: PM Peak Junction Delays in Stansted Mountfitchet Mitigation Package 1

Notes:

- Delays are in seconds per vehicle.
- Represents average queue time in the respective peak period.
- Delays on the worst approach shown in main figure.
- Delays on all approaches are shown on selected junctions in the inserts.
- Red hatching represents site allocations.



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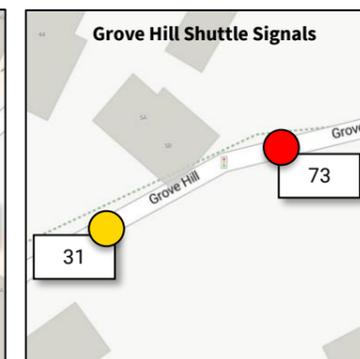
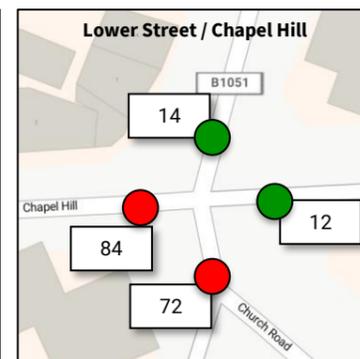
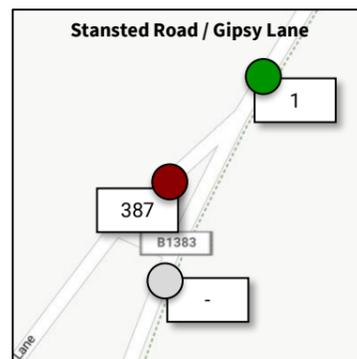
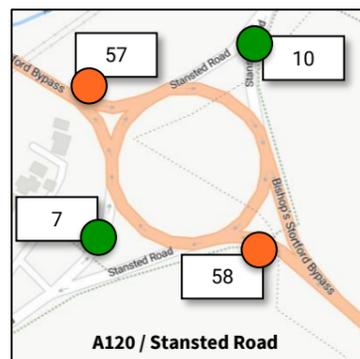
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6 | MITIGATION PACKAGE 2 – HIGHWAY CAPACITY

6.0 MITIGATION: PACKAGE 2 – HIGHWAY CAPACITY

6.1 INTERVENTIONS

- 6.1.1 The previous chapter has highlighted that sustainable transport interventions alone are insufficient mitigation to address the impacts of the Local Plan allocations in Stansted Mountfitchet.
- 6.1.2 Therefore, in seeking to identify a proportionate highway capacity based solution, junction improvements to help moderate and manage competing traffic flows were identified as listed in **Table 6-1** below.

Table 6-1: Proposed Junction Improvements in Stansted Mountfitchet

Ref	Junction	Scheme
HC.01	B1383 / Gypsy Lane	Widening to provide turn pockets / flare at all approaches together with the signalisation of the junction at Gypsy Lane.
HC.02	B1256 / Tilekiln Green	Tilekiln Green approach widened to add left-turn flare together with the signalisation of the junction.

- 6.1.3 The junction improvements will need to be provided in addition to the sustainable transport interventions identified in Package 1.

6.2 VOLUME OF TRAFFIC

- 6.2.1 To understand the effectiveness of the junction improvements, comparisons are drawn with the performance of the network in the Reference Case.
- 6.2.2 The changes in the volume of traffic between the Reference Case and Mitigation Package 2 are shown in **Figure 6-1** and **Figure 6-2** for the AM peak and the PM peak periods.
- 6.2.3 It highlights that:
- The relatively localised junction improvements (focusing on improving access from two unclassified roads) will have no tangible impact on the volume and routing of traffic on the network.
 - The movement of vehicles reflects that in Mitigation Package 1, with the volume of traffic higher across the network than in the Reference Case, with the exception of westbound traffic on the A120 to the north of Bishop’s Stortford in the AM peak period.

