

TECHNICAL NOTE

Huntingdonshire Strategic Transport Strategy

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AtkinsRéalis	Clare Bond Lou Mason-Walsh	Huntingdonshire District Council Cambridgeshire County Council
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Huntingdonshire Strategic Transport Strategy Phase 3		

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Client signoff

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Executive Summary

This Technical Note presents the Phase 3 strategic assessment undertaken as part of the Huntingdonshire Strategic Transport Study, which provides transport evidence to inform the Huntingdonshire Local Plan to 2046. Phase 3 reviews Huntingdonshire District Council's latest housing and employment trajectories and develops a Core Development Scenario for testing, refining the Hybrid Strategy developed during Phase 2.

The assessment uses the Cambridge and Peterborough Combined Authority Model (CaPCAM) to:

- Compare the Core Development Do-Minimum scenario (Core DM1) with the Phase 2 Hybrid Strategy, identifying the effects of the updated development assumptions with unchanged mitigation;
- Compare the Core Development Do-Something scenario (Core DS1) with Core DM1, assessing the effects of the additional Phase 3 mitigation; and
- Compare Core DS1 with the 2046 Reference Case, assessing the combined effects of the Core Development Scenario growth and mitigation relative to the future baseline.

The active travel, public transport and highway mitigation package developed during Phase 2 is retained in Core DM1 and Core DS1. Core DS1 adds targeted measures addressing residual Phase 2 issues, including active travel connections serving Lodge Farm and Wyton Airfield and changes to the modelled A141/B1090 junction and its connections with the A141 bypass. The A141 measures test the potential effects of additional capacity and connectivity and do not presuppose the separate scheme's final design, feasibility or deliverability.

Core DM1 produces broadly similar transport outcomes to the Phase 2 Hybrid Strategy. It generates 3,831 fewer daily trips (a 0.6% reduction), while district-wide mode share and overall highway performance remain largely unchanged. The A141/B1090 junction remains the main local highway constraint, particularly during the AM peak.

The additional Core DS1 mitigation improves highway performance relative to Core DM1. Total delay reduces by 6.0% during the AM peak, 3.1% during the inter-peak and 1.6% during the PM peak. The greatest benefits occur around the revised A141/B1090 junction and its connection with the A141 bypass, with increased use of the bypass and reduced traffic on the existing A141 and routes through Huntingdon.

Relative to the 2046 Reference Case, Core DS1 increases travel demand across all modes. District-wide mode share remains broadly similar, with a modest reduction in car mode share and increases in public transport and park and ride of 0.7% and 0.2% respectively. Highway travel time and delay increase, with the greatest effects during the AM peak, where highway travel time increases by around 17% compared with the Reference Case.

Overall, the Phase 3 modelling shows that the combined Phase 2 and Phase 3 mitigation measures can help to accommodate the additional demand associated with the Core Development Scenario. Core DS1 improves highway performance and addresses the main constraint identified through the earlier assessment.

This work has been conducted at a strategic level and is not intended to represent a precise forecast of future conditions. Through the planning process there will be more detailed consideration of mitigation measures, including the impact of public transport, walking/cycling infrastructure, placemaking, parking provision, the mix of development and how the growth areas are designed to fit with adjoining communities. This could improve the transport impacts of the strategic testing in this report.

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1. Introduction

1.1 Context

The Huntingdonshire Local Plan to 2046 is currently being prepared for submission in 2026. Following National Planning Policy Framework and National Planning Policy Guidance, it is imperative that local planning authorities develop a robust transport evidence base to support the preparation and review of their Local Plan.

Huntingdonshire and the wider Cambridgeshire region has a growing population, and targets are in place for the development of new homes and commercial space in the district between the present year and 2046. These are to be delivered by the development of new housing and employment sites as well as retail and wider ancillary facilities to support them. Such development requires robust transport infrastructure to be sustainable, to ensure efficient movement of people and goods, and to enable further housing and economic growth across Huntingdonshire.

This Technical Note has been prepared by AtkinsRéalis, who have been commissioned by Huntingdonshire District Council (HDC) to deliver a Strategic Transport Study for Huntingdonshire.

The purpose of the Strategic Transport Study is to inform the development of the Huntingdonshire Local Plan to 2046. The study will:

- Initially assess the transport implications of development across four development strategies, then test refinements to those strategies and any other reasonable alternatives identified through the assessment;
- Recommend the most sustainable development strategy in transport terms for delivering the homes and employment required during the Local Plan period;
- Highlight where there are opportunities for increasing the usage of sustainable transport modes;
- Identify and cost where amended or additional transport infrastructure is required to mitigate the predicted impacts of each potential development strategy; and
- Form the basis of a district-wide transport strategy that mitigates the transport implications of the chosen development strategy.

The study is being conducted in three phases:

- **Phase 1:** Preferred Options testing for the Draft Local Plan (Completed in June 2025)
- **Phase 2:** Development and testing of a Hybrid Option
- **Phase 3:** Development and testing of the final Core Development Scenario through refinement of the Hybrid Option.

During Phase 1 of testing, four spatial strategies were tested by AtkinsRéalis to analyse various quanta and distributions of development throughout the District. The four strategies were defined as follows:

- *Spatial Strategy 1* with a strong focus on existing towns and cities;
- *Spatial Strategy 2* focusing on sustainable locations well served by public transportation, employment, and infrastructure (i.e., market towns and service centres);

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- *Spatial Strategy 3* with dispersed development to support existing settlements; and
- *Spatial Strategy 4* developing freestanding strategic sites with limited dispersed growth.

