

Uttlesford Transport Study

784-B029347

GREAT DUNMOW MODEL OUTPUTS



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1 | BACKGROUND

1.0 BACKGROUND

1.1 OVERVIEW

- 1.1.1 This technical note details the impacts on the transport network of the sites to be taken forward through the Uttlesford Local Plan, together with the sustainable transport interventions and highway capacity improvements to mitigate the increase in demand to travel across the district.
- 1.1.2 It focuses on how the Local Plan site allocations will impact upon the performance of the highway network in Great Dunmow. 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 Great Dunmow:
- Land off The Broadway (1,500 dwellings).
- 1.2.2 Following the conclusion of the assessment, Uttlesford District Council reconsidered the location and quantum of development to come forward within the town and wider A120 corridor.
- 1.2.3 A revised figure of 869 homes was subsequently included in the Regulation 18 Local Plan on 'Land off The Broadway', representing a 42% reduction on that modelled.
- 1.2.4 More broadly the quantum of housing included within the Local Plan is less than that modelled.
- 1.2.5 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 is 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 Great Dunmow. It should be read in conjunction with more detailed analysis of the impacts of Local Plan allocations in the following technical notes:

- TN110 | Uttlesford Transport Study Baseline Report
- TN401 | Strategic Impacts Technical Note
- TN402 | Saffron Walden Model Outputs Technical Note.
- TN404 | Takeley Model Outputs Technical Note.
- TN405 | Stansted Mountfitchet Model Outputs Technical Note.
- TN406 | Great Chesterford, 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 both the AM peak and the PM peak periods in the 2021 Base Year Model is shown in **Figure 2-1** and **Figure 2-2**. They highlight that:

- The A120 to the south of Great Dunmow accommodates almost 2,000 vehicles travelling westbound, towards the M11 and Stansted Airport in the AM peak period. The flow on the A120 is very tidal, with around a third fewer vehicles heading in an eastbound direction in the same period.
- Conversely in the PM peak period, eastbound traffic reaches 2,500 vehicles, more than half the equivalent westbound flow at that time.
- On the local road network, the B1256 is subject to flows of around 950 two-way vehicles west of Great Dunmow and around 1,257 two-way vehicles east of the town in the AM peak.
- By comparison, the B184 carries around 300 vehicles in each direction in both peaks and lacks the tidality apparent on the east-west corridors.

2.2 JOURNEY TIMES

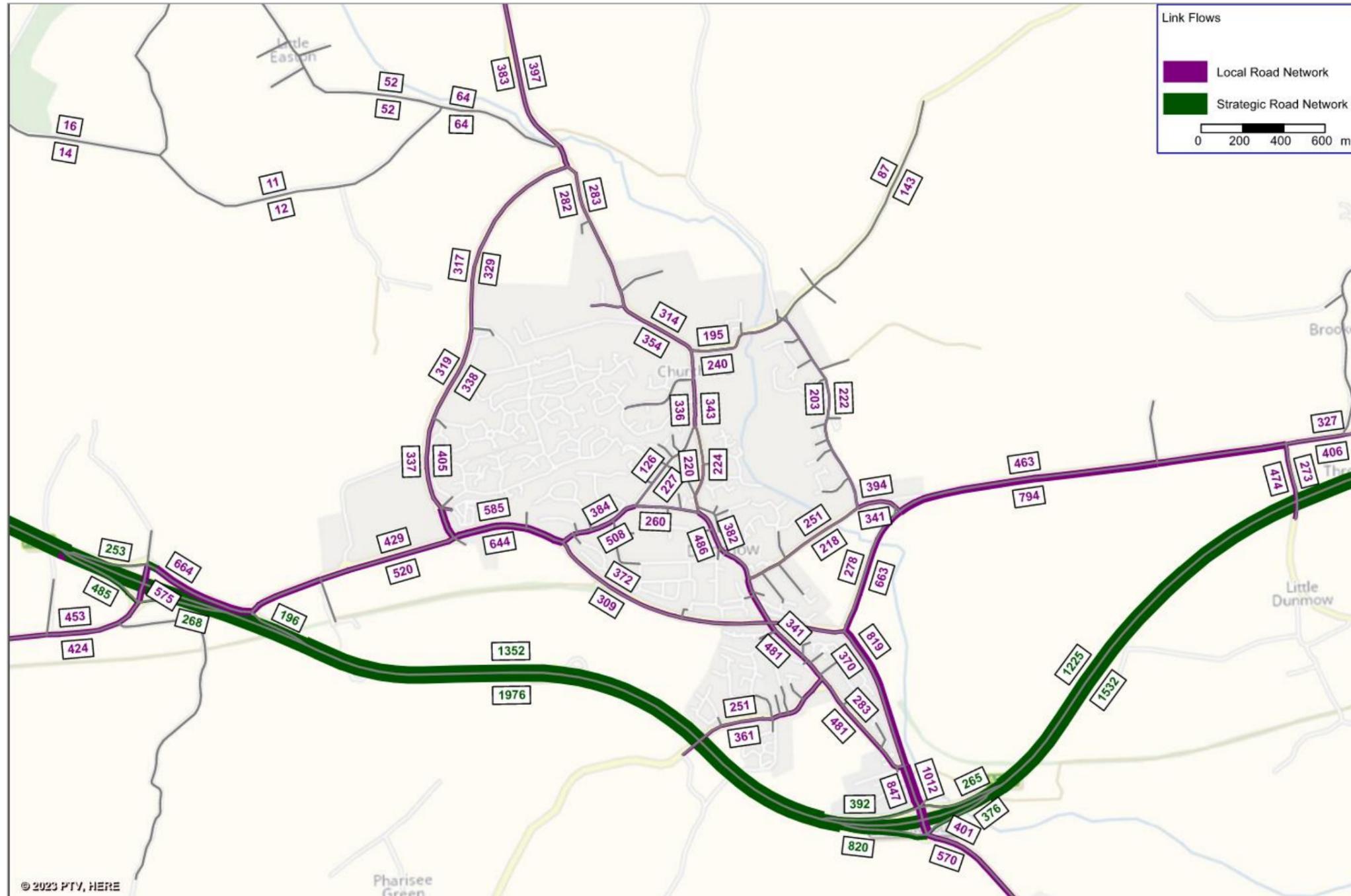
2.2.1 Selected journey times in the AM peak in the 2021 Base Year Model are shown in **Table 2-1**, alongside the comparative journey times for the PM peak period. The average speed of traffic on each route is shown in **Table 2-2**.

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 modelled 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)
(3) A120 Western Section - Dunmow West to B1417/B1256	Eastbound	8.22	451	502
	Westbound	8.22	460	449
(10) B1008/B1256 - High Easter Road to Woodside Way	Northbound	2.28	240	227
	Southbound	2.28	224	220
(11) Woodside Way/B184 - B1256 to The Endway	Northbound	2.52	225	226
	Southbound	2.58	227	225
(12) B184/B1057 - Clapton Hall Lane to B1057 The Broadway	Northbound	2.58	334	339
	Southbound	2.58	344	335
(13) B1256 - Eastern Section - Unnamed Road to B1417	Eastbound	4.56	348	355
	Westbound	4.56	363	358

Figure 2-1: Volume of Traffic (Link Flow) in the 2021 Base Year (AM)



Link Flows

- Local Road Network
- Strategic Road Network

0 200 400 600 m

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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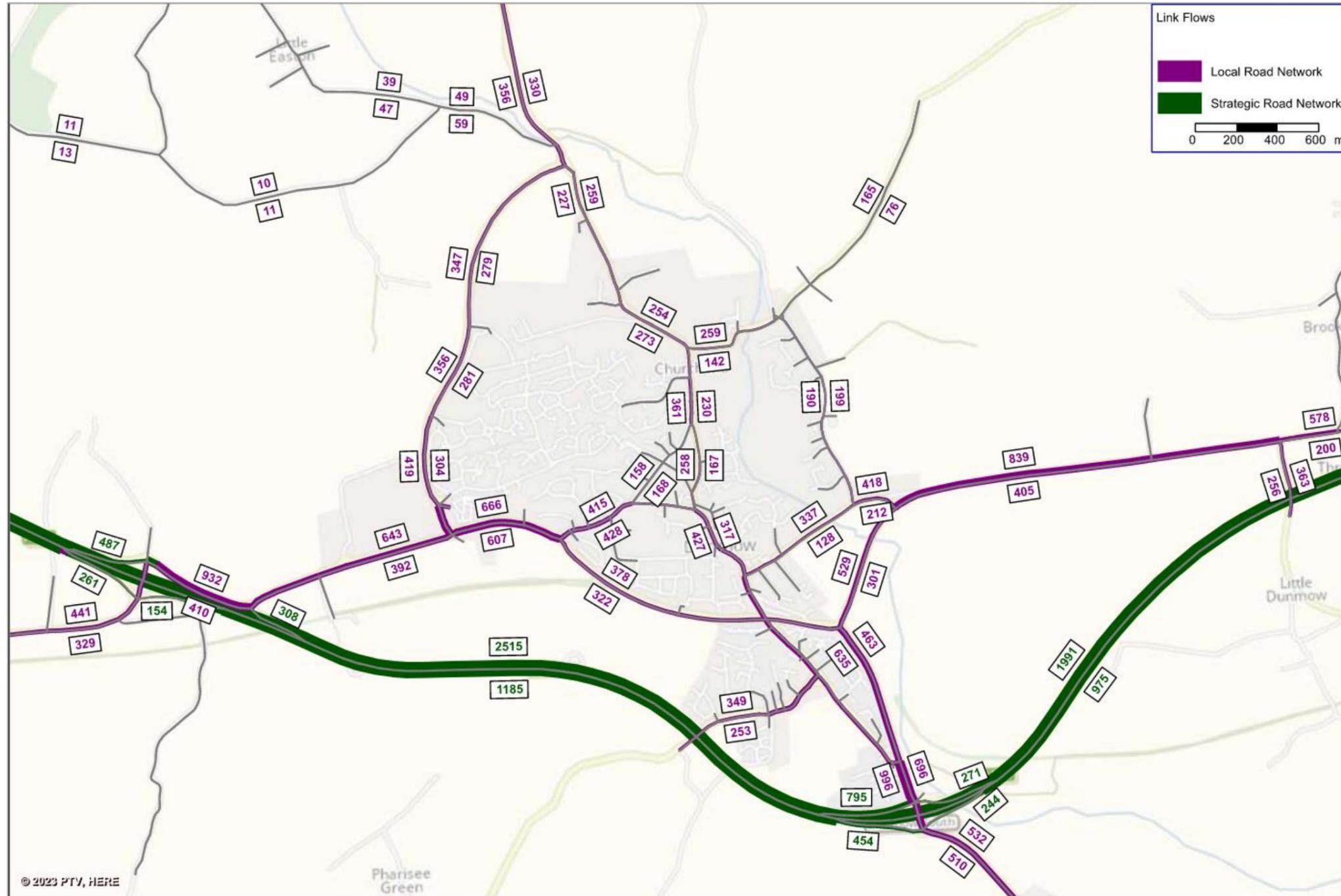


Figure 2-2: Volume of Traffic (Link Flow) in the 2021 Base Year (PM)

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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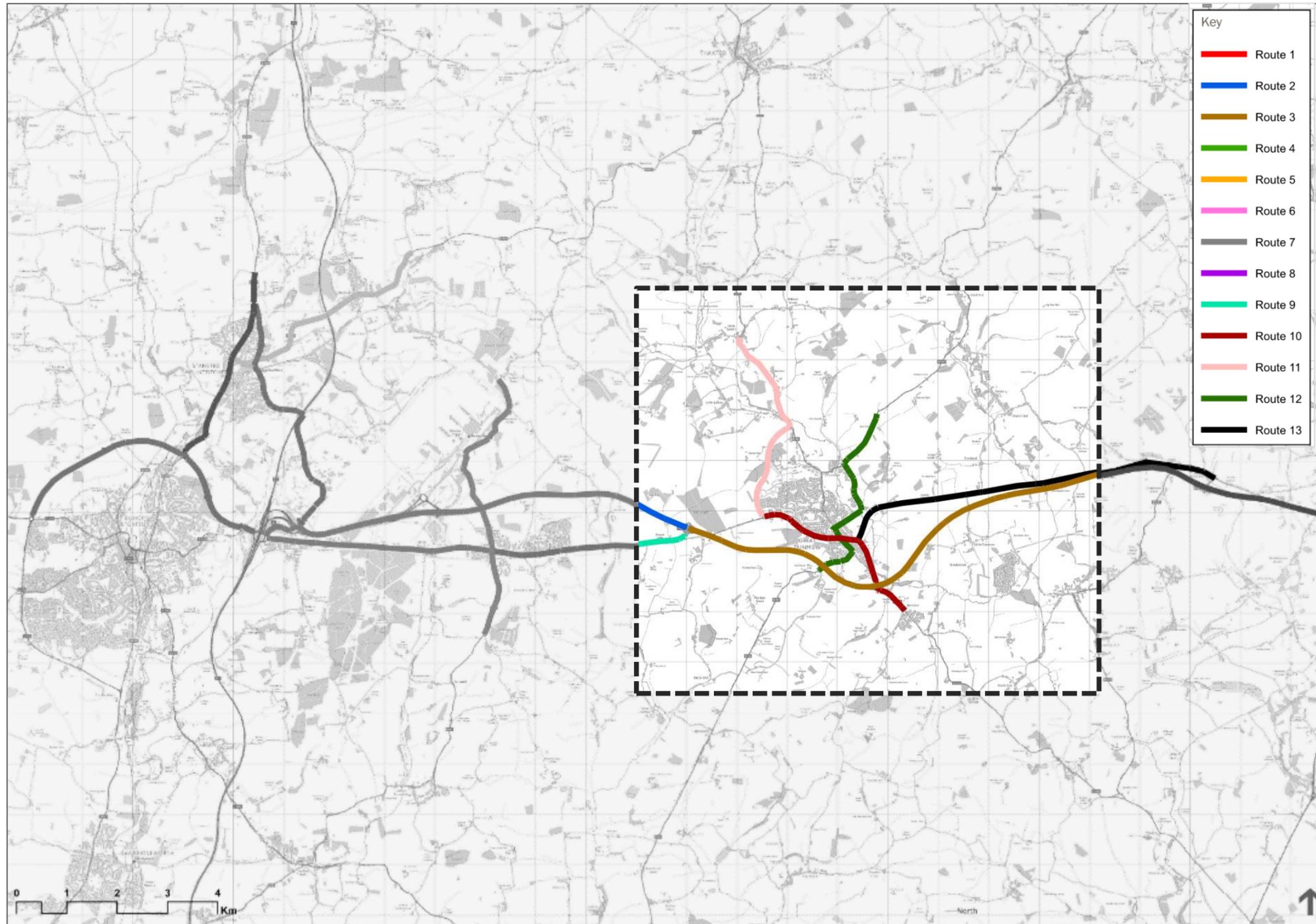
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Figure 2-3: Journey Time Routes in Great Dunmow


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Table 2-2: Average Vehicle Speeds in Great Dunmow in the AM & PM Peak Periods

Route (No.)	Direction	Distance (miles)	Average Speed in MPH	
			2021 (AM Peak)	2021 (PM Peak)
(3) A120 Western Section - Dunmow West to B1417/B1256	Eastbound	8.22	68.0	61.0
	Westbound	8.22	66.6	68.3
(10) B1008/B1256 - High Easter Road to Woodside Way	Northbound	2.28	35.4	37.4
	Southbound	2.28	37.9	38.6
(11) Woodside Way/B184 - B1256 to The Endway	Northbound	2.52	41.8	41.6
	Southbound	2.58	42.4	42.8
(12) B184/B1057 - Clapton Hall Lane to B1057 The Broadway	Northbound	2.58	28.8	28.4
	Southbound	2.58	28.0	28.7
(13) B1256 - Eastern Section - Unnamed Road to B1417	Eastbound	4.56	48.9	47.9
	Westbound	4.56	46.8	47.5

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

- There is very little variation in journey times or vehicles speeds between the AM and PM peak periods.
- Traffic on the A120 to the south of Great Dunmow (Route 3) travels at almost the speed limit for the dual carriageway, indicating little if any delay.
- The tidality of flow does not appear to influence the speed of traffic with comparative journey times in both peak periods, regardless of direction of travel.

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 Great Dunmow 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** illustrates the level of delay associated with the worse performing arm/approach to each junction in the AM and PM peak periods.

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/90422/travel-time-measures-for-local-a-roads-january-to-december-2021-report.pdf)

2.3.2 The key findings are that:

- The longest delays on the network in the AM peak are at the B1256 Stortford Road / Blackwater Drive roundabout (with a delay of over two minutes) and the junction of the B1256 and B1008, immediately to the south of Oak Industrial Estate (with delays approaching three minutes).
- The B1256 Braintree Road / Dunmow Bypass to the east of the town, and the High Street / New Street junctions are also set to experience delays of around a minute in the AM peak period.
- In the PM peak, the network generally operates more efficiently with the only delays of note at the B1256 Stortford Road / Blackwater Drive roundabout, the junction of the B1256 and B1008, immediately to the south of Oak Industrial Estate and the High Street / New Street junction, all with delays of around one minute.

2.4 SUMMARY

2.4.1 The Base Year Model simulates the performance of the highway network in Great Dunmow in typical present day (2021) conditions, across the morning and evening peak hours.