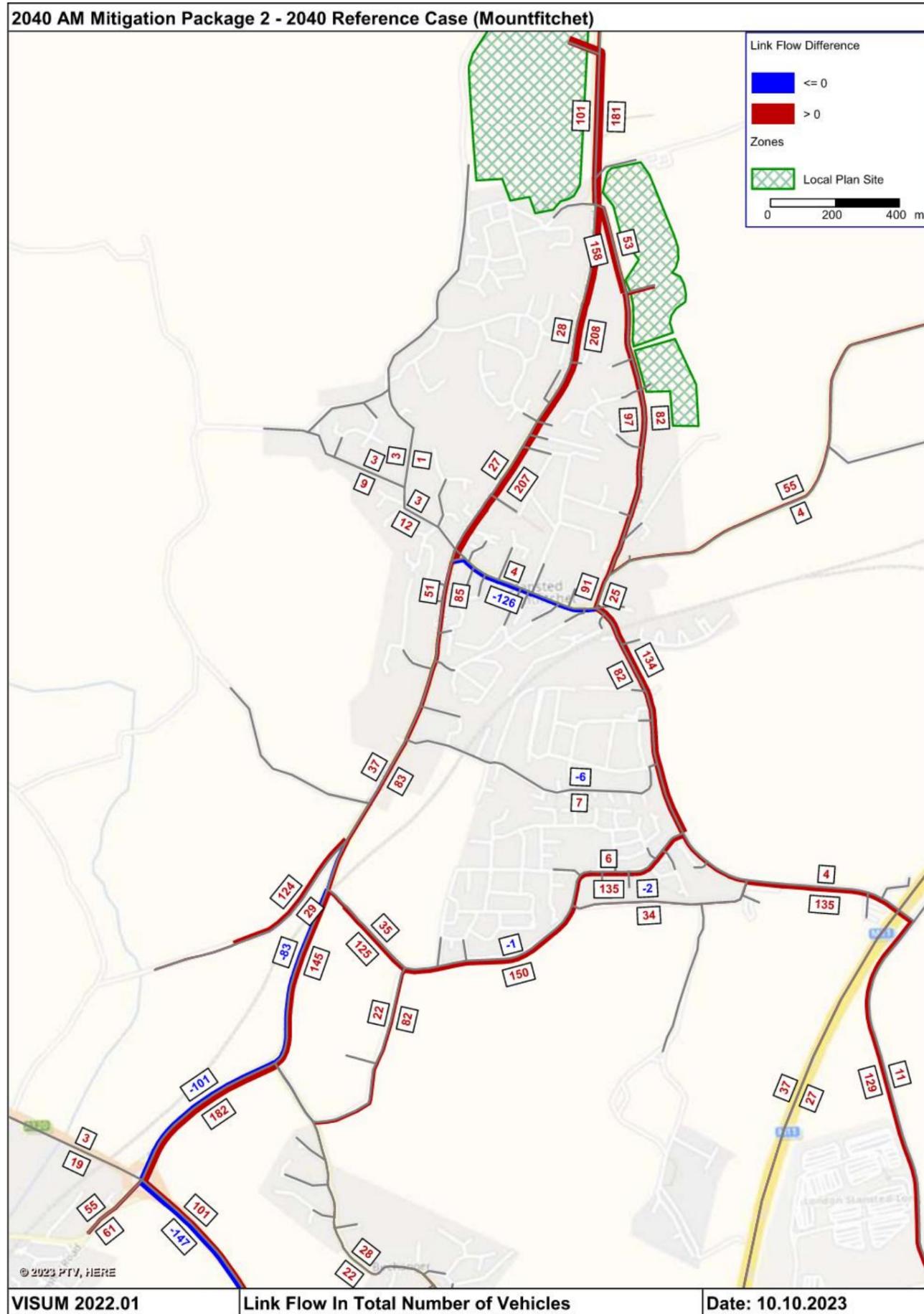


Figure 6-1: Change in Volume of Traffic between the Reference Case and Mitigation Package 2 - AM

Notes:

- Volume of traffic is presented in vehicles per hour.
- Weight of bar reflects size of flow.
- Red lines represent an increase in flow.
- Blue lines represent a decrease in flow.
- Green hatching represents Local Plan site allocations.