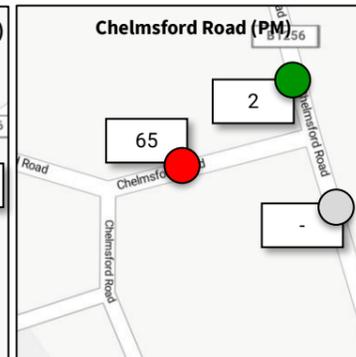
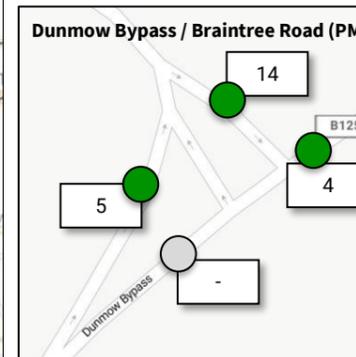
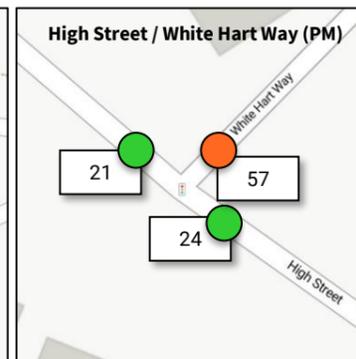
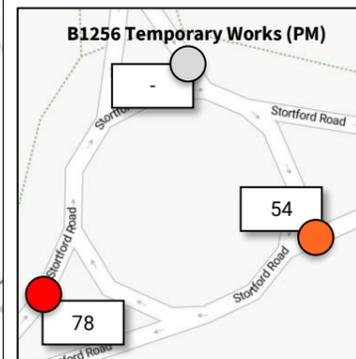
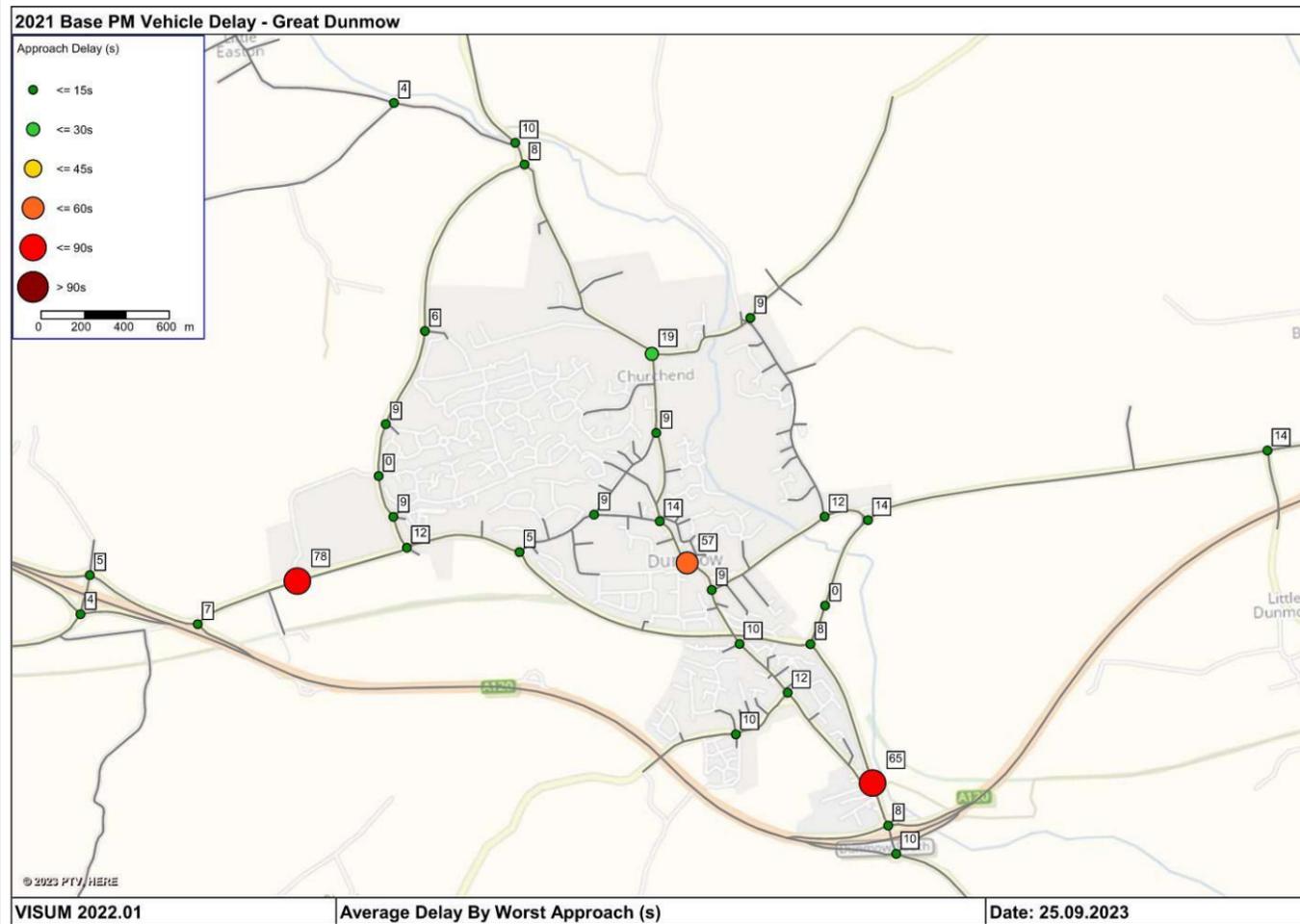
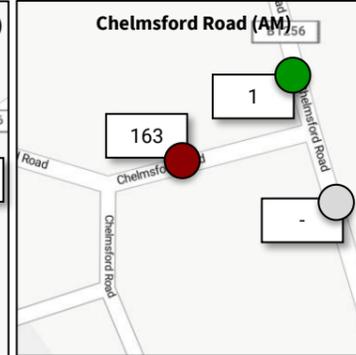
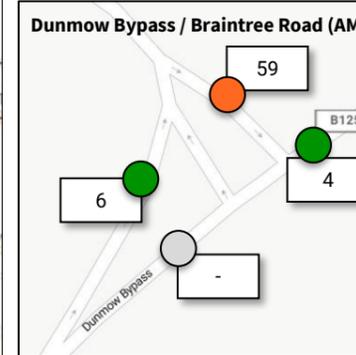
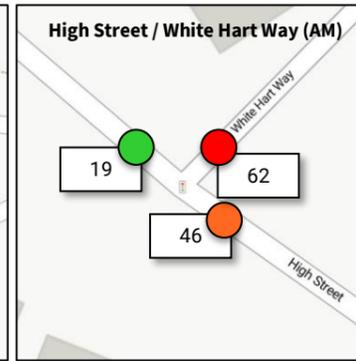
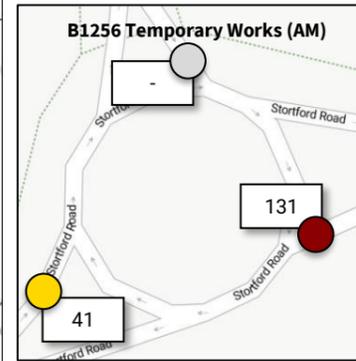
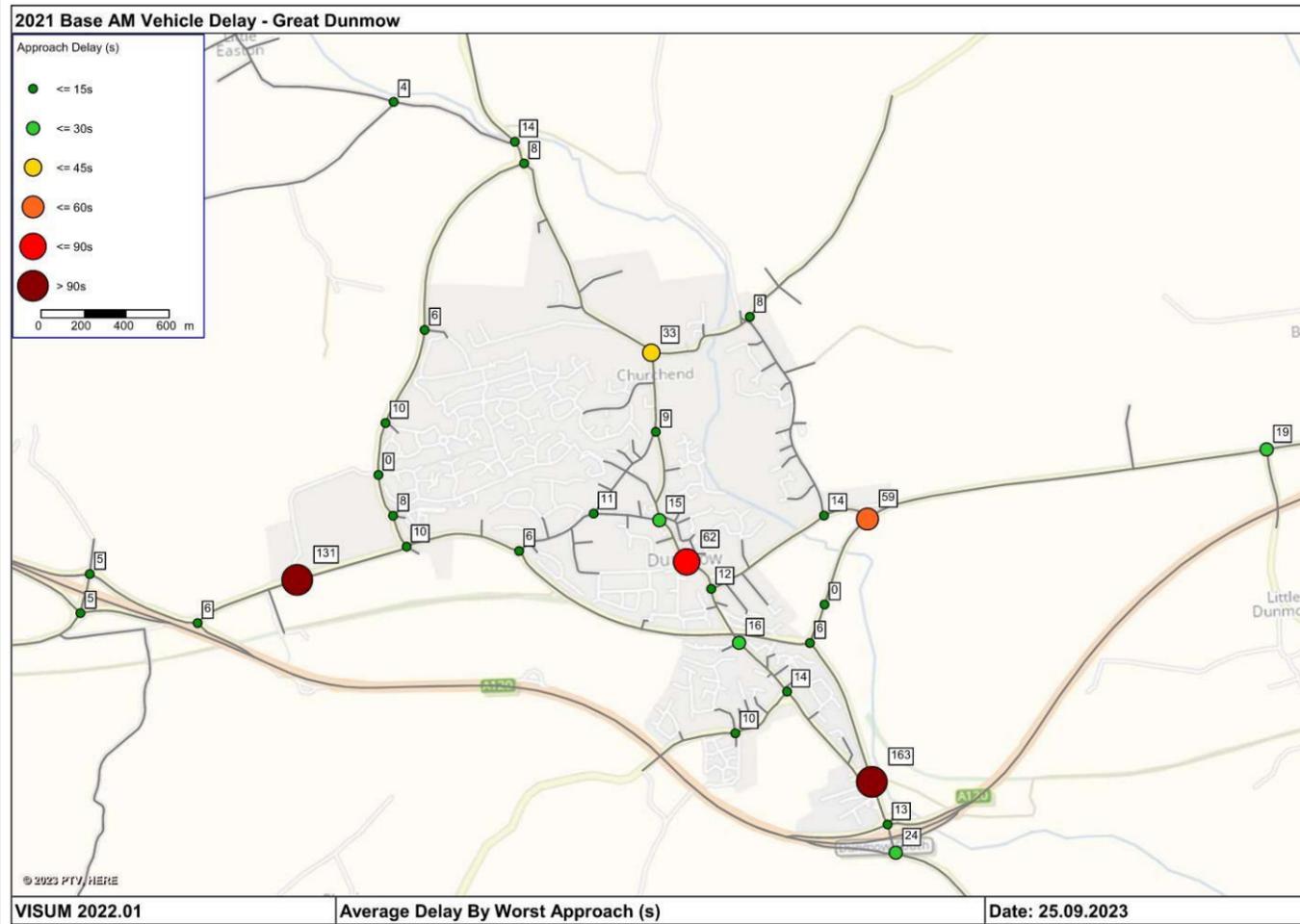
2.4.2 The analysis of the volume of traffic, the journey times and average speed of vehicles, together with the efficiency of operation of several junctions within the town points towards a network that operates reasonably efficiently albeit with several pinch point within both peak periods, particularly on radial routes into the town from the south, east and west.

2.4.3 The B1256 is an important link around the south of the town, reflected in the volume of traffic it accommodates. Its operation has implications for movement in and out of the town. The speed of traffic on the corridor varies by around 3mph in peak period suggesting that there are typically no significant issues.

Figure 2-4: Junction Delays in Great Dunmow in the 2021 Base Year

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 for selected junctions in the inserts.



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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 They highlight that:
- There will be an increase in the amount of traffic throughout the town and on the A120 to the south of Great Dunmow in both peak periods.
 - The A120 will see the largest increases, with an additional 1,000 vehicles in the AM peak period and almost 1,500 vehicles in the PM peak period on the approach to the Dunmow South Interchange.
 - Within the town itself, the B1246 and B184 which together form a southern and western bypass will accommodate the largest growth, generally equating to between 300 to 500 additional vehicles in each direction during the peak periods.
 - St Edmunds Lane will see increases of 400 vehicles in the AM peak period but much more modest increases in the PM peak period.
 - Elsewhere in the town the impacts will be more marginal, whilst on a section of Braintree Road between the B1008 and B1245, and in the town centre, the volume of traffic is expected to reduce in the AM peak.

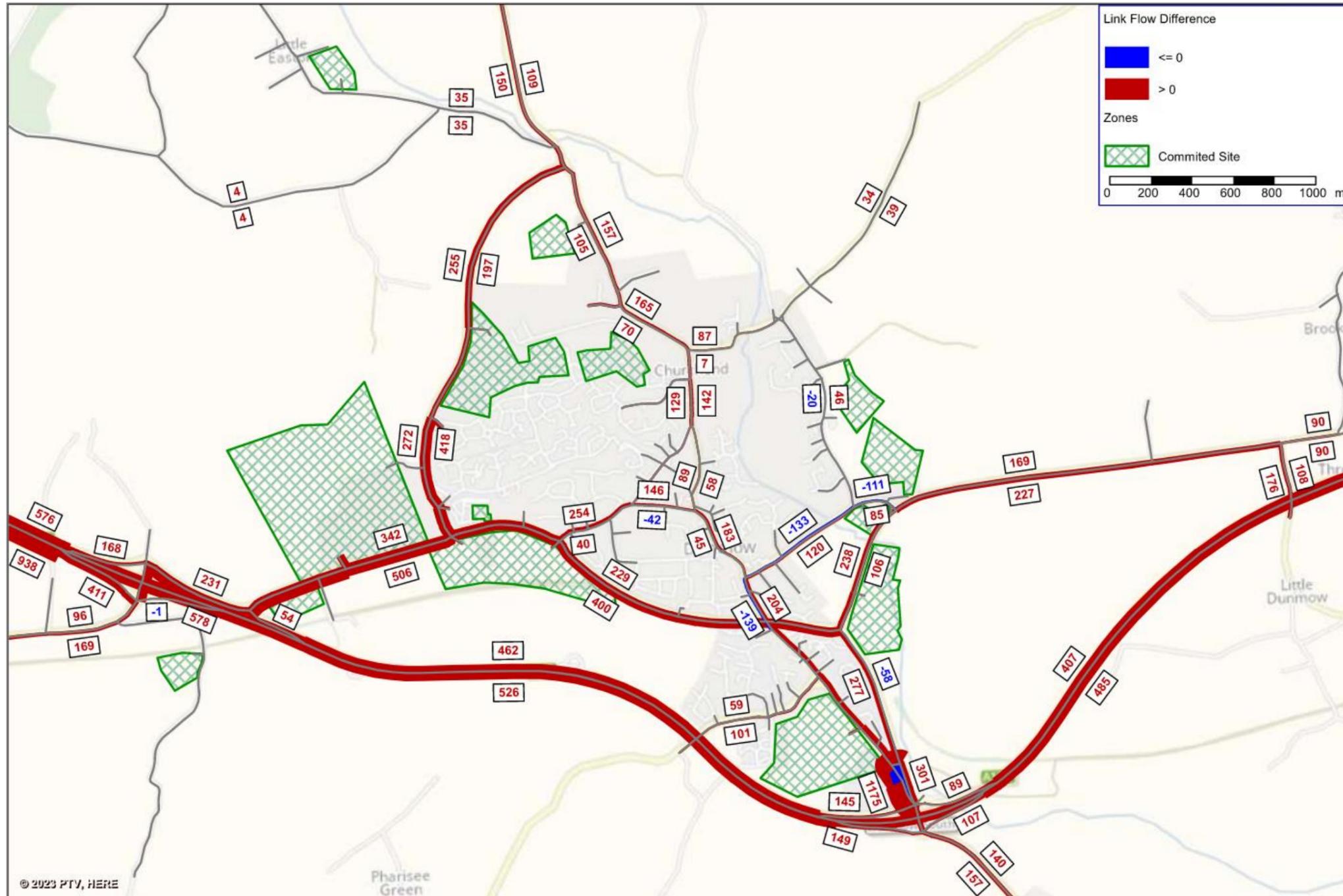
3.2 JOURNEY TIMES

- 3.2.1 The comparative journey times and average vehicle speeds 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
(3) A120 Western Section - Dunmow West to B1417/B1256	Eastbound	451	458	+7	502	484	-18
	Westbound	460	472	+12	449	454	+5
(10) B1008/B1256 - High Easter Road to Woodside Way	Northbound	240	447	+207	227	265	+38
	Southbound	224	268	+44	220	235	+15
(11) Woodside Way/B184 - B1256 to The Endway	Northbound	225	238	+13	226	246	+20
	Southbound	227	244	+17	225	233	+8
(12) B184/B1057 - Clapton Hall Lane to B1057 The Broadway	Northbound	334	324	-10	339	336	-3
	Southbound	344	366	+22	335	346	+11
(13) B1256 - Eastern Section - Unnamed Road to B1417	Eastbound	348	359	+11	355	383	+28
	Westbound	363	389	+26	358	366	+8

Figure 3-1: Change in Volume of Traffic (Link Flow) 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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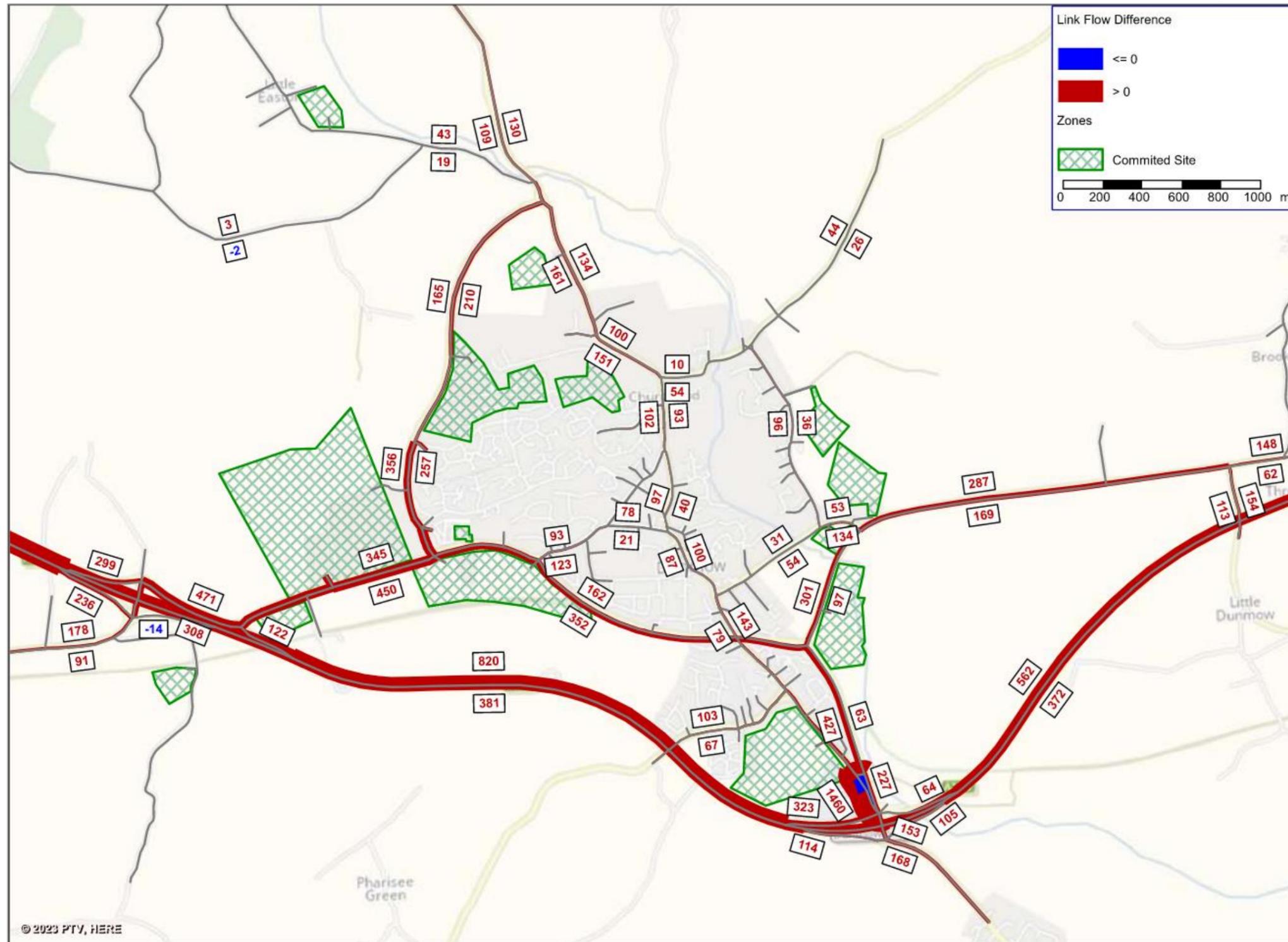
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Figure 3-2: Change in Volume of Traffic (Link Flow) between Base Year (2021) and Reference Case (2040) - PM



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.
- Green hatching represents committed sites.

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Table 3-2: Changes in Average Speeds between Base Year (2021) and Reference Case (2040)

Route	Direction	Average Speed (in MPH)					
		AM Peak			PM Peak		
		2021	2040	Change	2021	2040	Change
(3) A120 Western Section - Dunmow West to B1417/B1256	Eastbound	68.0	66.9	-1.1	61.0	63.3	+2.3
	Westbound	66.6	64.9	-1.7	68.3	67.5	-0.8
(10) B1008/B1256 - High Easter Road to Woodside Way	Northbound	35.4	19.0	-16.4	37.4	32.1	-5.3
	Southbound	37.9	31.7	-6.2	38.6	36.2	-2.4
(11) Woodside Way/B184 - B1256 to The Endway	Northbound	41.8	39.5	-2.3	41.6	38.2	-3.4
	Southbound	42.4	39.4	-3.0	42.8	41.3	-1.5
(12) B184/B1057 - Clapton Hall Lane to B1057 The Broadway	Northbound	28.8	29.7	+0.9	28.4	28.6	+0.2
	Southbound	28.0	26.3	-1.7	28.7	27.8	-0.9
(13) B1256 - Eastern Section - Unnamed Road to B1417	Eastbound	48.9	47.4	-1.5	47.9	44.4	-3.5
	Westbound	46.8	43.7	-3.1	47.5	46.5	-1.0

3.2.8 The tables highlight that:

- Journey times will increase on almost all routes in both peak periods between 2021 and 2040. In most cases the increases will be modest with less than a 10% increase in journey times.
- However, there will be a larger impact on journey times for east/west movements through the town via the B1008 and the B1256(Route 10). The average speed of north-westbound traffic in the AM peak period will decrease from 35mph to 19mph as a result of committed development in the period up until 2040. The speed of south-eastbound traffic will reduce by 6mph, whilst north-westbound traffic in the PM peak period will also be slower, by around 5mph.
- In certain locations, there will be marginal benefits to journey times. Eastbound traffic in the PM peak will increase in speed on the A120 (Route 3), whilst northbound traffic on the B184/B1057 (Route 12) will see fractional increases in average speeds.

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** illustrates the level of delay associated with the worse performing arm/approach to each junction in the AM peak period in the 2040 Reference Case, alongside the changes in delay when compared to the 2021 Base Year. The comparative illustrations for the PM peak period are provided in **Figure 3-4**.

3.3.3 The key findings are that:

- Multiple junctions across the town will experience delays in excess of one minute within both peak periods. Individually they don't represent a significant impact to general traffic, but cumulatively they form a tangible impact on journey times.
- Delays on the network in the AM peak period will increase at a number of important nodes within the town as a result of committed growth coming forward. the largest increase in the AM peak period will occur at the Dunmow South Interchange on the A120 where delays on the roundabout to the south of the interchange will increase by almost three minutes.

- In the PM peak period, the greatest increases in delay will be on the B1256, and its junction with Homelye Chase to the east of Great Dunmow, and the B184 Woodside Way to the west of the town.