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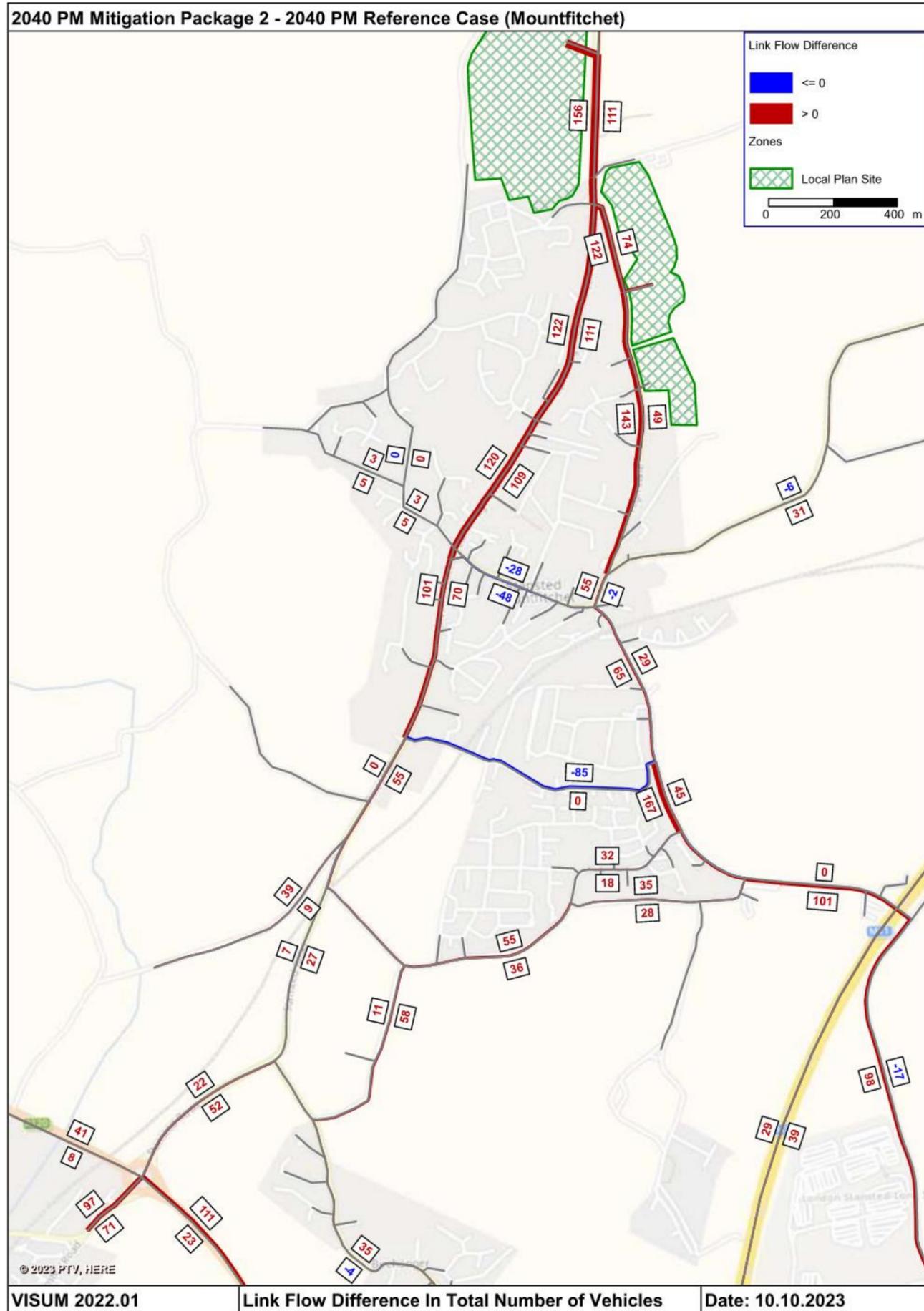


Figure 6-2: Change in Volume of Traffic between the Reference Case and Mitigation Package 2 - PM

Notes:

- Volume of traffic is presented in vehicles per hour.
- Weight of bar reflects size of flow.
- Red lines represent an increase in flow.
- Blue lines represent a decrease in flow.
- Green hatching represents Local Plan site allocations.

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6.3 JOURNEY TIMES

6.3.1 The comparative journey times and average speed of traffic in the Mitigation Package 2 scenario and the Reference Case are shown in **Table 6-2** and **Table 6-3** respectively.

Table 6-2: Changes in Journey Times between the Reference Case and Mitigation Package 2 (MP2)

Route	Direction	Journey Time (in seconds)					
		AM Peak			PM Peak		
		Ref Case	MP2	Change	Ref Case	MP2	Change
(1) A120 Eastern Section - A1250/A1184 Roundabout to M11 J8	Eastbound	428	459	+31	385	505	+120
	Westbound	417	552	+135	386	387	+1
(4) B1383 - A120 to High Lane	Northbound	305	317	+12	311	380	+69
	Southbound	378	478	+100	282	353	+71
(5) Bury Lodge Lane/Church Road - A120 to B1383	Northbound	427	470	+43	432	503	+71
	Southbound	483	570	+87	498	559	+61
(6) B1051 - B1383 to Mill Road	Northbound	420	457	+27	465	498	+19
	Southbound	525	606	+62	429	492	+46

Table 6-3: Changes in Average Speeds between the Reference Case and Mitigation Package 2 (MP 2)

Route	Direction	Average Speed (in MPH)					
		AM Peak			PM Peak		
		Ref Case	MP2	Change	Ref Case	MP2	Change
(1) A120 Eastern Section - A1250/A1184 Roundabout to M11 J8	Eastbound	31.4	29.2	-2.1	34.9	26.6	-8.3
	Westbound	32.2	24.3	-7.9	34.8	34.7	-0.1
(4) B1383 - A120 to High Lane	Northbound	29.3	28.2	-1.1	28.8	23.5	-5.2
	Southbound	23.7	18.7	-5.0	31.7	25.3	-6.4
(5) Bury Lodge Lane/Church Road - A120 to B1383	Northbound	32.5	29.5	-3.0	32.1	27.6	-4.5
	Southbound	28.3	23.9	-4.3	27.4	24.4	-3.0
(6) B1051 - B1383 to Mill Road	Northbound	25.0	23.0	-1.4	22.6	21.1	-0.8
	Southbound	20.0	17.3	-2.0	24.5	21.4	-2.2

6.3.8 The tables highlight that:

- Journeys times will continue to be consistently lower than those in the Reference Case.
- The junction improvements do not result in the reassignment of traffic to the extent that it impacts upon any of these strategic links.