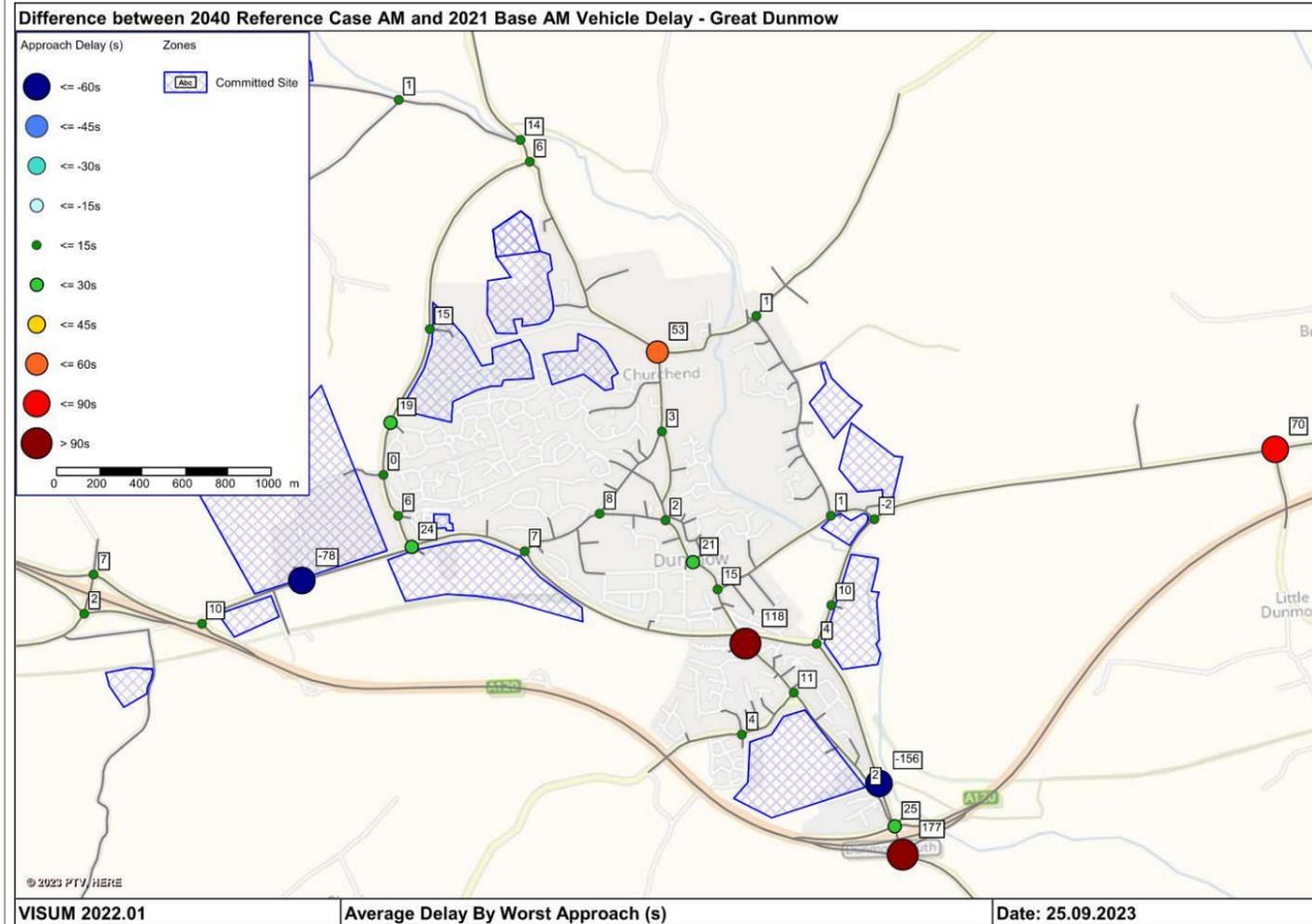
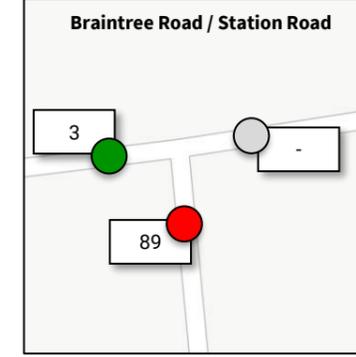
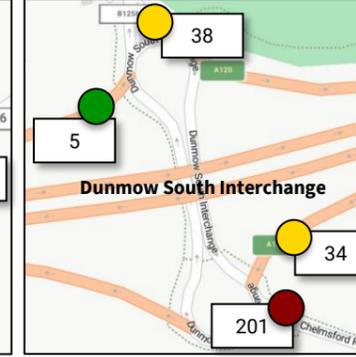
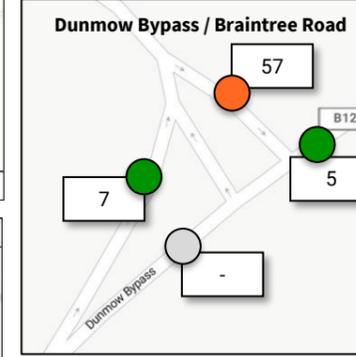
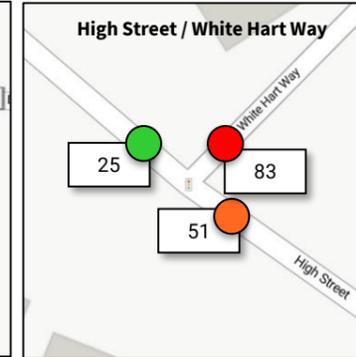
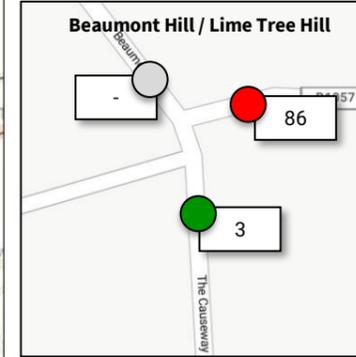
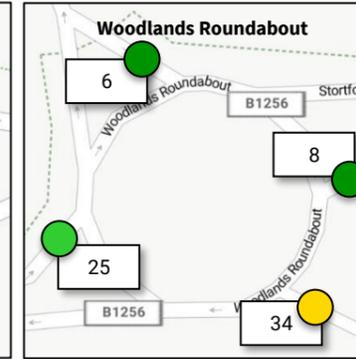
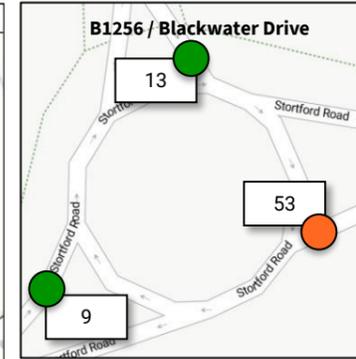
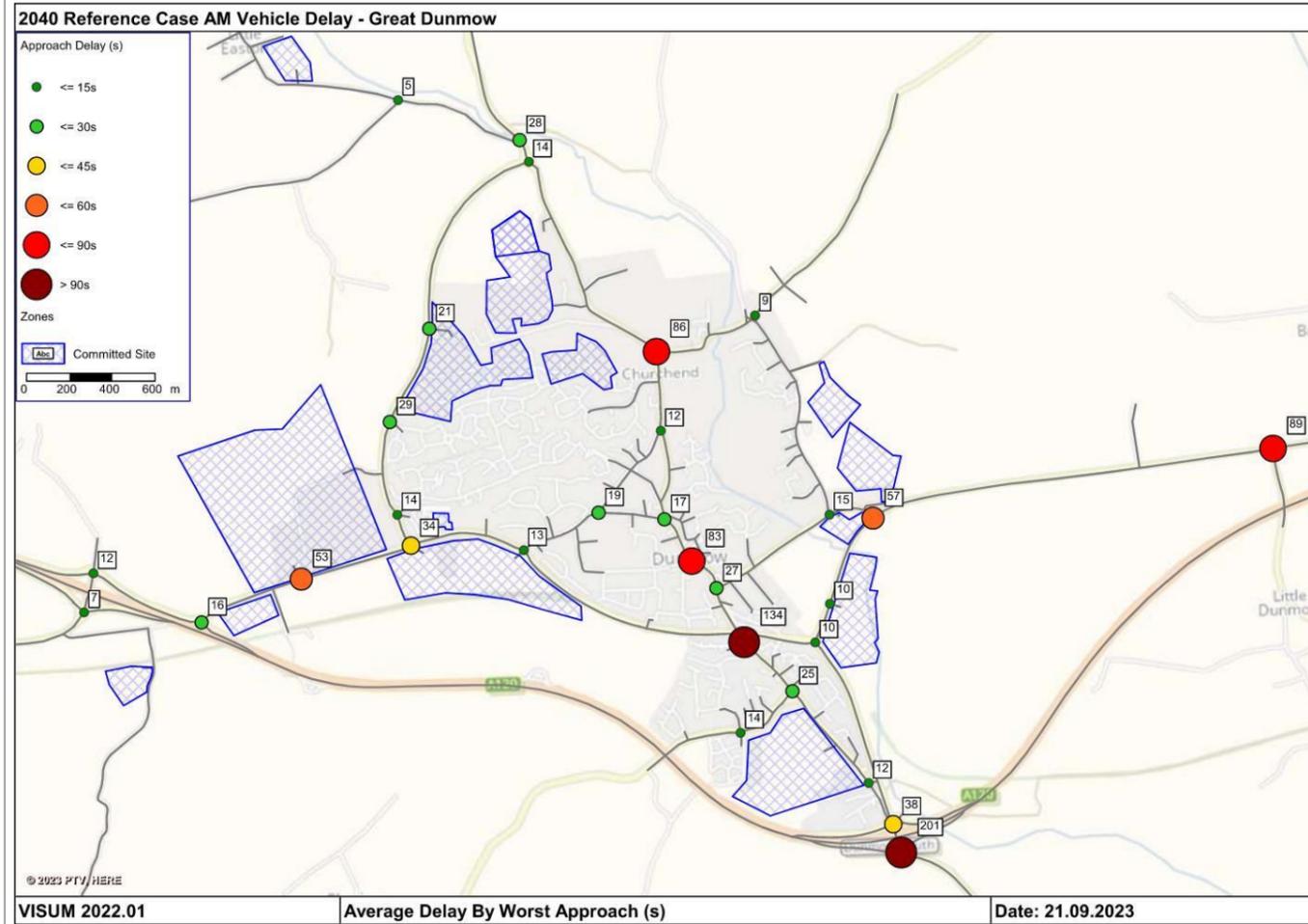
3.4 SUMMARY

- 3.4.1 The Reference Case identifies how the highway network in Great Dunmow will perform in 2040 before Local Plan related growth 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 This will be particularly apparent on the B1256 where journey times for northbound traffic travelling from the South Dunmow Interchange on the A120 will increase by 40-50%, reflecting a reduction in average speed of over 16mph.
- 3.4.3 As a whole, the impacts on the individual junction will be relatively moderate, but the cumulative impact will make the movement of general traffic around the town less efficient.

Figure 3-3: AM Peak Junction Delays 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 for selected junctions in the inserts.
- Blue hatching represents committed sites.



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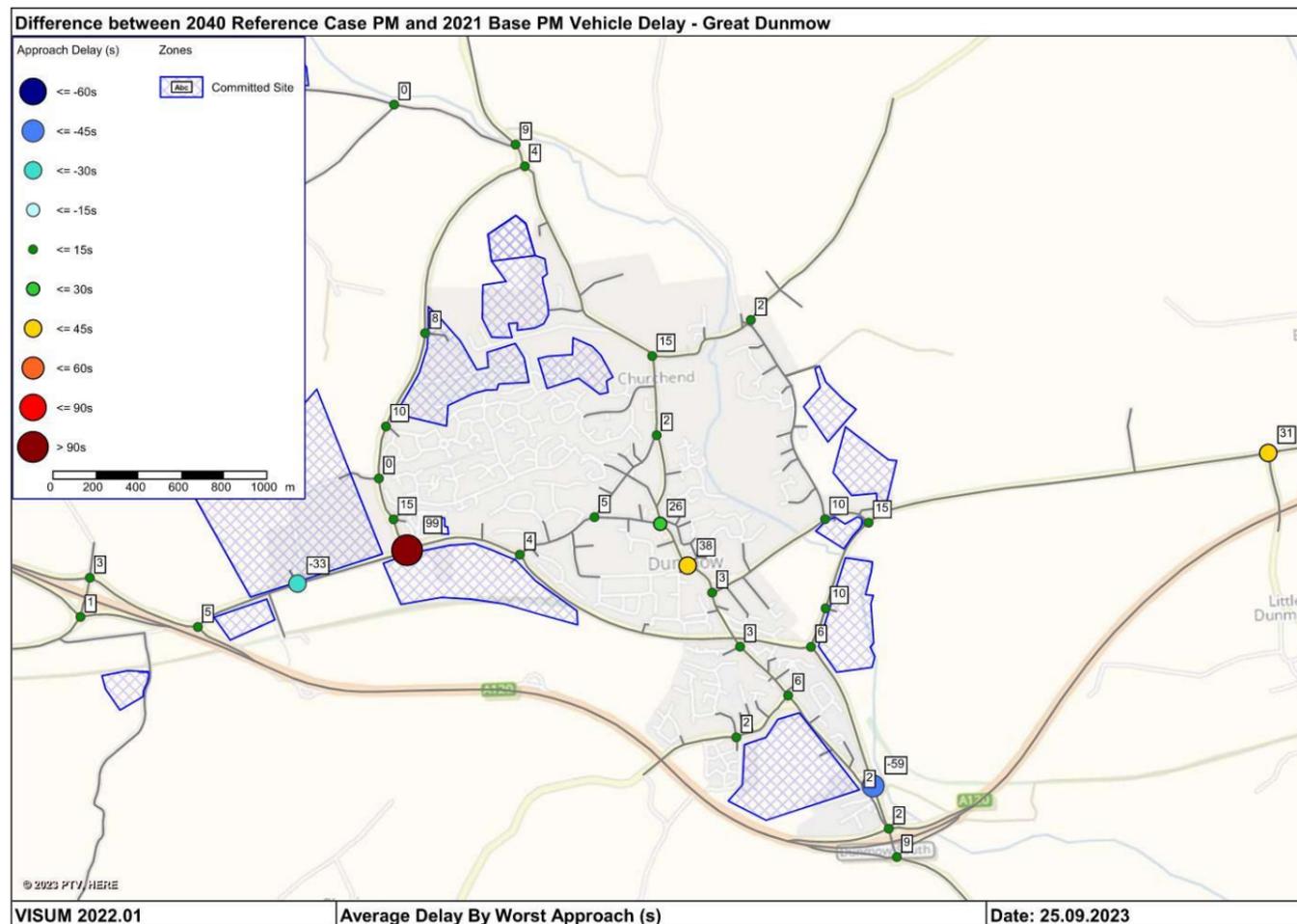
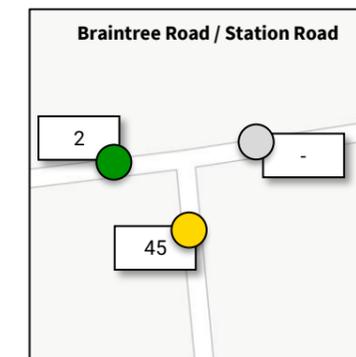
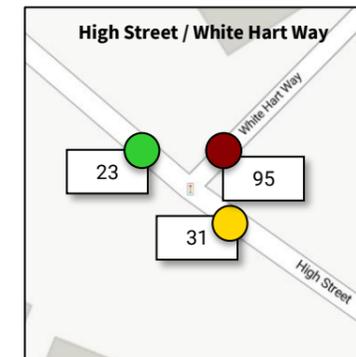
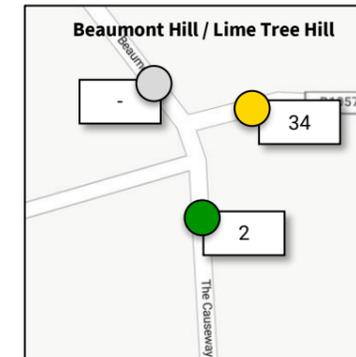
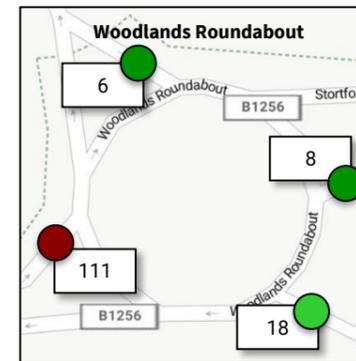
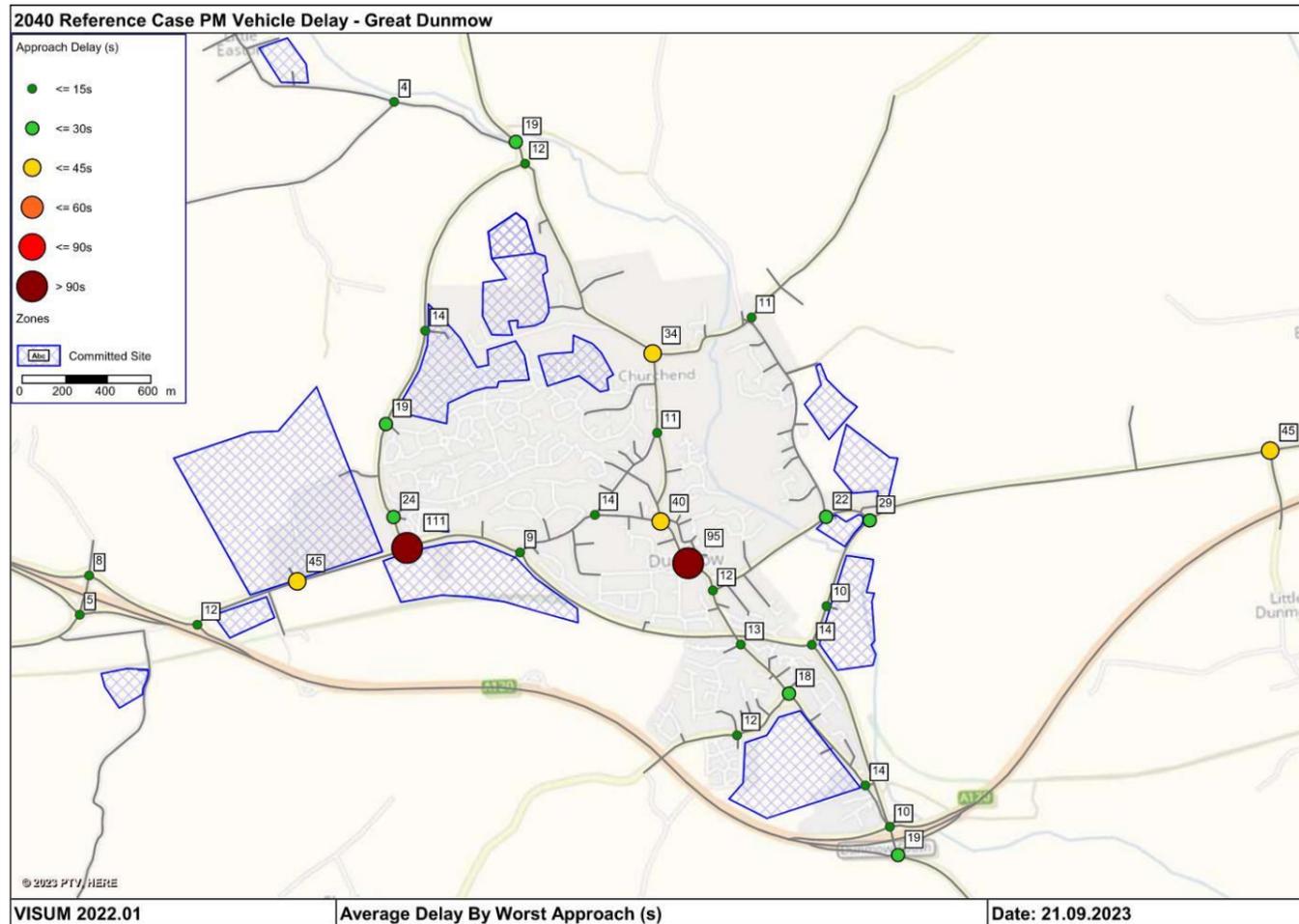
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Figure 3-4: PM Peak Junction Delays in the Reference Case (2040)

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 for selected junctions in the inserts.
- Blue hatching represents committed sites.



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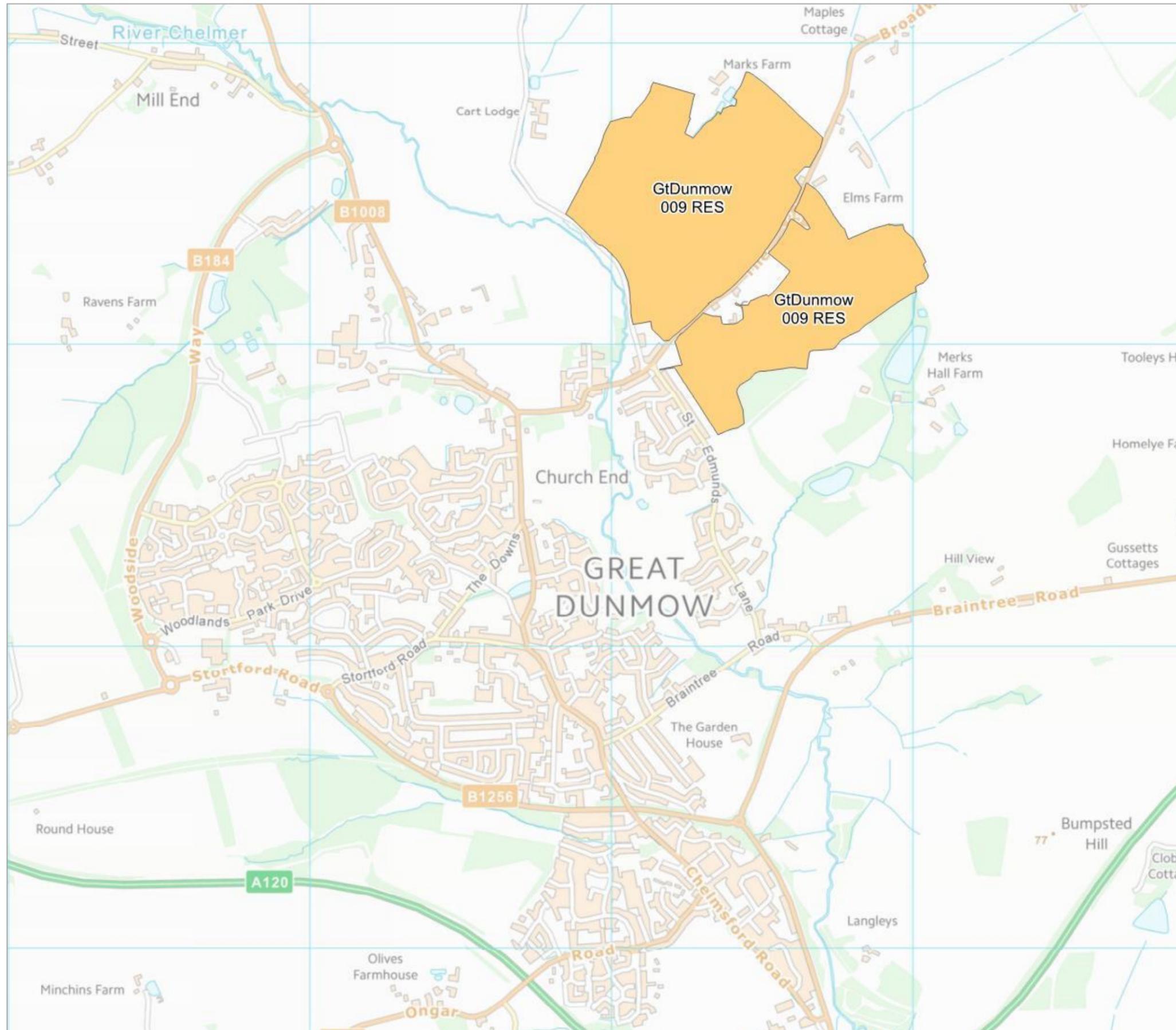


4 | PERFORMANCE IN THE LOCAL PLAN GROWTH SCENARIO (2040)

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 all Local Plan site allocations within the district in place (see **Figure 4-1**). To understand the impacts of the Local Plan sites, 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 peak and the 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, the largest increases in traffic will be on St Edmunds Lane with around 400 additional vehicles in the AM peak. This translates to around 6 to 7 vehicles per minute on average within the peak hour.
 - Further south, there will be an increase of 250 vehicles travelling southbound on the Dunmow Bypass (B1256), with a further 186 vehicles travelling northbound.
 - Stortford Road and High Street, linking the B1256 to the town centre will also see noticeable increases in traffic with almost 250 additional vehicles travelling westbound.
 - The PM peak period will broadly reflect the AM peak, although three links are anticipated to see a slight reduction in trips relating to westbound traffic on Church Street, southbound traffic on North Street, together with a short section of Braintree Road.
 - The Dunmow Bypass (B1256) will be busier in both directions in the PM peak, as will Stortford Road and the High Street.
 - In terms of the distribution of trips from the site allocations in the AM peak period, the majority appear to have a destination within Great Dunmow itself. Around two thirds of vehicles originating from the site allocations utilise St Edmunds Lane.
 - A small proportion of these turn eastwards towards Braintree (80 vehicles), around 130 head further south to either join the A120 or continue on towards Chelmsford, whilst the largest proportion (almost 190 vehicles) turn westbound onto Braintree Road and then the High Street into the town centre.
 - The relatively high number of trips which have a destination within the town itself suggest that there is high potential to provide realistic alternatives to the car.