6.4 JUNCTION DELAYS

- 6.4.1 In seeking to understand the changes in journey times, an analysis of the performance of the junctions on the network was undertaken. In terms of Stansted Mountfitchet, **Figure 6-3** illustrates the level of delay associated with the worse performing arm/approach to each junction in the AM peak period in the Highway Capacity Mitigation Package, alongside the changes in delay when compared to the 2040 Reference Case.
- 6.4.2 The comparative illustrations for the PM peak period are provided in **Figure 6-4**.
- 6.4.3 The key findings are that:
- Delays impacting traffic on Gypsy Lane will be eradicated as a result of the junction improvement scheme, in both peak periods with no adverse consequences for any of the surrounding junctions.
 - Despite the introduction of signals at junction of the B1256 with Bedlars Green Lane, some delays will persist. This is a result of the sheer level of demand through the junction and the competing flows which have to be managed.

6.5 SUMMARY

- 6.5.1 The introduction of two relatively modest signalised junctions will address pinch points on the network which would otherwise have faced considerable delays. The schemes improve the efficiency of their operation without any knock on effects for the wider network.

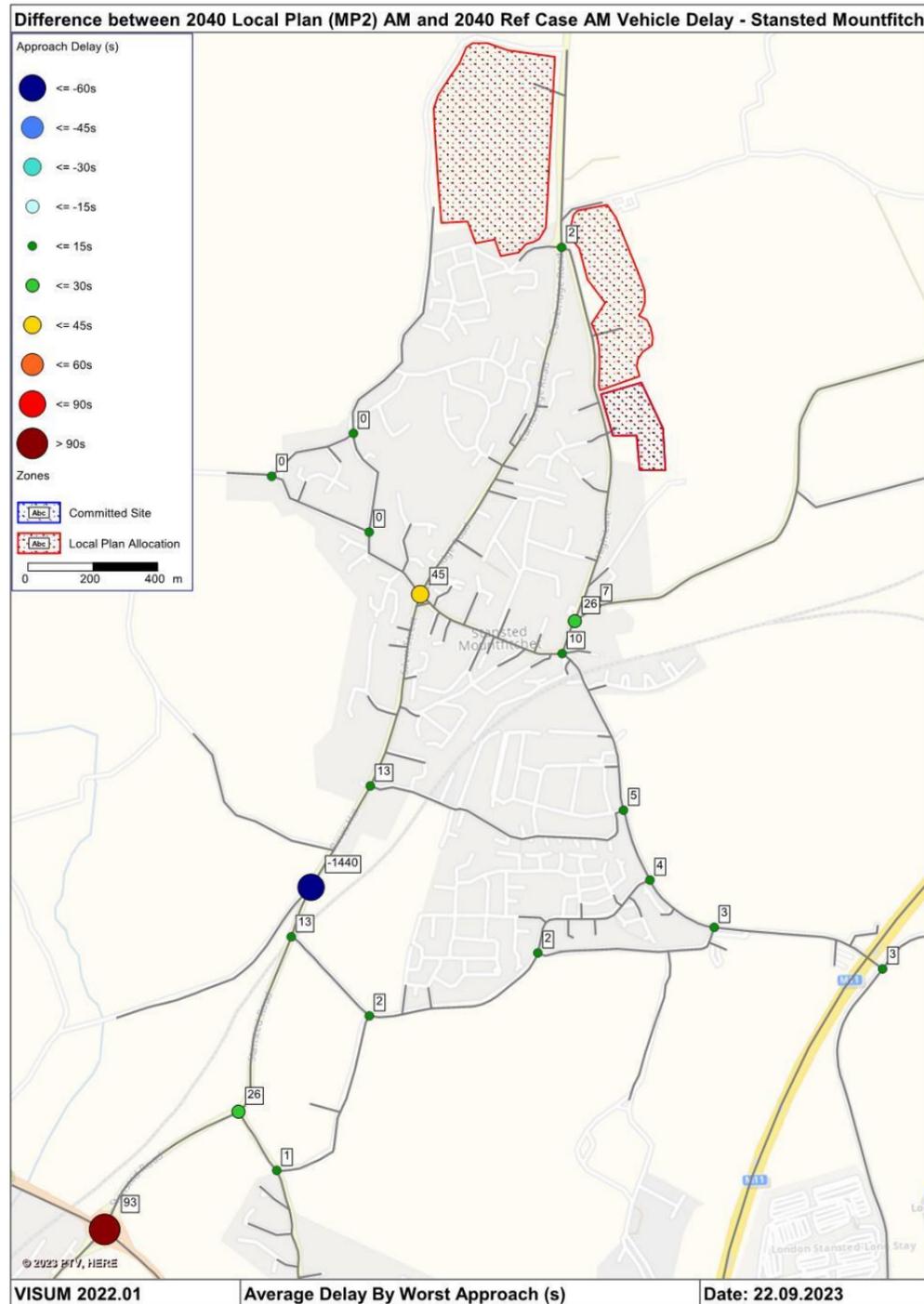
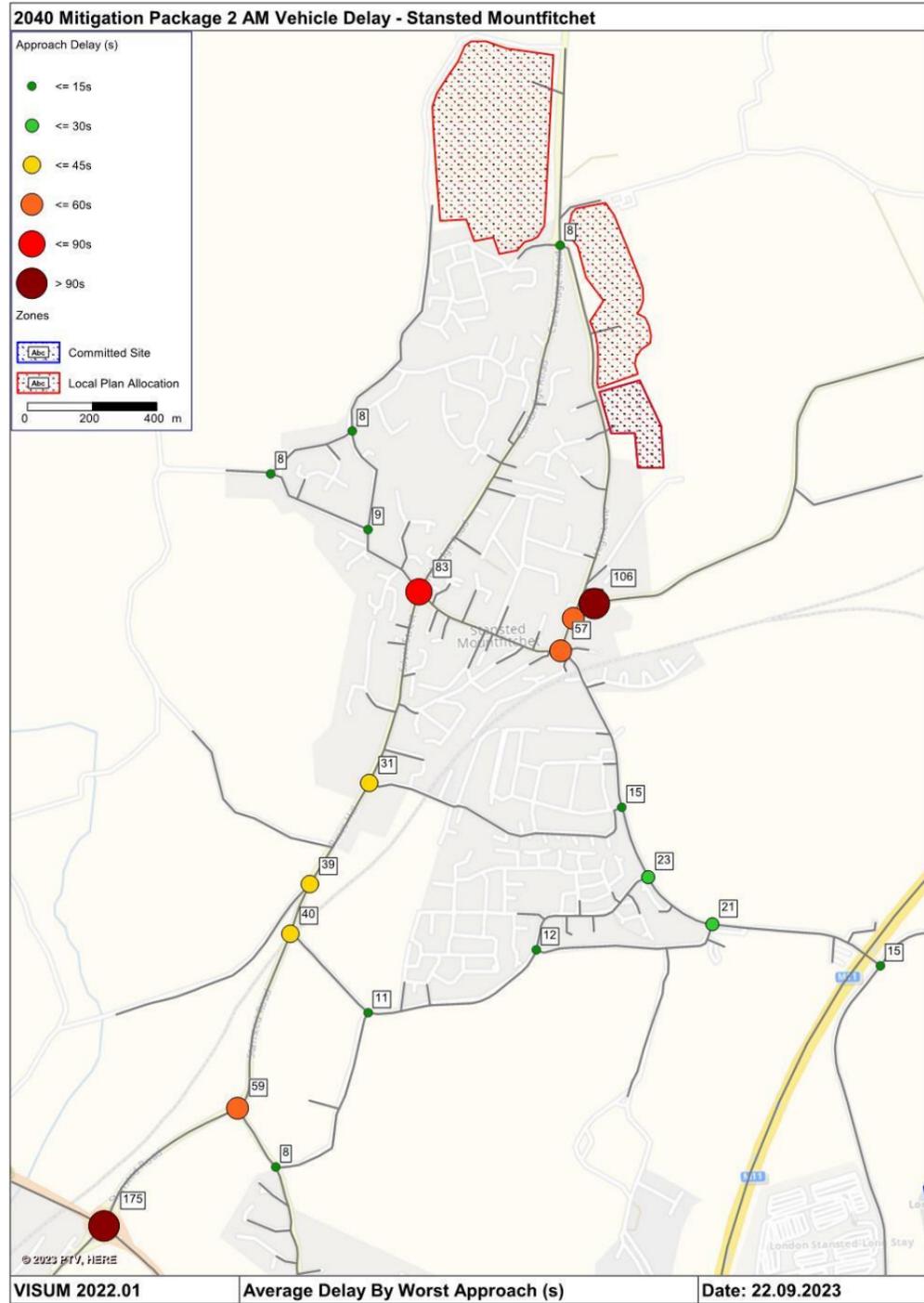


Figure 6-3: Stansted Mountfitchet AM Peak Junction Delays in Mitigation Package 2