Figure 4-1: Great Dunmow Local Plan Site Allocations


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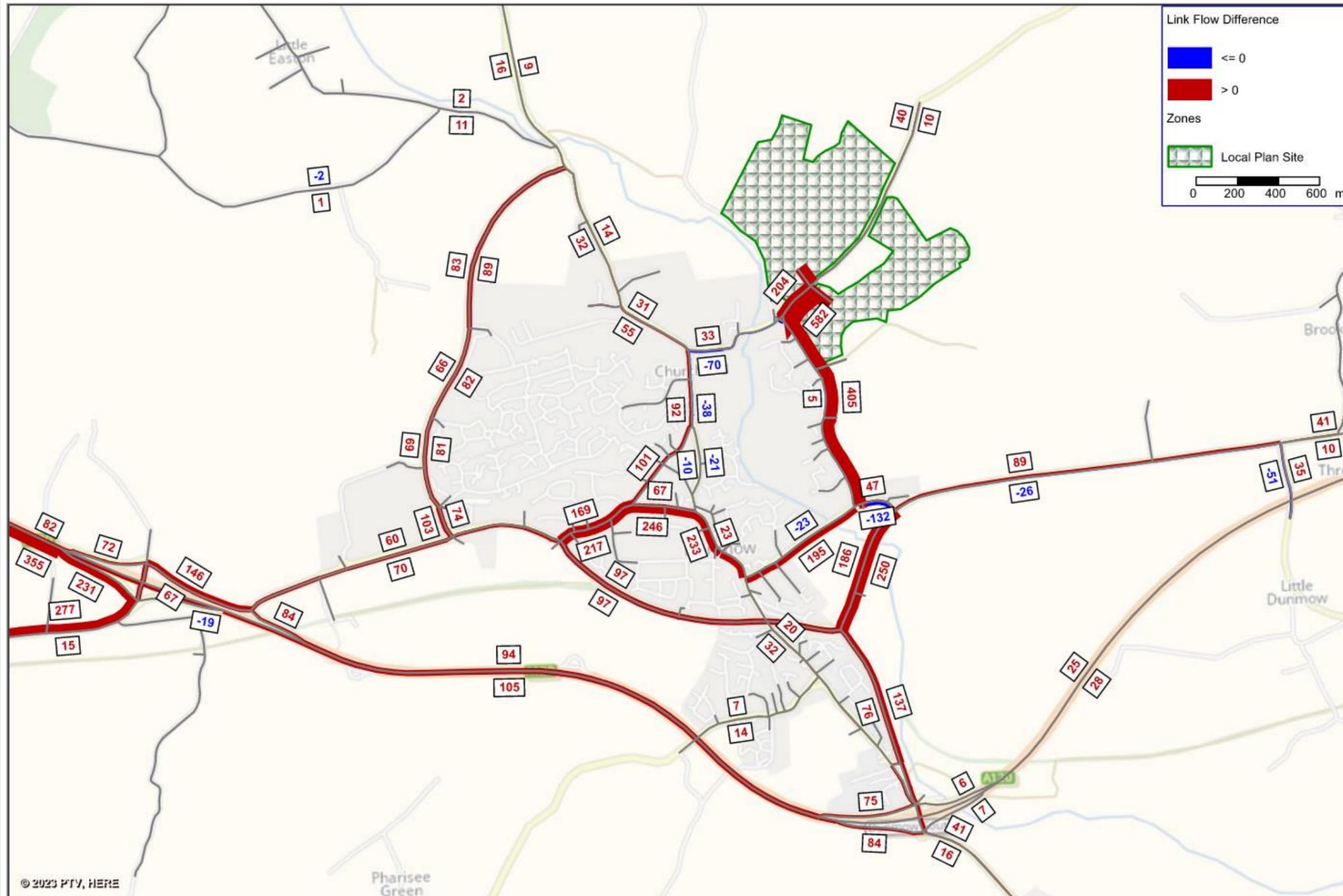
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North

Figure 4-2: Change in Volume of Traffic (Link Flow) 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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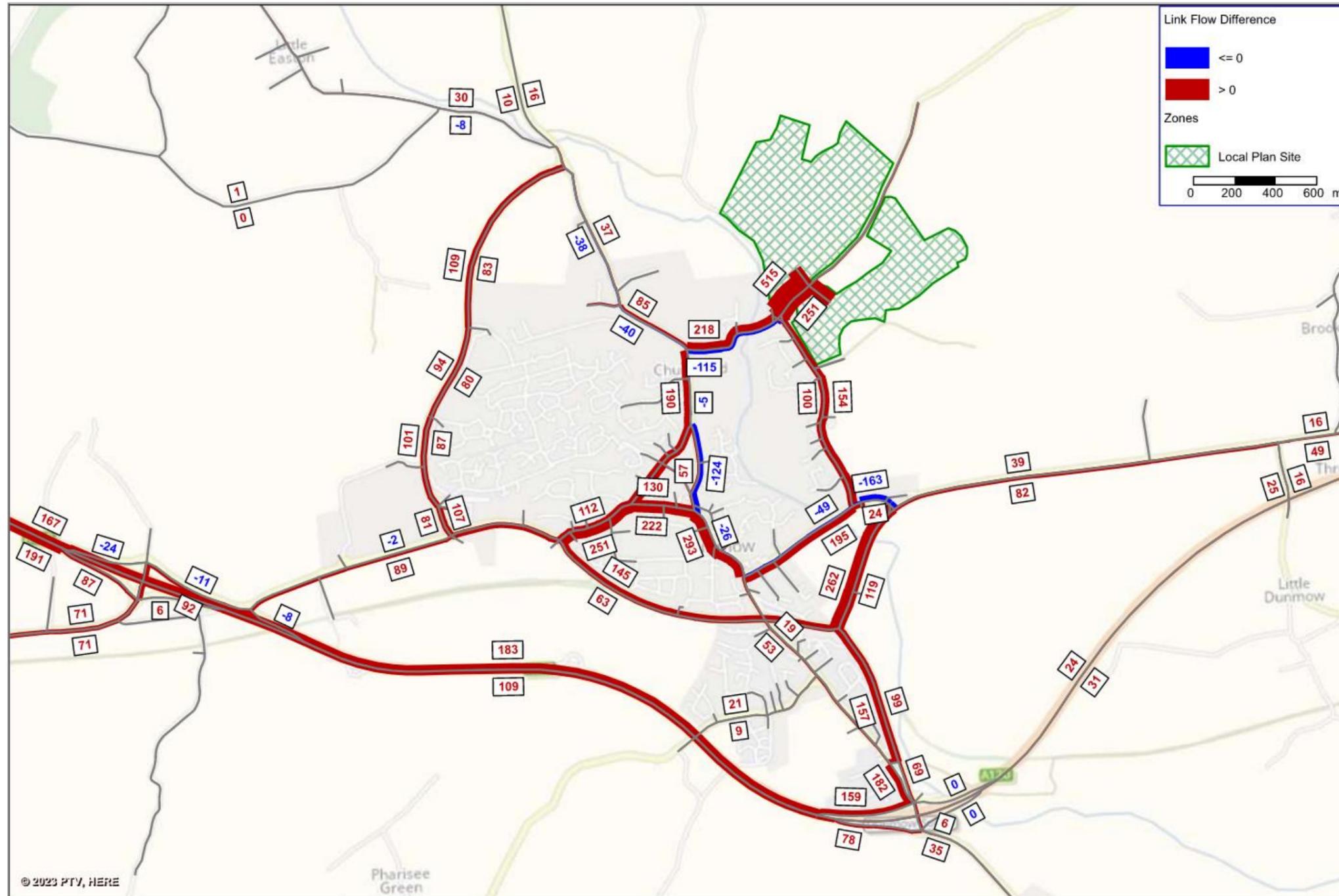


Figure 4-3: Change in Volume of Traffic (Link Flow) between the Reference Case and Local Plan Growth Scenario - PM

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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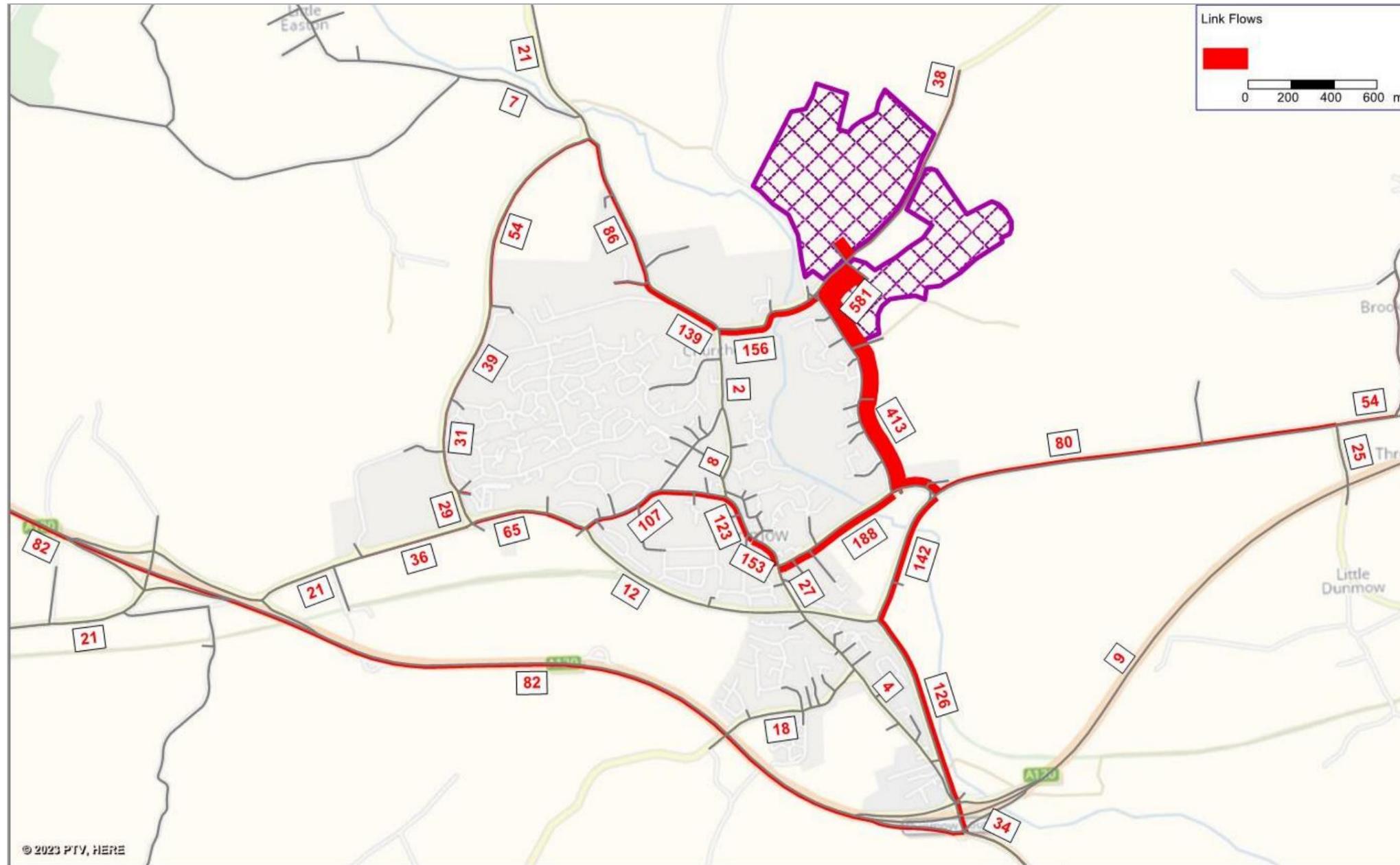
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Figure 4-4: Distribution of Demand from Site Allocations in Great Dunmow (AM Peak)



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4.2 JOURNEY TIMES

4.2.1 The comparative journey times and average speed of traffic in the 2040 Local Plan Growth Scenario are shown alongside those in the Reference Case in **Table 4-1** and **Error! Not a valid bookmark self-reference.** respectively.

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

Route	Direction	Journey Times (in seconds)					
		AM Peak			PM Peak		
		Ref. Case	Local Plan	Change	Ref. Case	Local Plan	Change
(3) A120 Western Section - Dunmow West to B1417/B1256	Eastbound	458	459	+1	484	486	+2
	Westbound	472	473	+1	454	454	-
(10) B1008/B1256 - High Easter Road to Woodside Way	Northbound	447	575	+128	265	300	+35
	Southbound	268	355	+87	235	245	+10
(11) Woodside Way/B184 - B1256 to The Endway	Northbound	238	245	+7	246	258	+12
	Southbound	244	254	+10	233	239	+6
(12) B184/B1057 - Clapton Hall Lane to B1057 The Broadway	Northbound	324	359	+23	336	453	+103
	Southbound	366	1064	+689	346	960	+606
(13) B1256 - Eastern Section - Unnamed Road to B1417	Eastbound	359	363	+4	383	414	+31
	Westbound	389	396	+7	366	371	+5

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

Route	Direction	Average Speed (in MPH)					
		AM Peak			PM Peak		
		Ref. Case	Local Plan	Change	Ref. Case	Local Plan	Change
(3) A120 Western Section - Dunmow West to B1417/B1256	Eastbound	66.9	66.8	-0.1	63.3	63.0	-0.3
	Westbound	64.9	64.8	-0.1	67.5	67.5	0.0
(10) B1008/B1256 - High Easter Road to Woodside Way	Northbound	19.0	14.8	-4.2	32.1	28.3	-3.8
	Southbound	31.7	23.9	-7.8	36.2	34.7	-1.5
(11) Woodside Way/B184 - B1256 to The Endway	Northbound	39.5	38.3	-1.2	38.2	36.5	-1.7
	Southbound	39.4	37.9	-1.5	41.3	40.3	-1.0
(12) B184/B1057 - Clapton Hall Lane to B1057 The Broadway	Northbound	29.7	26.8	-1.8	28.6	21.2	-6.3
	Southbound	26.3	9.0	-16.6	27.8	10.0	-17.2
(13) B1256 - Eastern Section - Unnamed Road to B1417	Eastbound	47.4	46.9	-0.5	44.4	41.1	-3.3
	Westbound	43.7	42.9	-0.8	46.5	45.8	-0.7

4.2.8 The tables highlight that:

- The impacts of Local Plan related growth on the network within Great Dunmow differs greatly. The biggest impact in the AM peak period is on the B184/B1057 (Route 12) which will see average journey speeds reduce by around 17mph.
- Elsewhere the speed of south-eastbound traffic on the B1008/B1256 will see a reduction of almost 8mph, although the forecast speed is still 24mph which is not unreasonable for route of this nature in the peak period.
- The remaining routes assessed within Great Dunmow will all see negligible change in the AM peak period.
- In the PM peak, the only tangible impact is on southbound traffic on the B184/B1057 (Route 12) where average speeds reduce to 10mph, from 28mph in the Reference Case.

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 Local Plan allocation of 1,500 dwellings to the north-east of Great Dunmow will have significant impacts on multiple junctions across the town in both peak periods.
- Junctions on the main north-south axis through the town formed by North Stret / High Street will see increases in delays, as will those on the east-west axis formed by the B1256 and Stortford Road.
- Of particular note is the B1008 Beaumont Hill / Lime Tree Hill junction, where the increases in delay will amount to around 13 minutes.
- The junctions at either end of St Edmunds Lane would also suffer from considerable queues, with almost a 10 minute delay at its junction to the south with Braintree road in the PM peak period.

4.4 SUMMARY

4.4.1 The Local Plan Growth Scenario will result in more traffic, slower traffic and increases in journey times, as a result of considerable delays across Great Dunmow. The extent of the impacts in the town suggest it will require a sizeable and integrated package of highway and sustainable transport based measures to meet future demand.

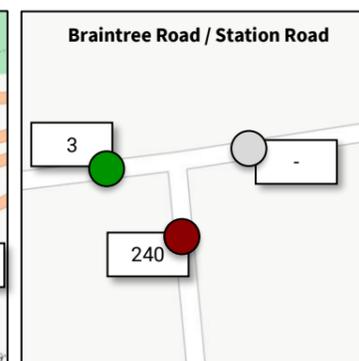
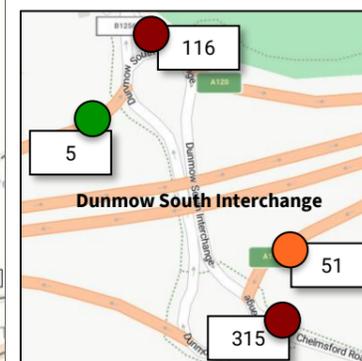
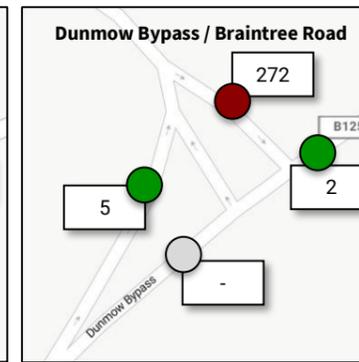
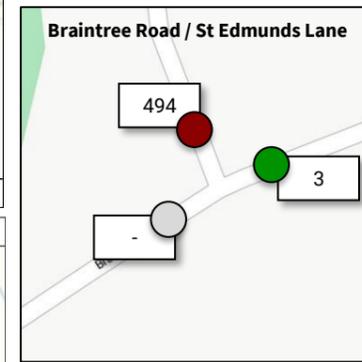
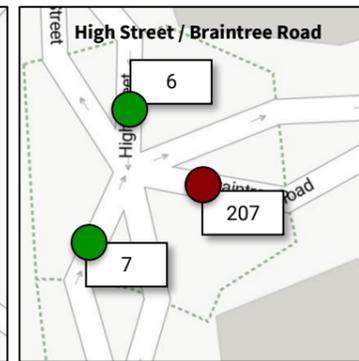
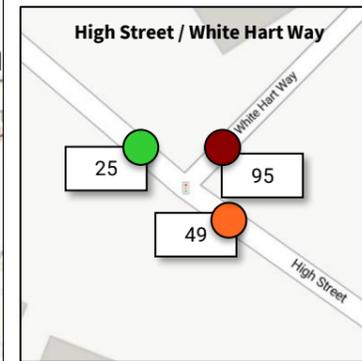
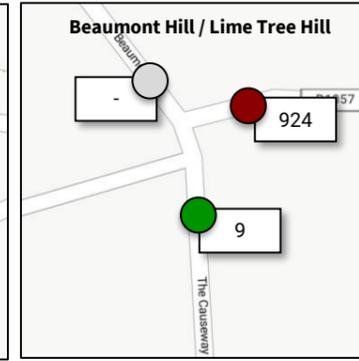
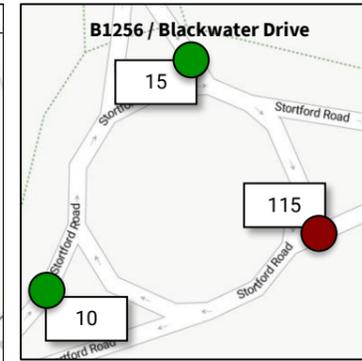
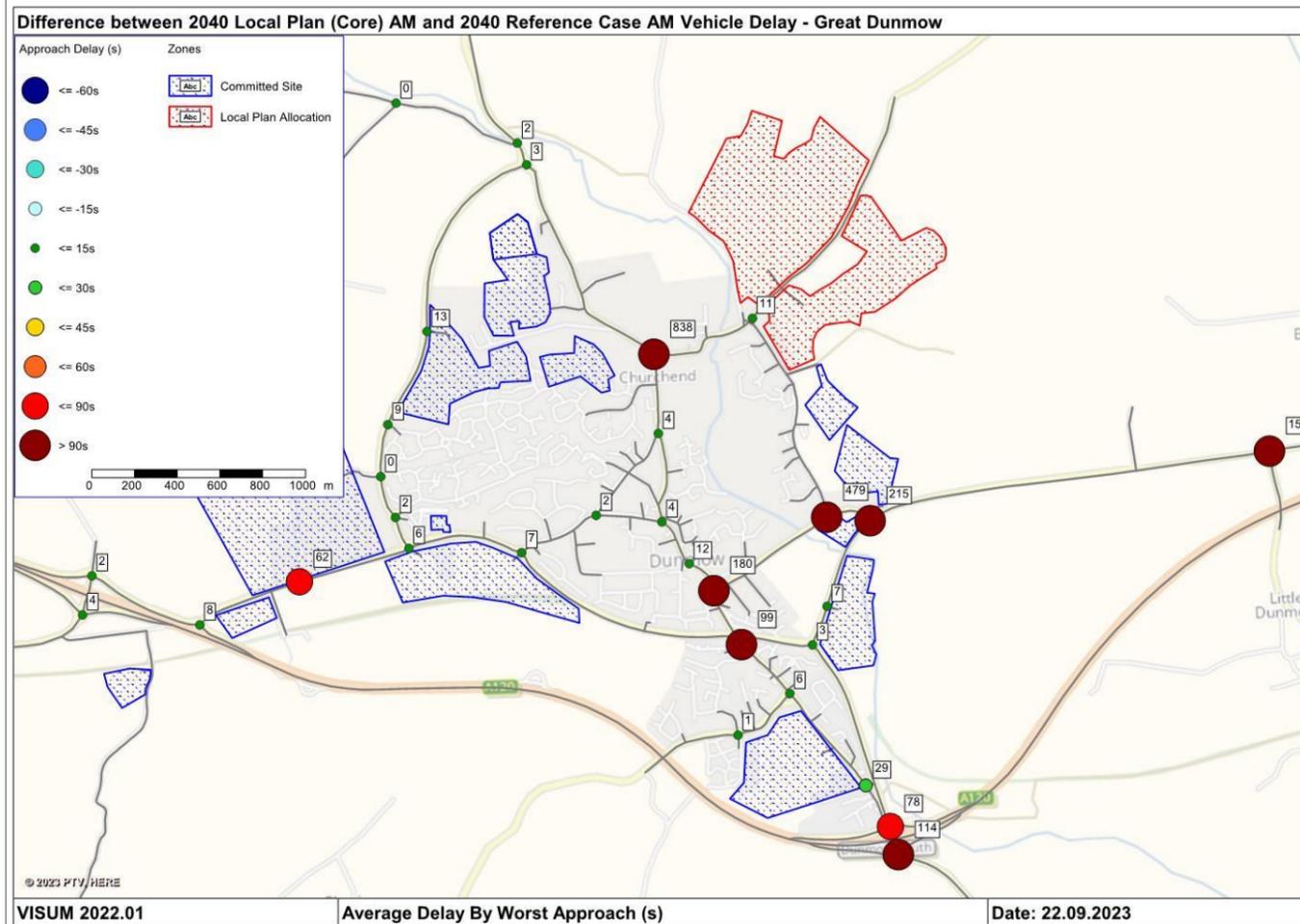
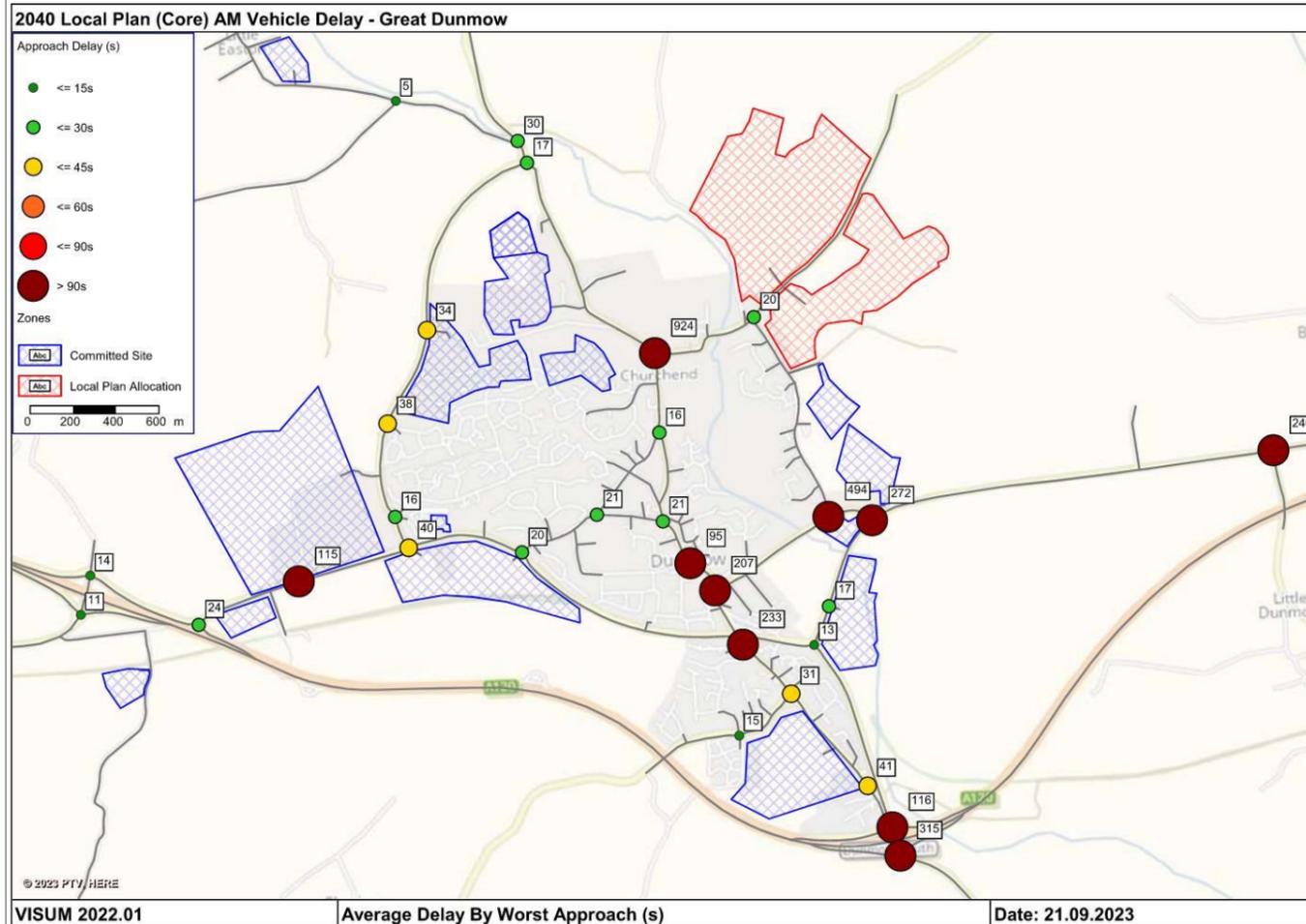
4.4.2 In other settlements many of the delays on the highway network will be as a result of committed development coming forward in the Reference Case. However, in Great Dunmow, the impacts more directly relate to the Local Plan and provision of an additional 1,500 dwellings in the town (although it should be noted that the actual number set to come forward is much lower).

4.4.3 This is thought to be due to a combination of the location of the site allocations to the north-east of Great Dunmow, and demand to access the M11 and Stansted Airport to the west, that appears to draw development traffic through the centre of the town resulting in the queuing traffic than then looks to reassign on the network generating issues beyond this immediate desire line.

Figure 4-5: AM Peak Junction Delays 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 for selected junctions in the inserts.
- Blue hatching represents committed sites.
- Red hatching represents Local Plan site allocations.



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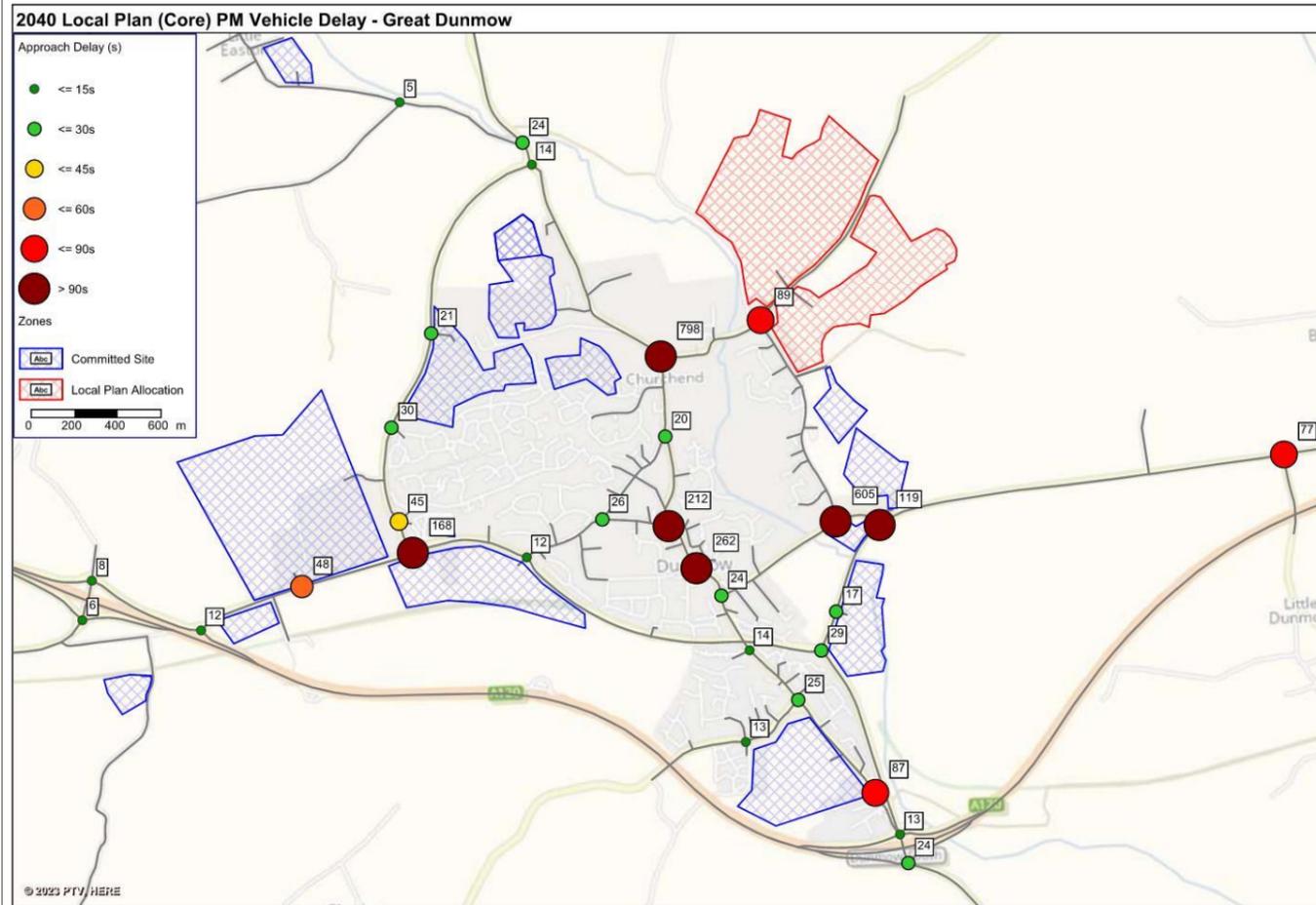
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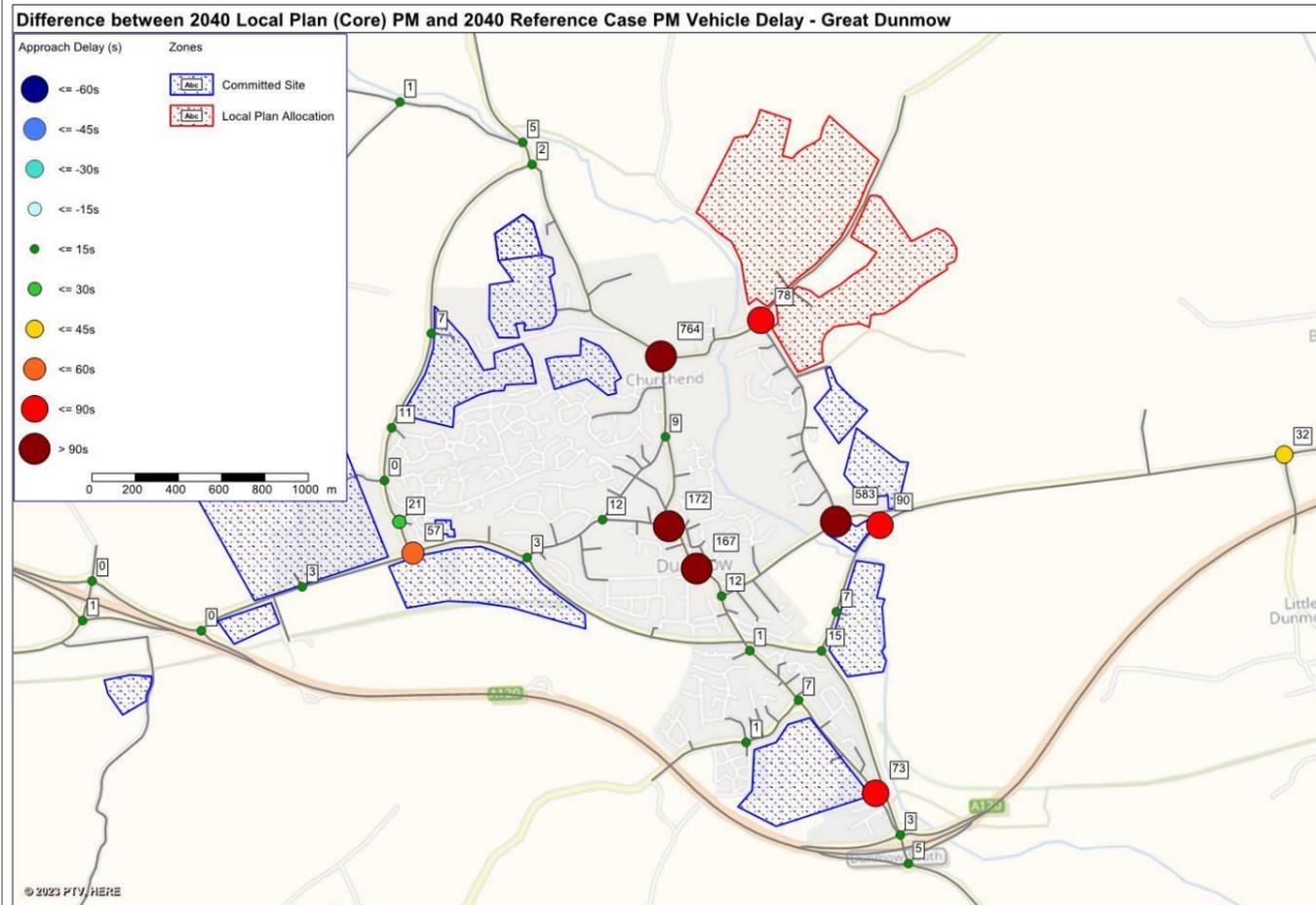
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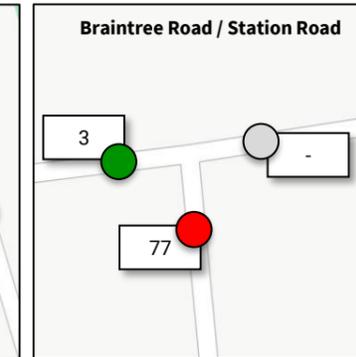
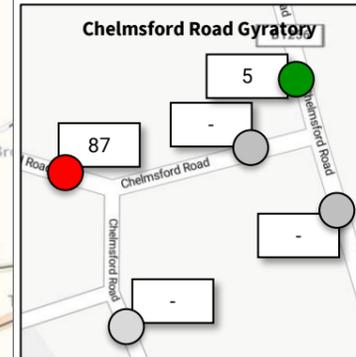
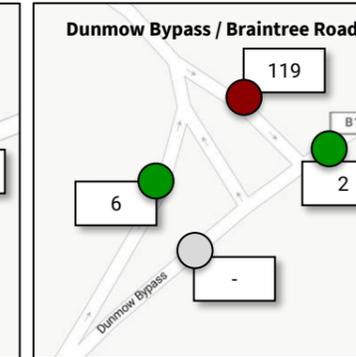
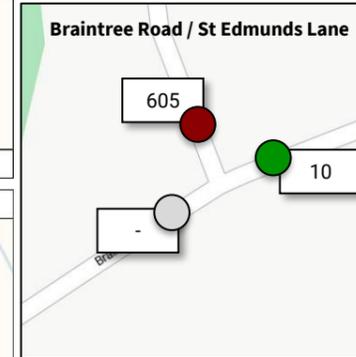
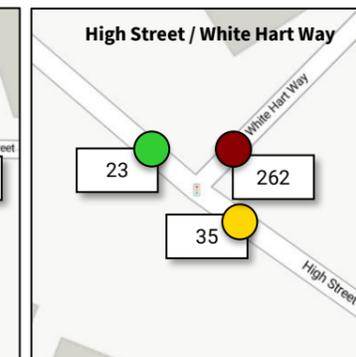
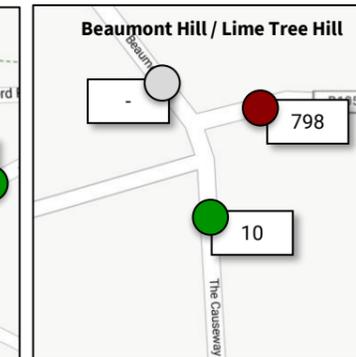
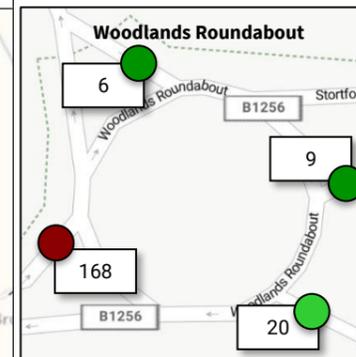


Figure 4-6: PM Peak Junction Delays in the Local Plan Growth Scenario

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 for selected junctions in the inserts.
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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 and quality 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 would fail to address many of the wider implications of increases in travel demand in the town. Furthermore, the existing quality of the sustainable transport offer is limited – with infrequent bus services and a lack of dedicated cycle provision (see TN110 – Uttlesford Transport Study Baseline Report for more details).
- 5.1.4 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 Great Dunmow

Ref	Scheme
Public Transport	
PT.01	Provide a new bus stop (including shelter, seating and Real Time Information) on the B1057 adjacent to the new development.
PT.02	Increase the frequency of the no. 324 Stebbing to Bishops Stortford service from 1 bus every two hours to 1 bus every 30 minutes (a service every hour would not be sufficiently attractive or provide a realistic alternative to the car).
PT.03	Extend route of the no. 323 service to serve the development and help achieve the increase in service frequency.
PT.04	Introduce modal filters on the route to provide greater priority for buses and reduce journey times.
PT.05	Offer discounted (or free) bus travel to all new residents for 12 months.
Walking & Cycling	
WC.01	Develop continuous traffic free cycle route between the development and the town centre via the River Chemer.

Ref	Scheme
WC.02	Develop shared use path via Church Street in Church End, then south-west along Church Street to the bottom of Lime Tree Hill before heading south over the playing fields to the Great Dunmow Recreation Ground and The Causeway.
WC.03	Provide signalised crossing of Church End and narrow the carriageway to one lane to enable a segregated shared-use path connection to an off-road route parallel to the river.
WC.04	Reduce the speed limit on Broadway from 60mph to 30mph and introduce street lighting and speed reduction features.
WC.05	Provision of a new e-bike for every new household.

- 5.1.5 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 town, as a result of indirect benefits beyond the sites themselves (such as through the provision of a more frequent bus service for example).
- 5.1.6 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.
- 5.1.7 However, following a desktop review of the available evidence, the reductions applied to the number of trips undertaken by vehicles within Great Dunmow 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 Great Dunmow	25% to 50% reduction (up to 80% to neighbouring zones)
Site Allocations to Takeley	15% reduction
Site Allocations to Stansted Airport	10% reduction

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

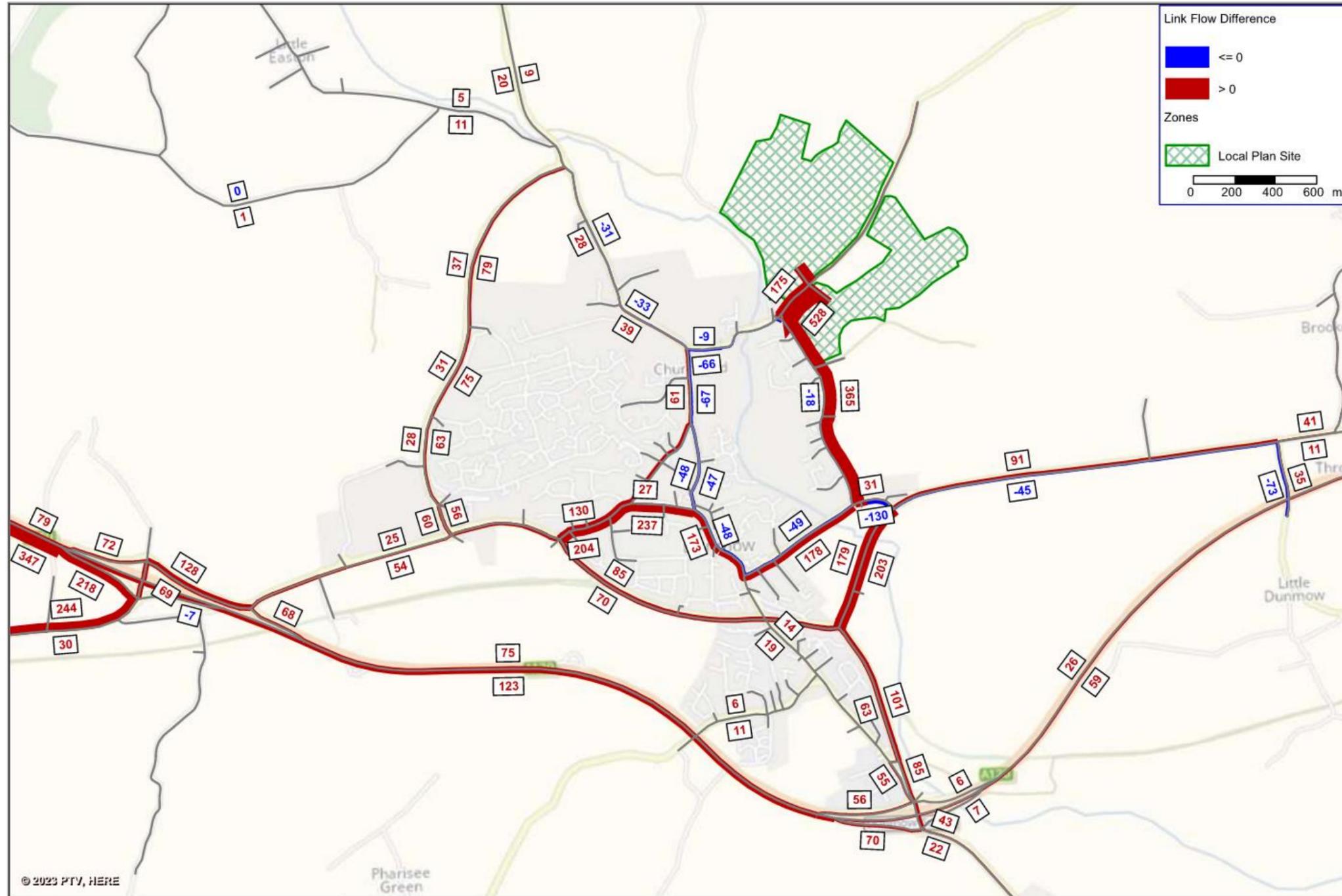
5.2 VOLUME OF TRAFFIC

- 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 will reduce the volume of traffic on the network, and on several links marginally reduce flows to lower than they would otherwise have been in the Reference Case.
- A number of links within the town will continue to accommodate more traffic than the Reference Case, but the increases are much lower with sustainable transport measures in place.
- The increases will continue to be greater on the B1256 Dunmow Bypass (around 200 vehicles in the AM peak period), but this forms only three additional vehicles every minute.

Figure 5-1: Change in Volume of Traffic (Link Flow) 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.
- Green hatching represents Local Plan site allocations.