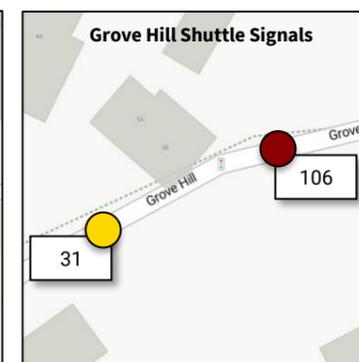
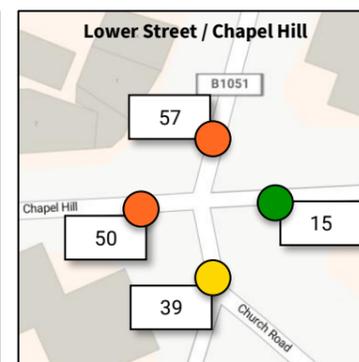
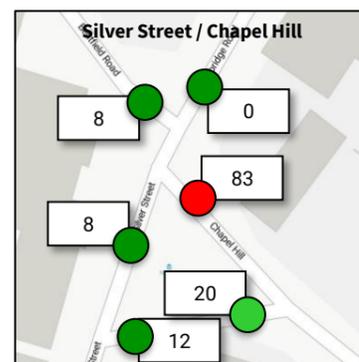
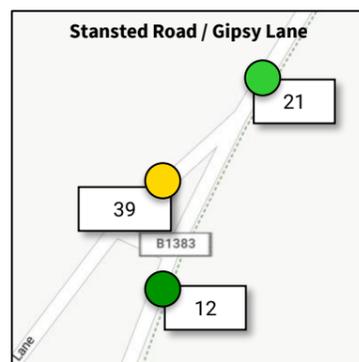
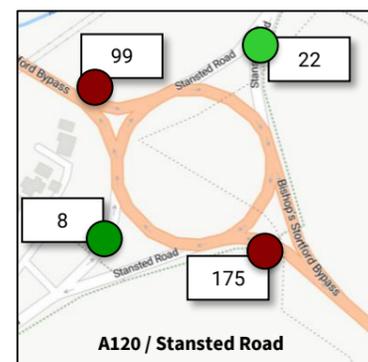
Notes:

- Delays are in seconds per vehicle.
- Represents average queue time in the respective peak period.
- Delays on the worst approach shown in main figure.
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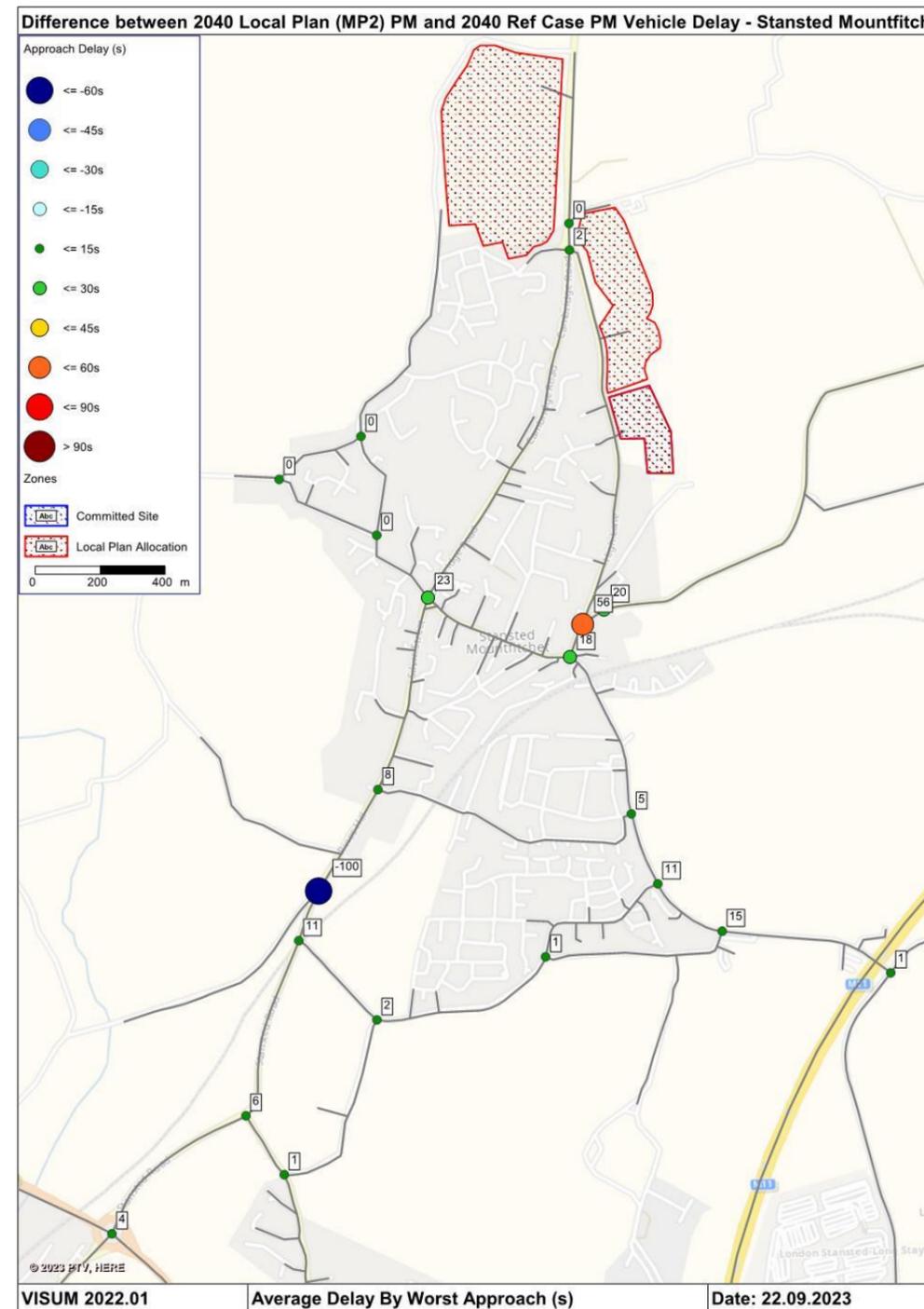
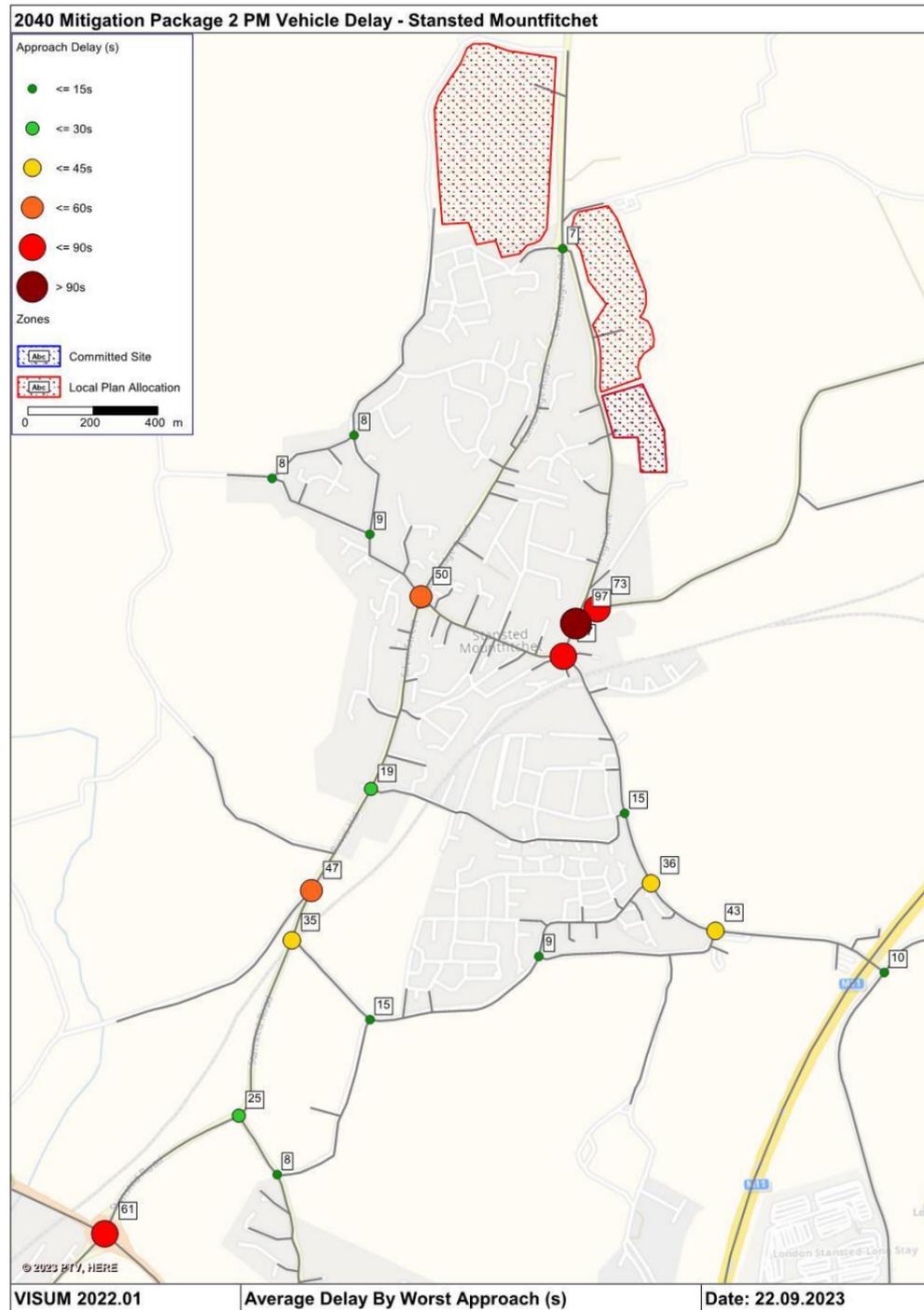
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Figure 6-4: Stansted Mountfitchet PM Peak Junction Delays in Mitigation Package 2

Notes:

- Delays are in seconds per vehicle.
- Represents average queue time in the respective peak period.
- Delays on the worst approach shown in main figure.
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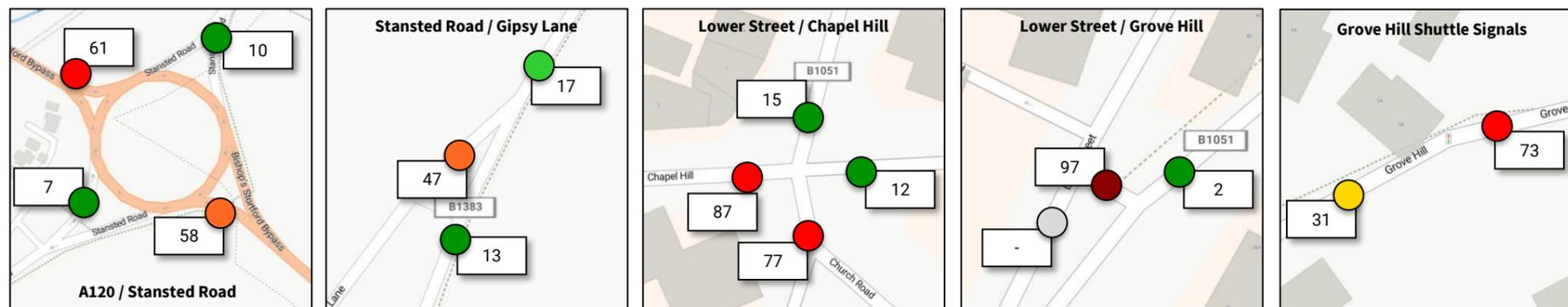
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7 | SUMMARY

7.0 SUMMARY

7.1 OVERVIEW

- 7.1.1 This technical note has detailed the performance of the highway network in Stansted Mountfitchet and drawn comparisons in its operation with and without Local Plan site allocations coming forward, and the relative effectiveness of alternative packages of mitigation.
- 7.1.2 It is clear from the analysis that the road network will be significantly busier in 2040 than is it today, even before Local Plan related growth is considered. This is due to the impact of committed development sites coming forward in the town and surrounding area, together with background growth in traffic.
- 7.1.3 On the local network in and around Stansted Mountfitchet, a combination of sustainable transport interventions and a signalised junction at Gypsy Lane appears to provide sufficient mitigation for the impact of growth to the north of the village, and other Local Plan related traffic in the area.

7.2 RECOMMENDED INTERVENTIONS

- 7.2.1 Following the assessment of the Local Plan sites and the conclusions drawn within this technical note, the schemes recommended to be taken forward through the Local Plan are set out in **Table 7-1** below, together with a high level estimate as to their associated costs.

Table 7-1: List of Recommended Interventions & Indicative Costs

Ref	Scheme	Cost	Notes
Highway Capacity			
HC.01	B1383 / Gypsy Lane: Widening to provide turn pockets / flare at all approaches together with the signalisation of the junction at Gypsy Lane.	£750,000 - £1,000,000	Assumes that no third-party land is required and excludes all utility diversion / protection costs. Optimism bias included.
HC.02	B1256 / Tilekiln Green: Tilekiln Green approach widened to add left-turn flare together with the signalisation of the junction.	£750,000 - £1,000,000	Assumes that no third-party land is required and excludes all utility diversion / protection costs. Optimism bias included.
Public Transport			
PT.01	Increase the frequency of the no.301 to at least one bus every 30 minutes.	£200,000	Suggested annual capital funding contribution towards subsidy of increased service provision. Cost does not take into account revenue generated.
PT.02	Provide Real Time information and timetables at existing stops, and a new stop at the northern edge of Site 015 RES.	£90,000	Based upon 30 bus stops (including additional for new developments) at a cost of £3,000 per stop.

Ref	Scheme	Cost	Notes
PT.03	Offer discounted (or free) bus travel to all new residents for 12 months.	£1,700,000	Based upon one Stagecoach daily travel pass per new household at £8 per/day for working days only.
PT.04	Improve station facilities at Stansted Mountfitchet.	£250,000 - £500,000	Associated with improved pedestrians and cycle access and waiting facilities. Costs could increase by £2-5m if a lift was provided alongside the footbridge.
PT.05	Offer discounted (or free) rail travel to all new residents for 12 months.	£800,000	Based upon £1,000 rail season ticket discount for one year.
Walking & Cycling			
WC.01	Provide a fully segregated and continuous cycle link between the sites and the station.	£1,500,000 - £2,000,000	Assumed to be 1.5km to 2km in length at a cost of £1,000,000 per km.
WC.02	Provision of a new e-bike for every household.	£800,000	Based upon one bike per household at a cost of £1,000 per bike.
WC.03	Provide a segregated cycle path running parallel to High Lane and then connecting onto Gall End Lane and Lower Street to enhance the cycle route to the station.	£1,000,000 - £1,500,000	Assumed to be 1.0km to 1.5km in length at a cost of £1,000,000 per km.
WC.04	Improve right of way between High Lane and Normans Way for better pedestrian access to bus services.	£250,000 - £500,000	Improvements to surfacing, signage and lighting.

Note: It should be noted that these costs are preliminary estimations and subject to more detailed design.

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