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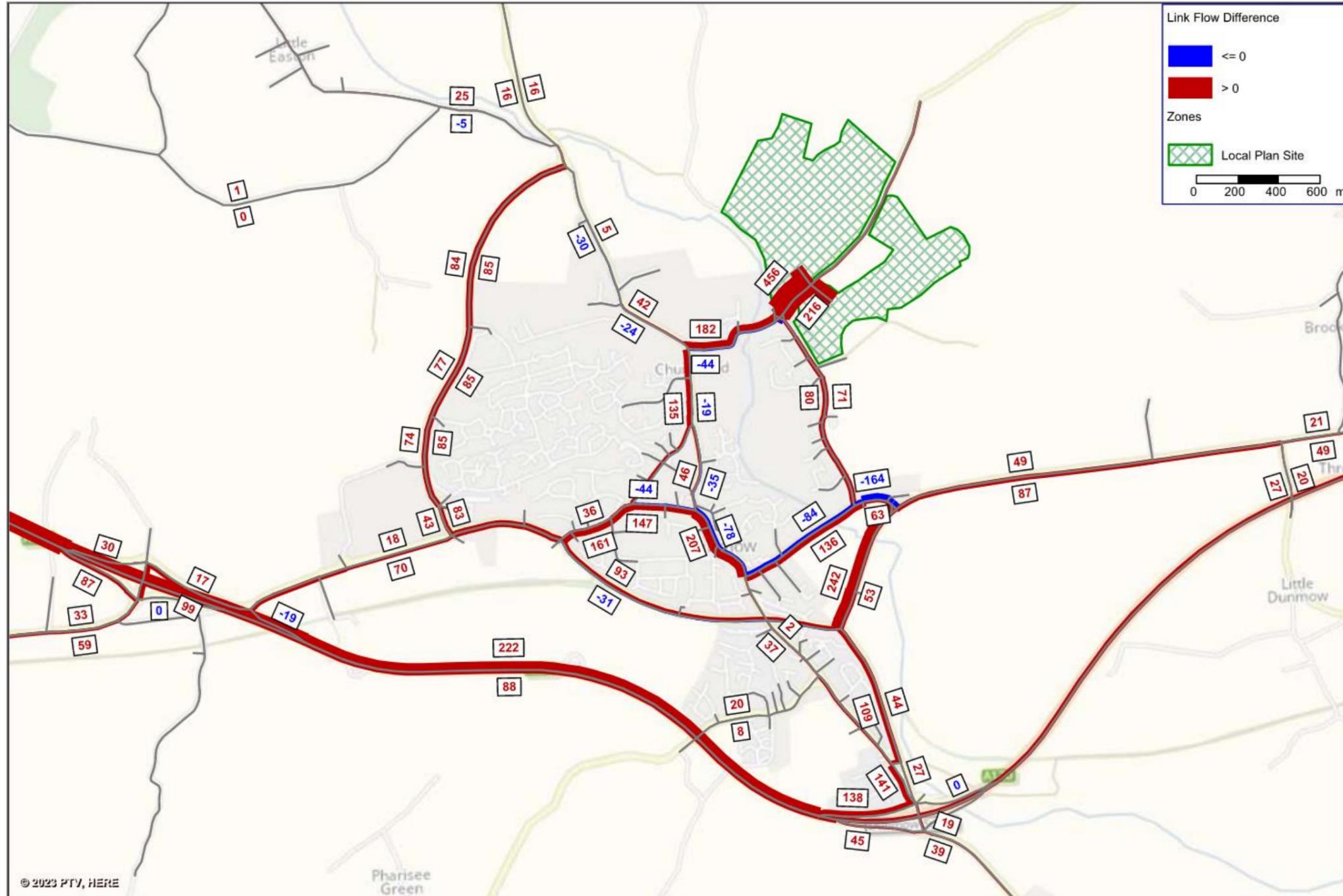


Figure 5-2: Change in Volume of Traffic (Link Flow) between the Reference Case and Mitigation Package 1 - PM

Notes:

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

Table 5-3: Changes in Journey Times between the Reference Case and Mitigation Package 1 (MP1)

Route	Direction	Journey Time (in seconds)					
		AM Peak			PM Peak		
		Ref. Case	MP 1	Change	Ref. Case	MP 1	Change
(3) A120 Western Section - Dunmow West to B1417/B1256	Eastbound	458	459	+1	484	487	+3
	Westbound	472	474	+2	454	454	-
(10) B1008/B1256 - High Easter Road to Woodside Way	Northbound	447	275	+122	265	300	+27
	Southbound	268	454	+60	235	341	+8
(11) Woodside Way/B184 - B1256 to The Endway	Northbound	238	569	+3	246	292	+7
	Southbound	244	328	+7	233	243	+5
(12) B184/B1057 - Clapton Hall Lane to B1057 The Broadway	Northbound	324	241	+19	336	253	+78
	Southbound	366	251	+360	346	238	+45
(13) B1256 - Eastern Section - Unnamed Road to B1417	Eastbound	359	355	+4	383	428	+30
	Westbound	389	735	+2	366	399	+8

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

Route	Direction	Average Speed (in MPH)					
		AM Peak			PM Peak		
		Ref. Case	MP 1	Change	Ref. Case	MP 1	Change
(3) A120 Western Section - Dunmow West to B1417/B1256	Eastbound	66.9	66.8	-0.1	63.3	63.0	-0.4
	Westbound	64.9	64.7	-0.2	67.5	67.5	-0.1
(10) B1008/B1256 - High Easter Road to Woodside Way	Northbound	19.0	31.7	-4.1	32.1	29.1	-2.9
	Southbound	31.7	19.2	-5.8	36.2	25.6	-1.2
(11) Woodside Way/B184 - B1256 to The Endway	Northbound	39.5	14.9	-0.5	38.2	29.1	-1.1
	Southbound	39.4	25.9	-1.1	41.3	34.9	-0.9
(12) B184/B1057 - Clapton Hall Lane to B1057 The Broadway	Northbound	29.7	39.0	-1.5	28.6	37.1	-5.0
	Southbound	26.3	38.3	-12.6	27.8	40.4	-3.0
(13) B1256 - Eastern Section - Unnamed Road to B1417	Eastbound	47.4	27.1	-0.5	44.4	22.5	-3.2
	Westbound	43.7	13.1	-0.2	46.5	24.1	-1.1

5.3.8 The tables highlight that:

- The introduction of sustainable transport measures will only partly address the increases in journey times and slower vehicles speeds which are a consequence of the Local Plan related growth.
- Whilst many routes will see journey times comparable with the Reference Case, the exception will be the B184/B1057 corridor (Route 12) where trips will take twice as long in the AM peak period.

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** illustrates the level of delay associated with the worse performing arm/approach to each junction in the AM peak period in the Sustainable Transport Mitigation Package, alongside the changes in delay when compared to the 2040 Reference Case. The comparative illustrations for the PM peak period are provided in **Figure 5-4**.

5.4.2 The key findings are that:

- There will continue to be significant differences in the very of delay experienced at key junctions, despite the reduced demand to travel by car.
- In the AM peak period, the junction of the B1008 Beaumont Hill and the B1057 Lime Tree Hill will be subject to delays of almost nine minutes and will remain the worst performing junction on the network.
- Delays approaching five minutes will be experienced elsewhere in the AM peak period, whilst in the PM peak, he impacts will be more modest although sufficient to undermine the efficiency of the network.

5.5 SUMMARY

5.5.1 Providing a package of interventions to mitigate the impacts of the Local Plan site allocations through attractive sustainable travel options that provide realistic alternatives to the car, will provide many benefits to the travel offering in the town, beyond the performance of the highway network.

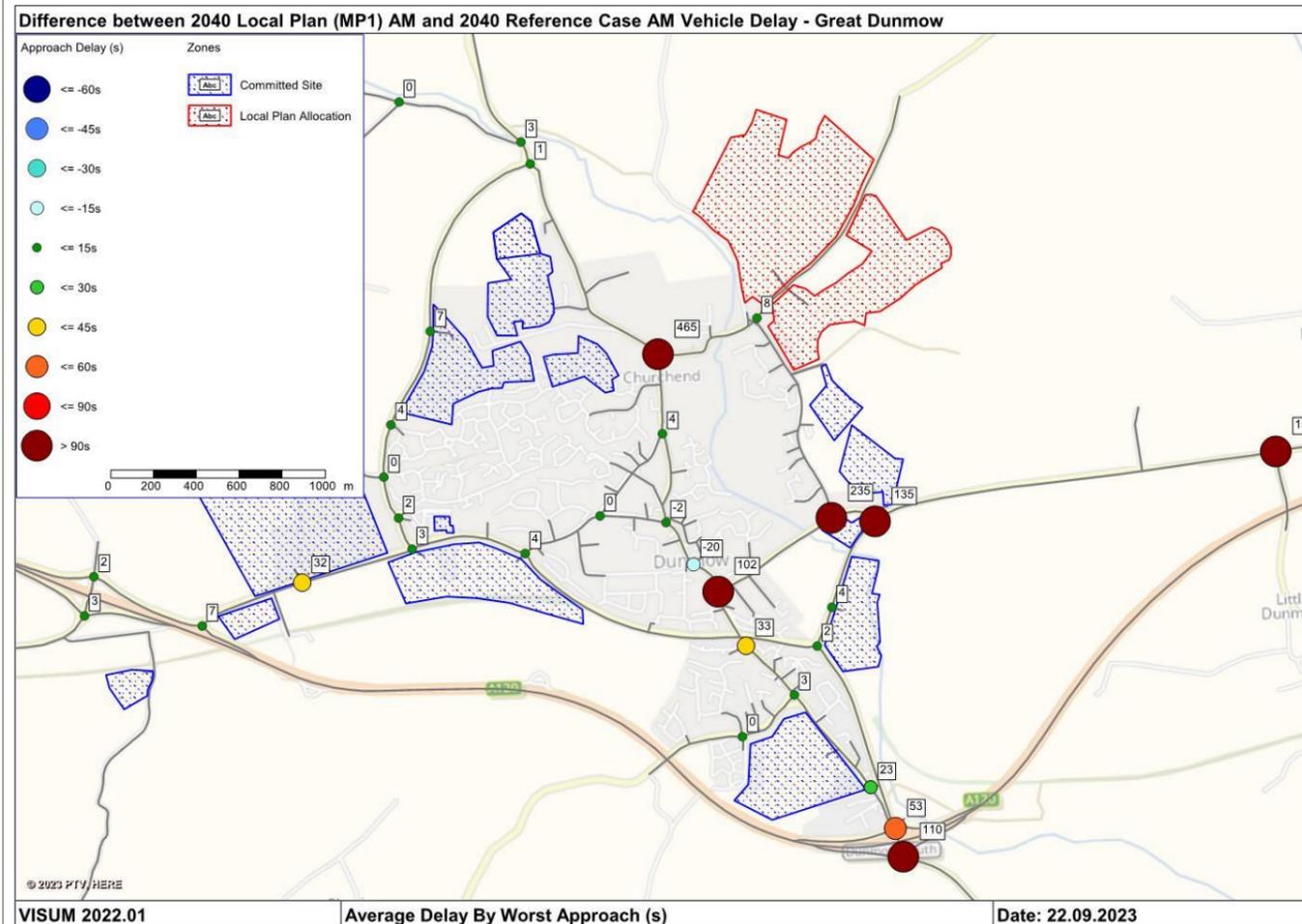
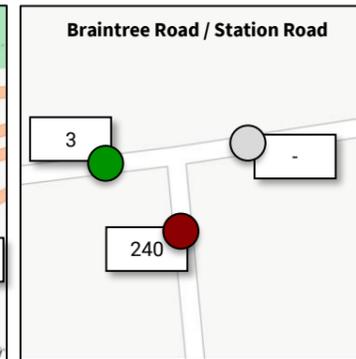
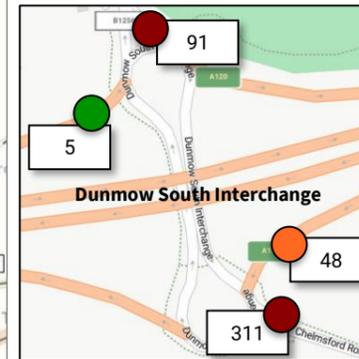
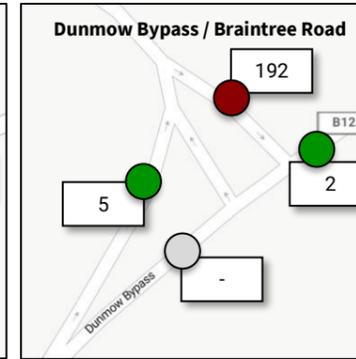
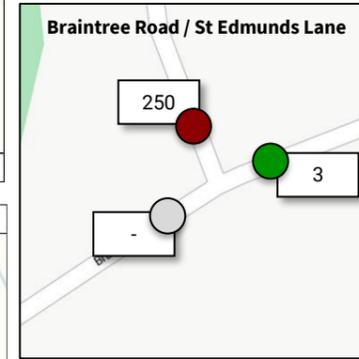
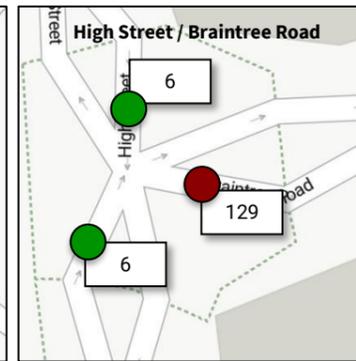
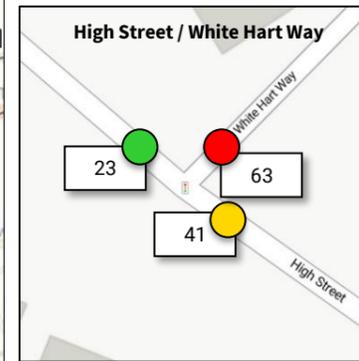
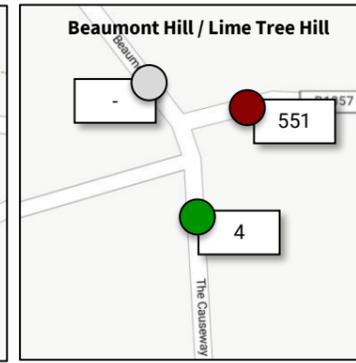
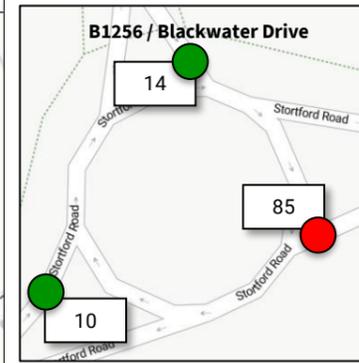
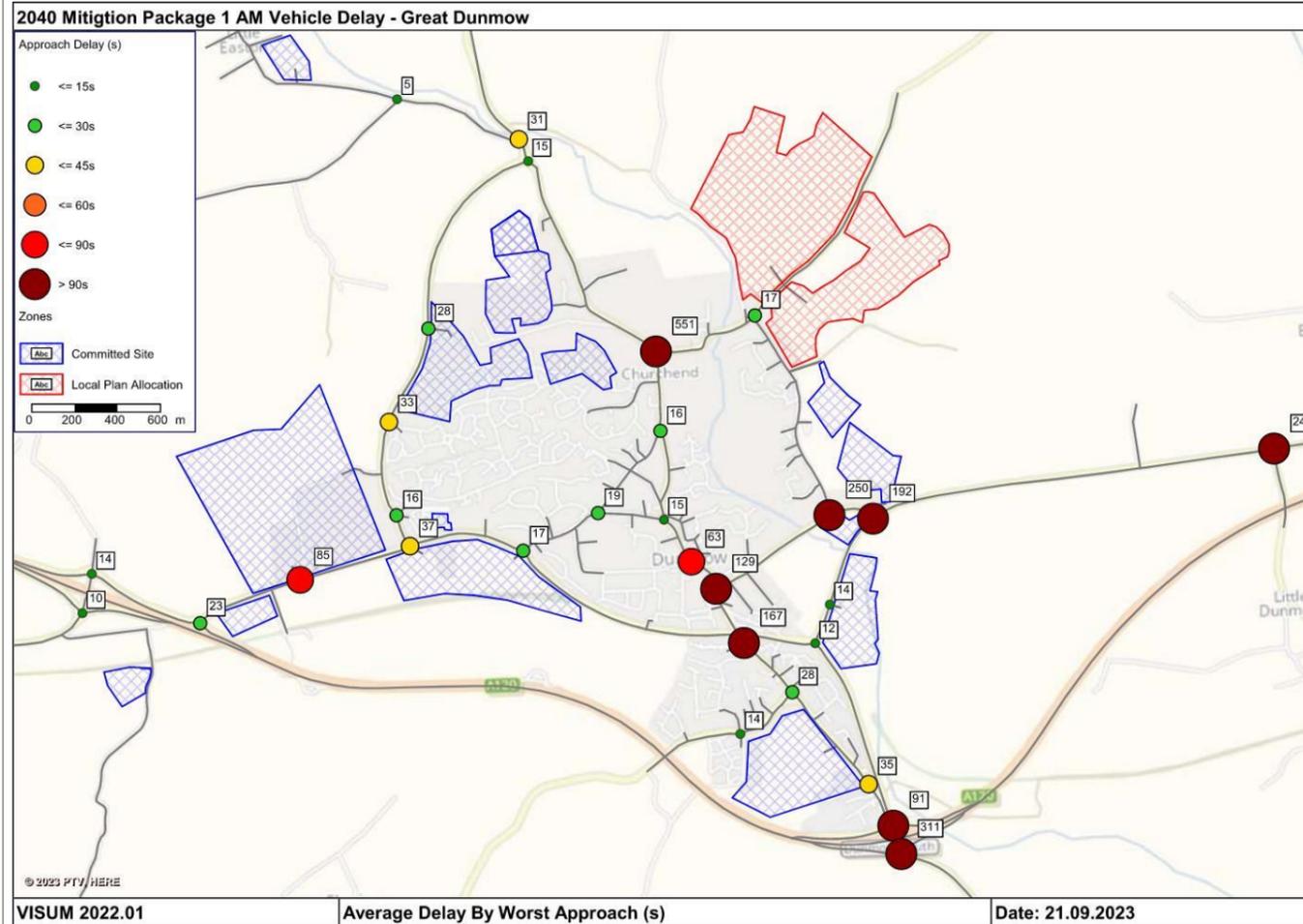
5.5.2 Making walking and cycling safer and more convenient, and public transport more frequent and accessible will support wider ambitions to improve the health and well-being of residents, support moves to address the climate emergency, and cater for all sections of society, particularly those without access to a car.

5.5.3 However, in Great Dunmow such interventions don't go far enough. Whilst a degree of additional delay on the network may be palatable, the residual delays are such that consideration needs to be given to making better use of the existing highway capacity to supplement improvements to the walking, cycling and public transport offer.

Figure 5-3: AM Peak Junction Delays in 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 for selected junctions in the inserts. Blue hatching represents committed sites.
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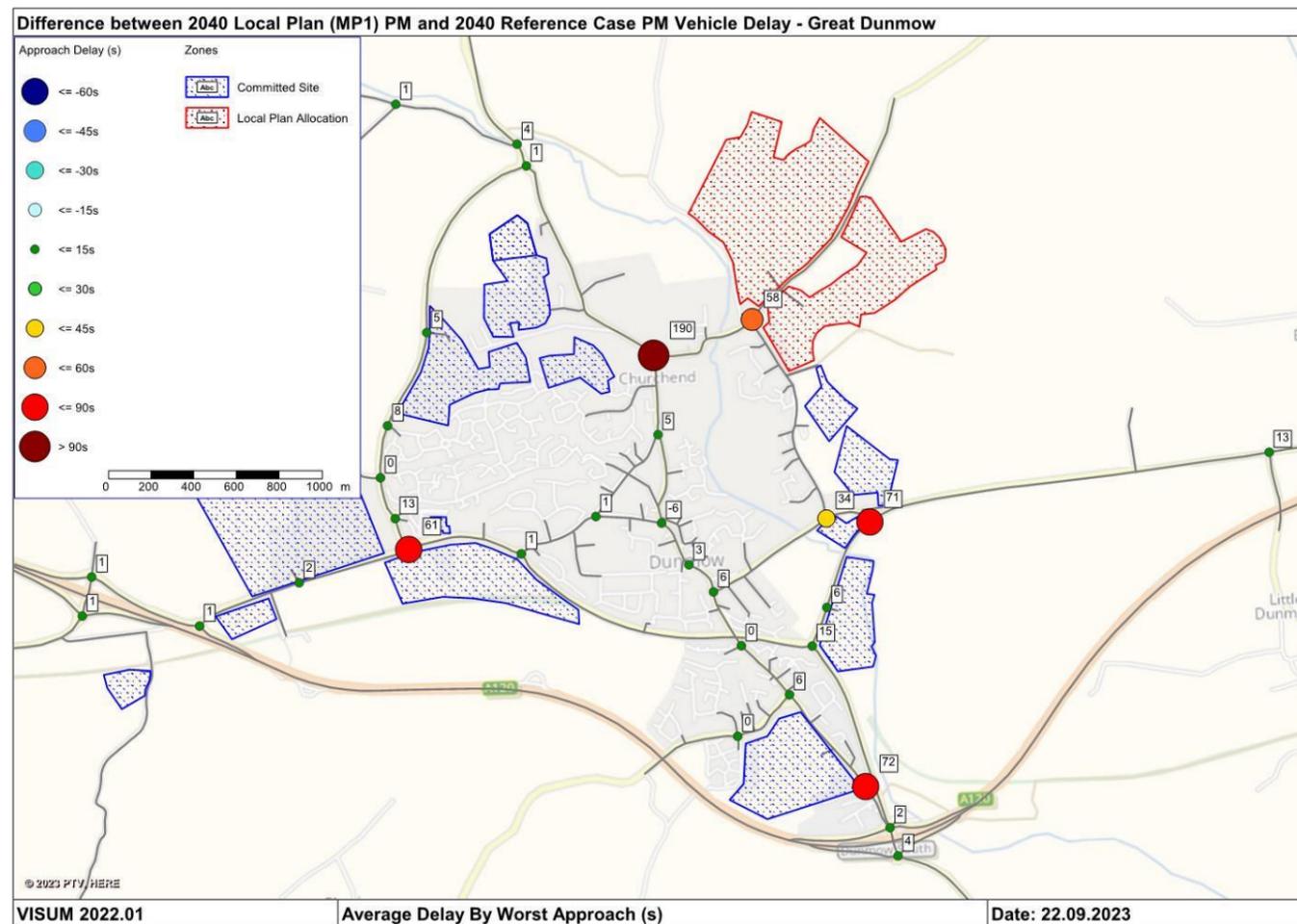
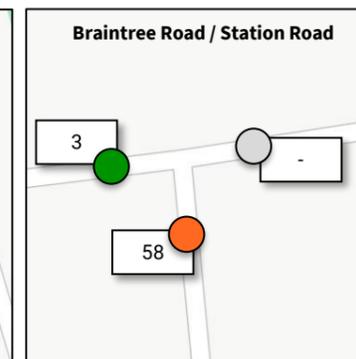
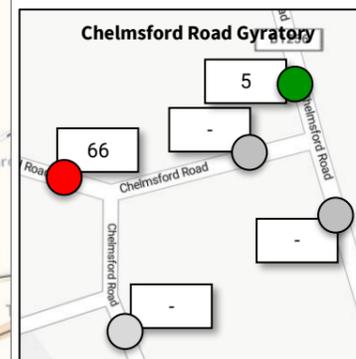
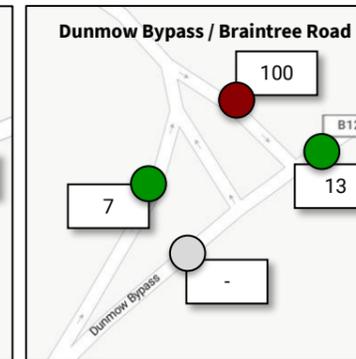
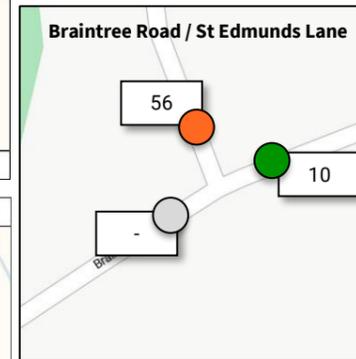
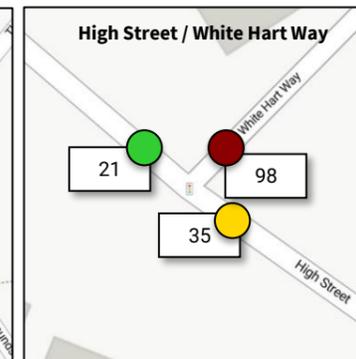
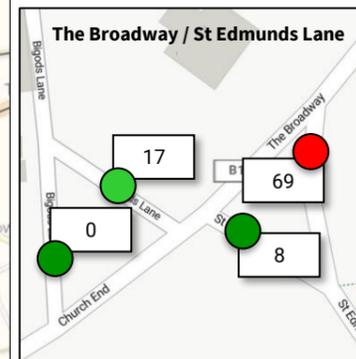
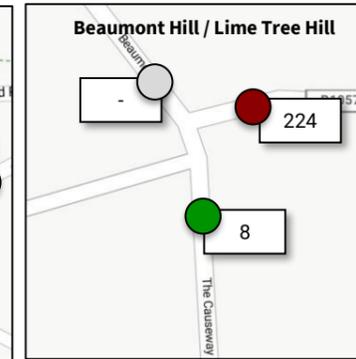
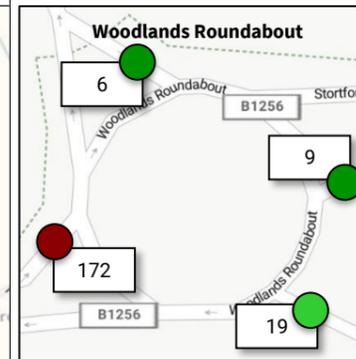
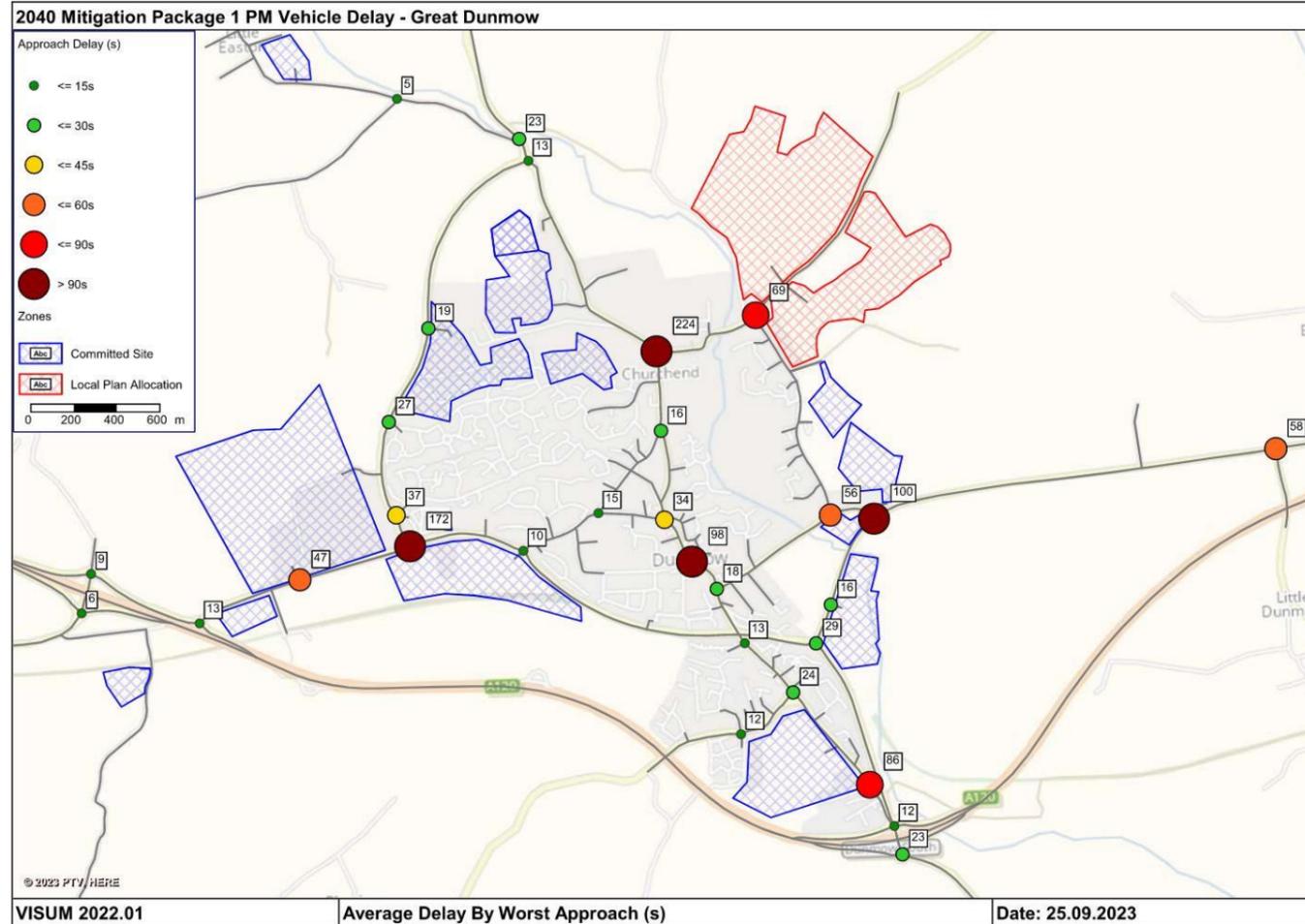


Figure 5-4: PM Peak Junction Delays in Mitigation Package 1

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.
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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 on car journeys of the Local Plan allocations in Great Dunmow.
- 6.1.2 Therefore, in seeking to identify a proportionate highway capacity based solution, a package of measures was assessed that focused on improving the efficiency of the operation of the existing network through the introduction of a series of new signalised junction to help moderate and manage competing flows of traffic, together with accommodating the needs of pedestrians and cyclists.
- 6.1.3 The junctions and their respective proposals are listed in **Table 6-1** below.

Table 6-1: Proposed Junction Improvements in Great Dunmow

Ref	Junction	Scheme
HC.01	B1008/B1057	Widening to provide turn pockets/ flare at all approaches together with the signalisation of the junction.
HC.02	B1256 /Braintree Road	Signalisation of the junction.
HC.03	B1256 / Station Road	Signalisation of the junction.
HC.04	Dunmow South Interchange (southern junction)	Chelmsford Road Northbound and A120 off-slip approach arms widened to allow for separate left-turn lane.
HC.05	Parsonage Downs / B1008	Parsonage Downs approach arm widened with left-turn flare.
HC.06	Flitch Industrial Estate / Chelmsford Road.	Estate approach arm widened with left-turn flare.
HC.07	B1256 / Blackwater Drive	B1256 approach arms widened to two-lane entry.

- 6.1.4 The junction improvements are comprehensive and not limited to those directly impacted by the Local Plan sites. That is because improving the flow of traffic any given junction can have ramifications further “downstream”. In this respect a comprehensive approach was identified to target all major junctions on the network.
- 6.1.5 The junction improvements would be provided over and above 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.

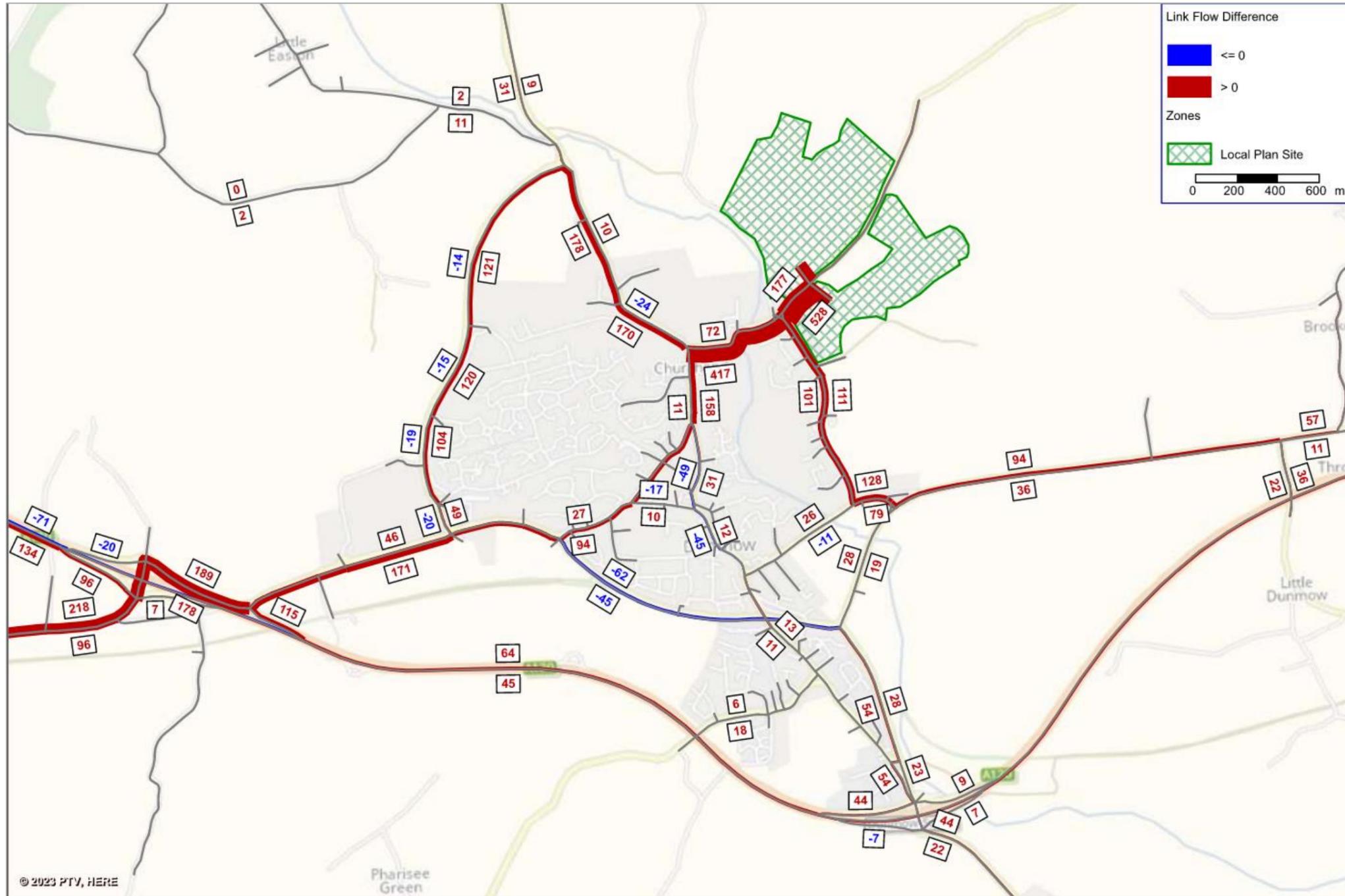


Figure 6-1: Change in Volume of Traffic between the Reference Case and Mitigation Package 2 - AM

Notes:

- Volume of traffic is presented in vehicles per hour.
- Weight of bar reflects size of flow.
- Red lines represent an increase in flow.
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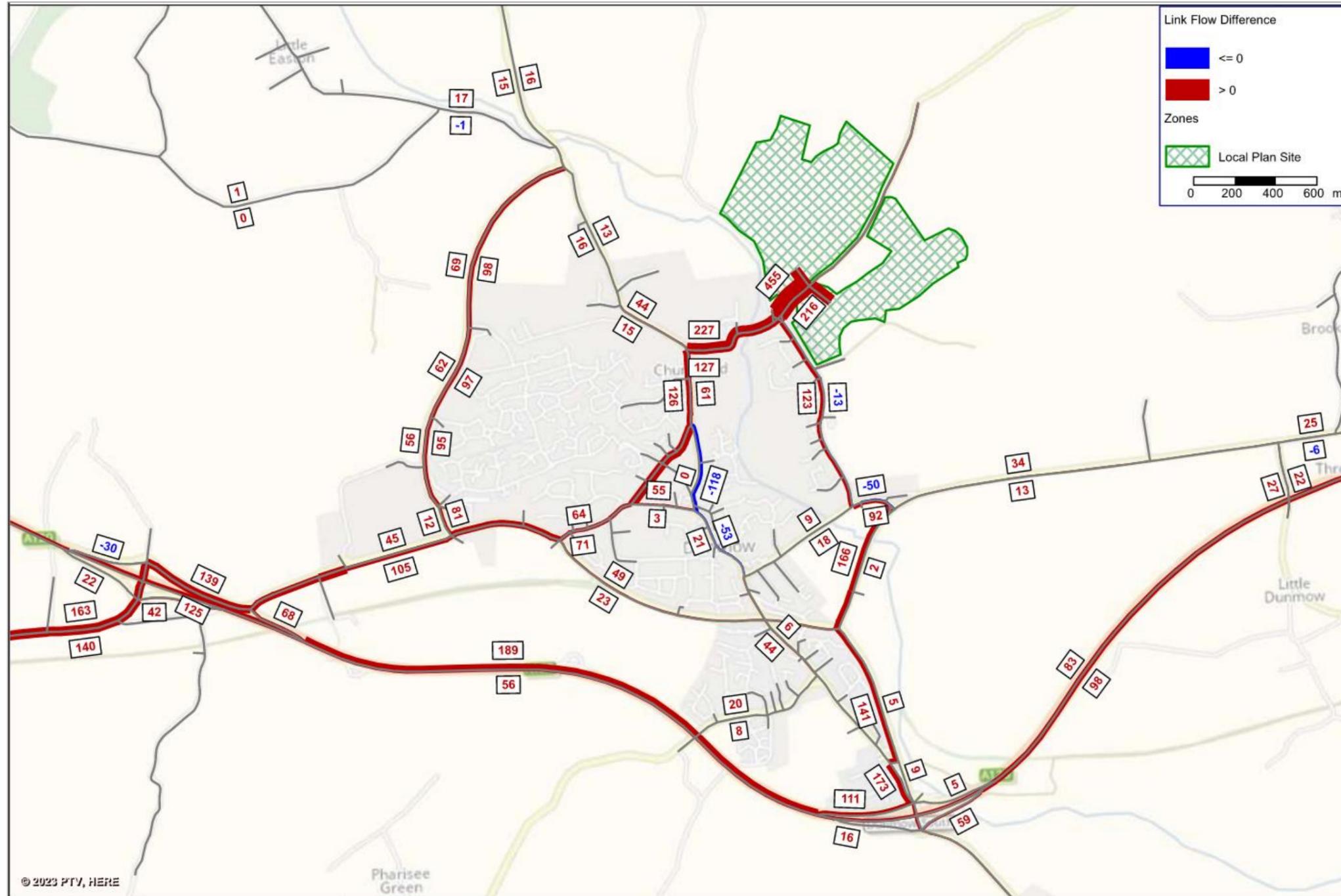
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Figure 6-2: Change in Volume of Traffic between the Reference Case and Mitigation Package 2 - PM



Notes:

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6.2.3 It highlights that:

- The junction capacity improvements don't reduce the overall volume of trips on the network but results in the reassignment of some traffic.
- In the AM peak period this results in a reduction in traffic on the Dunmow Bypass to the south of the town (the B1256), to levels less than in the Reference Case.
- On St Edmunds Lane, without intervention an increase of around 400 vehicles was predicted in the AM peak period. However, through a combination of the sustainable transport interventions and junction improvements, this is reduced to just over 110 additional trips in this scenario.
- By contrast more traffic will be prevalent on Church End / Church Street. The junction improvements appear to make it a more attractive route to access the A120, via Beaumont Hill and Woodside Way.
- In the PM peak, North Street is the main beneficiary, seeing a slight reduction in the volume of traffic as vehicles reassign to more appropriate routes.
- However, across the town as a whole, levels of traffic are very similar to those in the Reference Case.

6.3 JOURNEY TIMES

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

6.3.1 **Table 6-3** respectively.

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

Route	Direction	Journey Time (in seconds)					
		AM Peak			PM Peak		
		Ref. Case	MP 2	Change	Ref. Case	MP 2	Change
(3) A120 Western Section - Dunmow West to B1417/B1256	Eastbound	458	458	-	484	488	+4
	Westbound	472	473	+1	454	455	+1
(10) B1008/B1256 - High Easter Road to Woodside Way	Northbound	447	275	-172	265	274	+9
	Southbound	268	280	+12	235	244	+9
(11) Woodside Way/B184 - B1256 to The Endway	Northbound	238	238	-	246	252	+6
	Southbound	244	254	+10	233	238	+5
(12) B184/B1057 - Clapton Hall Lane to B1057 The Broadway	Northbound	324	355	+19	336	413	+63
	Southbound	366	415	+40	346	414	+60
(13) B1256 - Eastern Section - Unnamed Road to B1417	Eastbound	359	379	+20	383	437	+54
	Westbound	389	425	+36	366	392	+26

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

Route	Direction	Average Speed (in MPH)					
		AM Peak			PM Peak		
		Ref. Case	MP 2	Change	Ref. Case	MP 2	Change
(3) A120 Western Section - Dunmow West to B1417/B1256	Eastbound	66.9	66.9	-	63.3	62.8	-0.5
	Westbound	64.9	64.8	-0.1	67.5	67.4	-0.1
(10) B1008/B1256 - High Easter Road to Woodside Way	Northbound	19.0	30.9	+11.9	32.1	31.0	-1.1
	Southbound	31.7	30.4	-1.4	36.2	34.8	-1.3
(11) Woodside Way/B184 - B1256 to The Endway	Northbound	39.5	39.5	-	38.2	37.3	-0.9
	Southbound	39.4	37.9	-1.6	41.3	40.4	-0.9
(12) B184/B1057 - Clapton Hall Lane to B1057 The Broadway	Northbound	29.7	27.1	-1.5	28.6	23.3	-4.2
	Southbound	26.3	23.2	-2.5	27.8	23.2	-3.9
(13) B1256 - Eastern Section - Unnamed Road to B1417	Eastbound	47.4	44.9	-2.5	44.4	38.9	-5.5
	Westbound	43.7	40.0	-3.7	46.5	43.4	-3.1

6.3.8 The tables highlight that:

- Capacity improvements at selected junctions across Great Dunmow will bring journey times and traffic speeds broadly back in line with those set to be experienced in the Reference Case.
- The scenario presents no tangible impact on the operation of the A120 through the area in either peak period (Route 3).
- However, the eastern section of the B1256 (Route 13) and the B1008/B1057 which heads north and north-east through the town (Route 12) will both experience additional delays of up to one minute over and above the conditions set to be experienced in the Reference Case.
- The route set to benefit the most from the junction capacity improvements is the east-west link between the A120 (at Dunmow South Interchange) and Tesco on the western edge of the town (Route 10). The B1256 along this corridor will see significant improvements to journey times, with the link performing considerably better than it would in the Reference Case.

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. **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. The comparative illustrations for the PM peak period are provided in **Figure 6-4**.

6.4.2 The key findings are that:

- In the AM peak period, many of the junctions will perform more efficiently than in the Reference Case. The interventions which have been identified don't just mitigate the impacts of the Local Plan site allocations on the network but improve how it would operate without any further development coming forward.
- Where there are residual delays, all are deemed to be reasonable and not unexpected when travelling around a town like Great Dunmow.

- A minor farm access at the junction with the B1256 to the east of the town represents the only delay of any note on the network and this will impact very few vehicle trips.
- In the PM peak period, the picture is broadly similar. However, the junction of Woodside Way (B184) and Stortford Road (B1256) will be subject to delays of around three minutes, over which over one minute of the delay can be attributed to the Local Plan sites. This is not deemed to be a ‘showstopper’ and a more refined assessment of the junction’s operation may help to negate any long term issues.

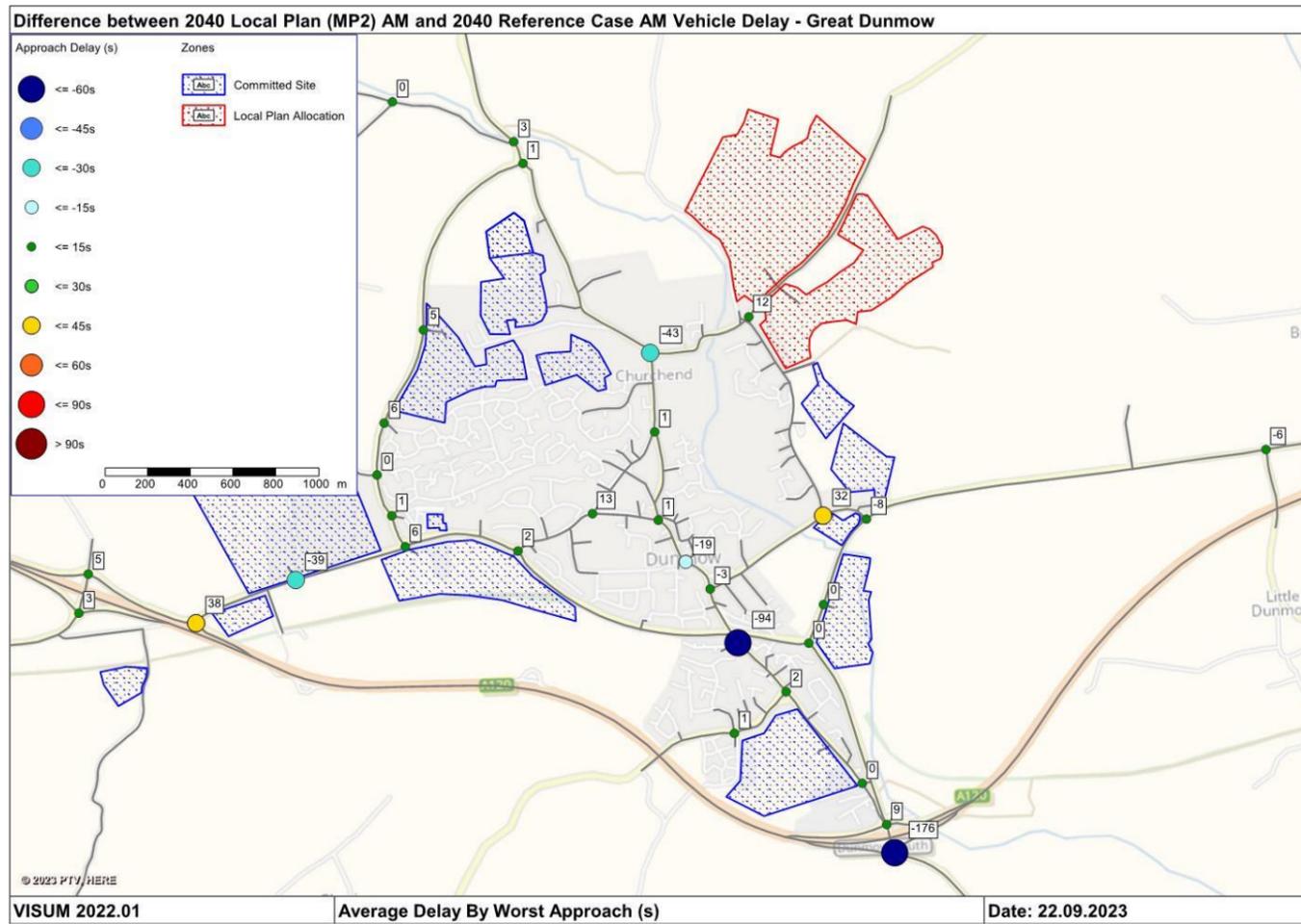
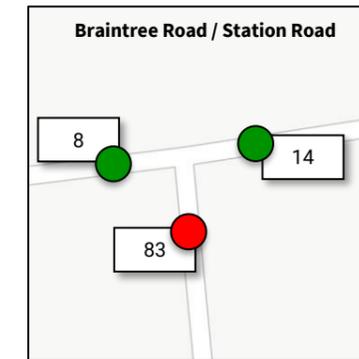
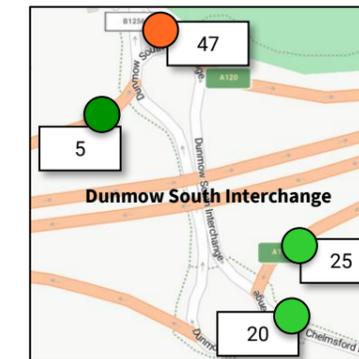
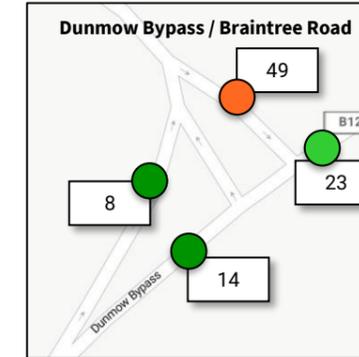
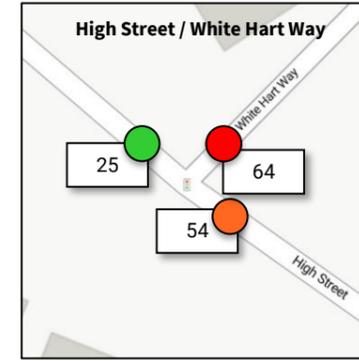
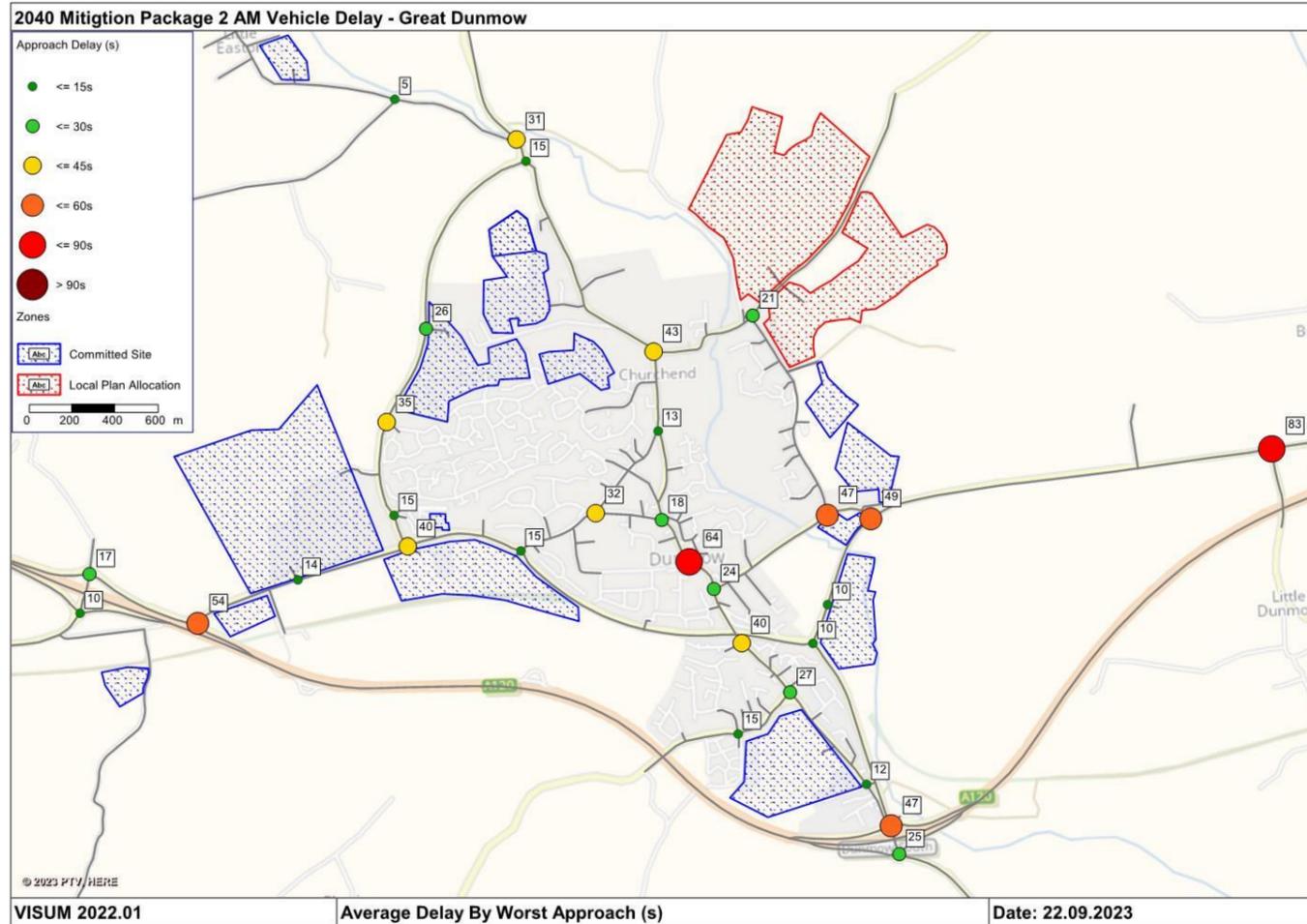
6.5 SUMMARY

- 6.5.1 An integrated package of junction improvements across Great Dunmow will improve the efficiency with which the highway network operates. The additional demands placed on the network from the site allocations means that a move away from priority give way junctions is required, particularly on several strategically important intersections in the town.
- 6.5.2 Introducing traffic signals in these locations provides a tool through which to better manage and regulate traffic flow and optimise capacity on the exiting network. It forms a proportionate and viable approach through which to facilitate growth.
- 6.5.3 Furthermore, the signalisation of the junctions will complement the delivery of a comprehensive package of sustainable transport measures within the town. The signals will include green phases for pedestrians and cyclists and as such improve the safety and comfort of active travel users on the network.
- 6.5.4 The need for such interventions is directly related to the site allocations within the town and as such, should be funded by the developers themselves through the S106 process.

Figure 6-3: 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 are shown in main figure.
- Delays on all approaches are shown for selected junctions in the inserts.
- Blue hatching represents committed sites.
- Red hatching represents Local Plan site allocations.



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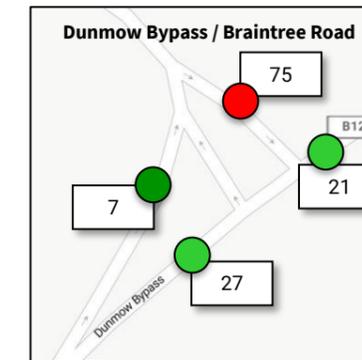
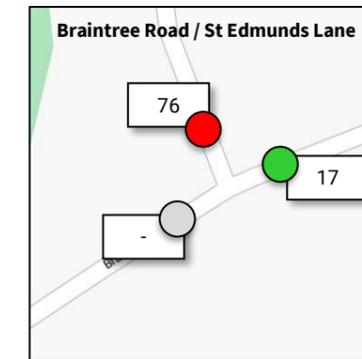
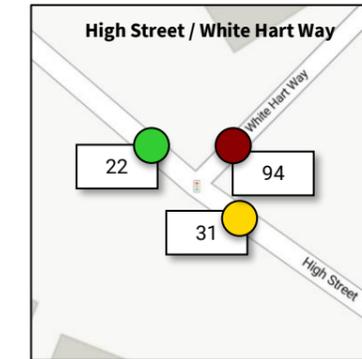
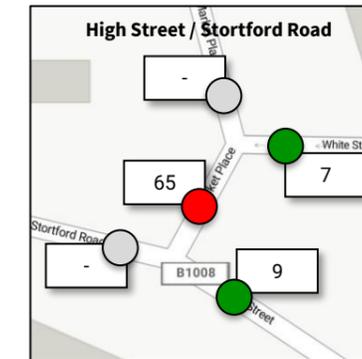
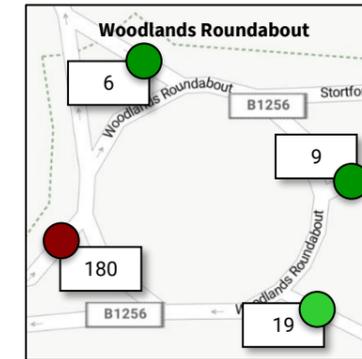
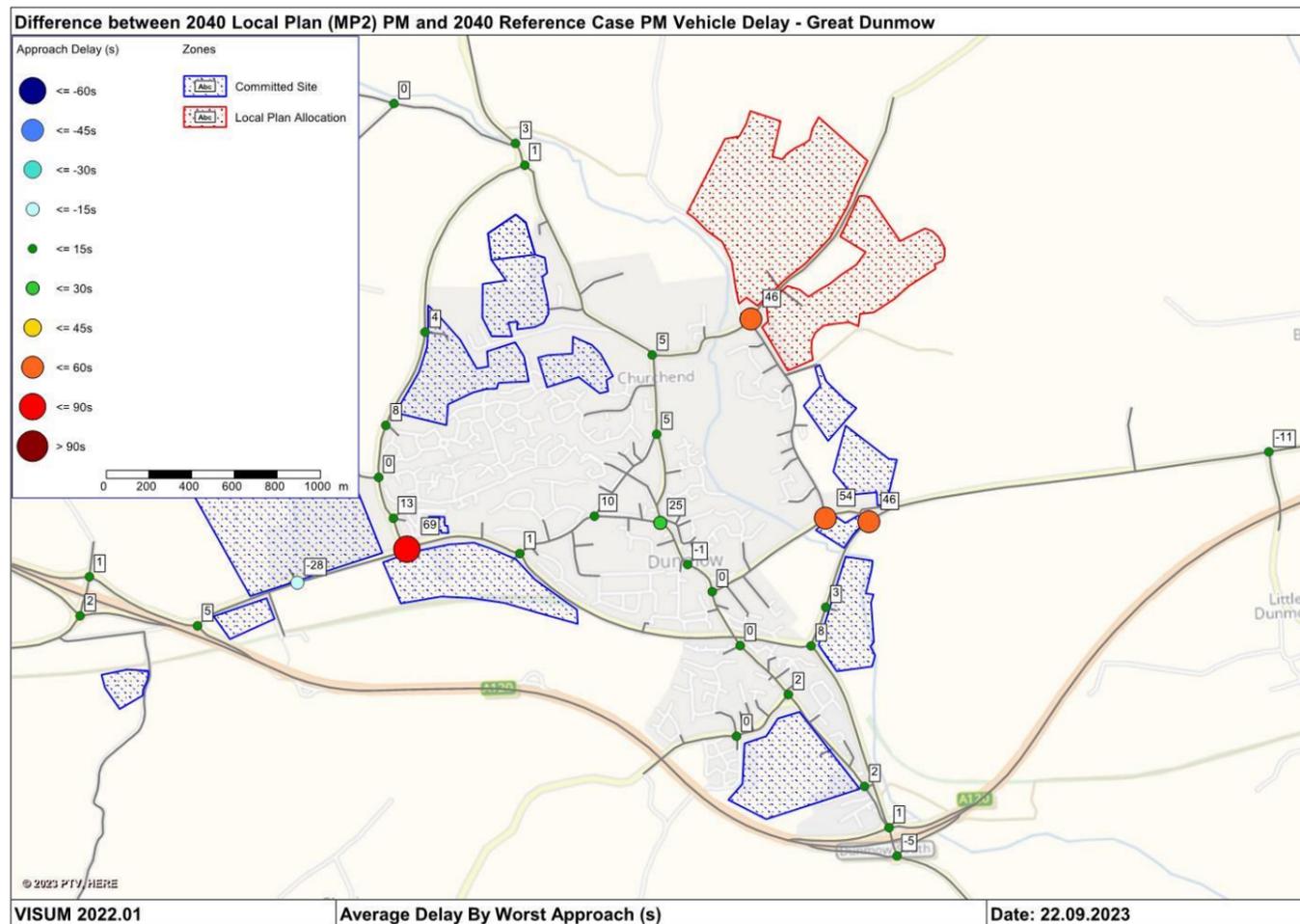
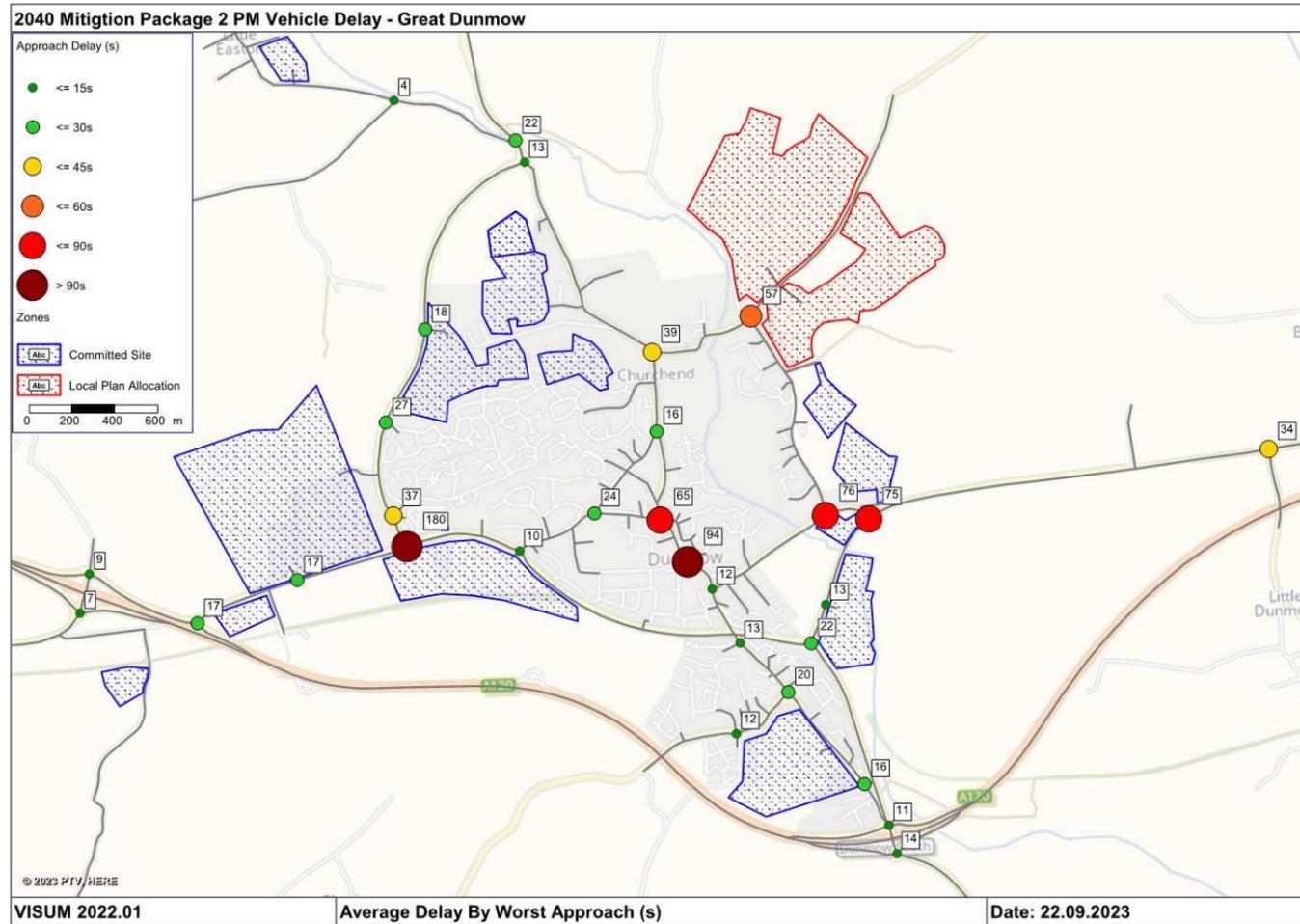
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Figure 6-4: PM Peak Junction Delays in Mitigation Package 2

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.
- Delays on all approaches are shown for selected junctions in the inserts.
- Blue hatching represents committed sites.
- Red hatching represents Local Plan site allocations.



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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 Great Dunmow 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 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 However, the 1,500 dwellings allocated to the north-east of the town would have a significant impact on the performance of the network.
- 7.1.4 The delivery of a package of sustainable transport related interventions will only go part way to addressing the increase in demand to travel but supported by an integrated package of junction improvements across the town, the impacts would be broadly mitigated.
- 7.1.5 The implementation of the full integrated package of improvements is key. The junctions don't operate in isolation and so without a town wide approach to managing flow, issues would arise. Even so, the approach provides a proportionate and viable solution, and will improve travel choices for local residents in the future.

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. It is considered to be a viable package of measures with developer contributions of less than £10,000 per dwelling anticipated to be required.

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

Ref	Scheme	Cost	Notes
Highway Capacity			
HC.01	B1008/B1057: Widening to provide turn pockets/ flare at all approaches 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.
HC.02	B1256 /Braintree Road: 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.
HC.03	B1256 / Station Road: 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.
HC.04	Dunmow South Interchange (southern junction): Chelmsford Road	£750,000 - £1,000,000	Assumes that no third-party land is required and excludes all utility

Ref	Scheme	Cost	Notes
	Northbound and A120 off-slip approach arms widened to allow for separate left-turn lane.		diversion / protection costs. Optimism bias included.
HC.05	Parsonage Downs / B1008: Parsonage Downs approach arm widened with left-turn flare.	£750,000 - £1,000,000	Assumes that no third-party land is required and excludes all utility diversion / protection costs. Optimism bias included.
HC.06	Fritch Industrial Estate / Chelmsford Road: Estate approach arm widened with left-turn flare.	£750,000 - £1,000,000	Assumes that no third-party land is required and excludes all utility diversion / protection costs. Optimism bias included.
HC.07	B1256 / Blackwater Drive: B1256 approach arms widened to two-lane entry.	£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	Provide a new bus stop (including shelter, seating and Real Time Information) on the B1057 adjacent to the new development.	£30,000	Based upon two new bus shelters to serve services travelling in both directions.
PT.02	Increase the frequency of the no. 324 Stebbing to Bishops Stortford service from 1 bus every two hours to 1 bus every 30 minutes.	£500,000	Suggested annual capital funding contribution towards subsidy of increased service provision. Cost does not take into account revenue generated.
PT.03	Extend route of the no. 323 service to serve the development and help achieve the increase in service frequency.	£200,000 - £400,000	Suggested annual capital funding contribution towards subsidy of revised route and frequency. Cost does not take into account revenue generated.
PT.04	Introduce modal filters on the route to provide greater priority for buses and reduce journey times.	£50,000 - £250,000	Pinch-point locations require identification with service operators.
PT.05	Offer discounted (or free) bus travel to all new residents for 12 months.	£3,000,000	Based upon one Stagecoach daily travel pass per new household at £8 per/day for working days only.
Walking & Cycling			
WC.01	Develop continuous traffic free cycle route between the development and the town centre via the River Chemer.	£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.

Ref	Scheme	Cost	Notes
WC.02	Develop shared use path via Church Street in Church End, then south-west along Church Street to the bottom of Lime Tree Hill before heading south over the playing fields to the Great Dunmow Recreation Ground and The Causeway.	£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.03	Provide signalised crossing of Church End and narrow the carriageway to one lane to enable a segregated shared-use path connection to an off-road route parallel to the river.	£250,000 - £500,000	Assumes that no third-party land is required and excludes all utility diversion / protection costs. Optimism bias included.
WC.04	Reduce the speed limit on Broadway from 60mph to 30mph and introduce street lighting and speed reduction features.	£50,000 - £250,000	Costs dependant on the extent of physical speed reductions measures. Speed limit change alone will have minimal cost associated with the Traffic Regulation Order and changes to signage/lining.
WC.05	Provision of a new e-bike for every new household.	£1,500,000	Based upon one bike per household at a cost of £1,000 per bike.

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

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