As part of Phase 1, the four strategies were assessed against the draft objectives of the Huntingdonshire Local Plan as well as a variety of criteria focused on development potential and its impact on the transport network. It was found that of the four strategies assessed, Strategy 2 performed most favourably in transport terms with Strategy 3 performing the second most favourably. This was due to a variety of factors, including:

- Lower overall growth quantum, resulting in reduced travel demand and fewer vehicle trips.
- A more even distribution of growth between strategic and non-strategic sites, helping to avoid over-concentration of demand in specific locations.
- A better balance between the number of jobs and resident workers, supporting higher levels of internal trip-making within Huntingdonshire and reducing pressure from out-commuting.

The conclusions of Phase 1 determined that there was potential to develop a refined 'hybrid' strategy, combining the strongest-performing elements of multiple strategies to achieve a better balance of housing and employment, maximise internal trip-making and reduce reliance on external commuting journeys. This hybrid strategy aims to optimise the benefits of Strategy 2 by including complementary sites from the other strategies to meet local plan targets as part of Phase 2: Finalisation of the Preferred (Hybrid) Option.

For further information on Phase 1 and its conclusions, please refer to the previously issued Phase 1 technical note¹.

Phase 2 focused on the development, refinement and testing of this Hybrid Strategy. This included the identification of a preferred distribution of development, refinement of site allocations, and the development of a tailored transport mitigation package designed to support the proposed growth. The mitigation package incorporated a combination of strategic highway interventions, public transport improvements and active travel measures, including schemes previously identified through HDC's transport evidence base and Local Cycling and Walking Infrastructure Plan (LCWIP).

The Hybrid Strategy and associated mitigation package were assessed using the Cambridge and Peterborough Combined Authority Model (CaPCAM). Strategic testing demonstrated that the proposed mitigation package reduced a proportion of the transport impacts associated with planned growth, while also supporting increased use of sustainable travel modes. The assessment also identified locations where network constraints remained, particularly along the A141 corridor and at key junctions within central Huntingdonshire, highlighting areas requiring further consideration as the Local Plan progressed.

The conclusions of Phase 2 confirmed that the Hybrid Strategy represented an appropriate basis for the emerging Local Plan. The findings also identified opportunities for further refinement of transport mitigation measures, particularly in areas experiencing higher levels of congestion, which have subsequently been considered as part of Phase 3 of the study.

¹ 'Hunts STS Phase 1 Technical Note_v1.0.pdf'

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For further information on Phase 2 and its conclusions, please refer to the previously issued Phase 2 technical note².

A high-level summary of the Phase 3 objectives is outlined below:

- **Development of the Core Development Scenario:** Reviewing HDC's latest development trajectories and preparing a Core Development Scenario for testing, refining the Hybrid Strategy developed during Phase 2 and identifying the principal changes in development assumptions.
- **Refinement of the transport mitigation package:** Reviewing and updating the mitigation package developed during Phase 2 to ensure it remains appropriate for the Core Development Scenario. This included refining previously identified interventions, identifying additional mitigation where required, and considering the indicative cost and deliverability of proposed measures.
- **Testing of development and phasing scenarios:** Assessing the transport implications of the Core Development Scenario alongside additional site-specific scenarios, including the full and phased delivery of Sapley Park Garden Village and phasing assumptions associated with Lodge Farm, to understand the transport impacts of alternative development trajectories.
- **Scenario testing using CaPCAM:** Assessing the transport impacts of the Core Development Scenario, both with and without mitigation, using CaPCAM, with a focus on network performance, congestion, journey times and travel demand patterns.

1.1 Structure of this document

The remainder of this report is structured as follows:

- *Section 2* introduces the sites included as part of the Core Development Scenario, highlighting changes made between this and the Hybrid Strategy from Phase 2;
- *Section 3* summarises findings from the Do-Minimum CaPCAM model testing of the Core Development Scenario;
- *Section 4* presents the identified package of transport mitigations;
- *Section 5* considers the results of the Do-Something CaPCAM model testing of the Core Development Scenario, comparing them with the Do-Minimum results;
- *Section 6* considers the results of the Do-Something CaPCAM model testing of the Core Development Scenario, comparing them with the CaPCAM Reference Case; and
- *Section 7* draws the report to a conclusion.

² 'Hunts STS Phase 2 Technical Note_v2.0.pdf'

2. Proposed Development Strategy

Phase 3 of the Huntingdonshire Strategic Transport Study focused on assessing the transport implications of the Core Development Scenario. Building on the work undertaken during Phases 1 and 2, HDC reviewed the development strategy and site allocations to establish a preferred pattern of growth. This revised growth scenario is referred to throughout this report as the Core Development Scenario.

The Core Development Scenario retains a number of the principles established through the Hybrid Strategy, including the concentration of growth in locations capable of supporting sustainable travel patterns and the provision of a balance between housing and employment development across the District. However, the scenario also incorporates amendments to development trajectories and site allocations to reflect the latest available position of the emerging Local Plan.

To assess the transport implications of the Core Development Scenario, AtkinsRéalis reviewed the development assumptions provided by HDC and prepared updated trip generation inputs for use within CaPCAM. The assessment considered the transport impacts of the Core Development Scenario both with and without mitigation measures and compared the results against the Hybrid Strategy developed during Phase 2.

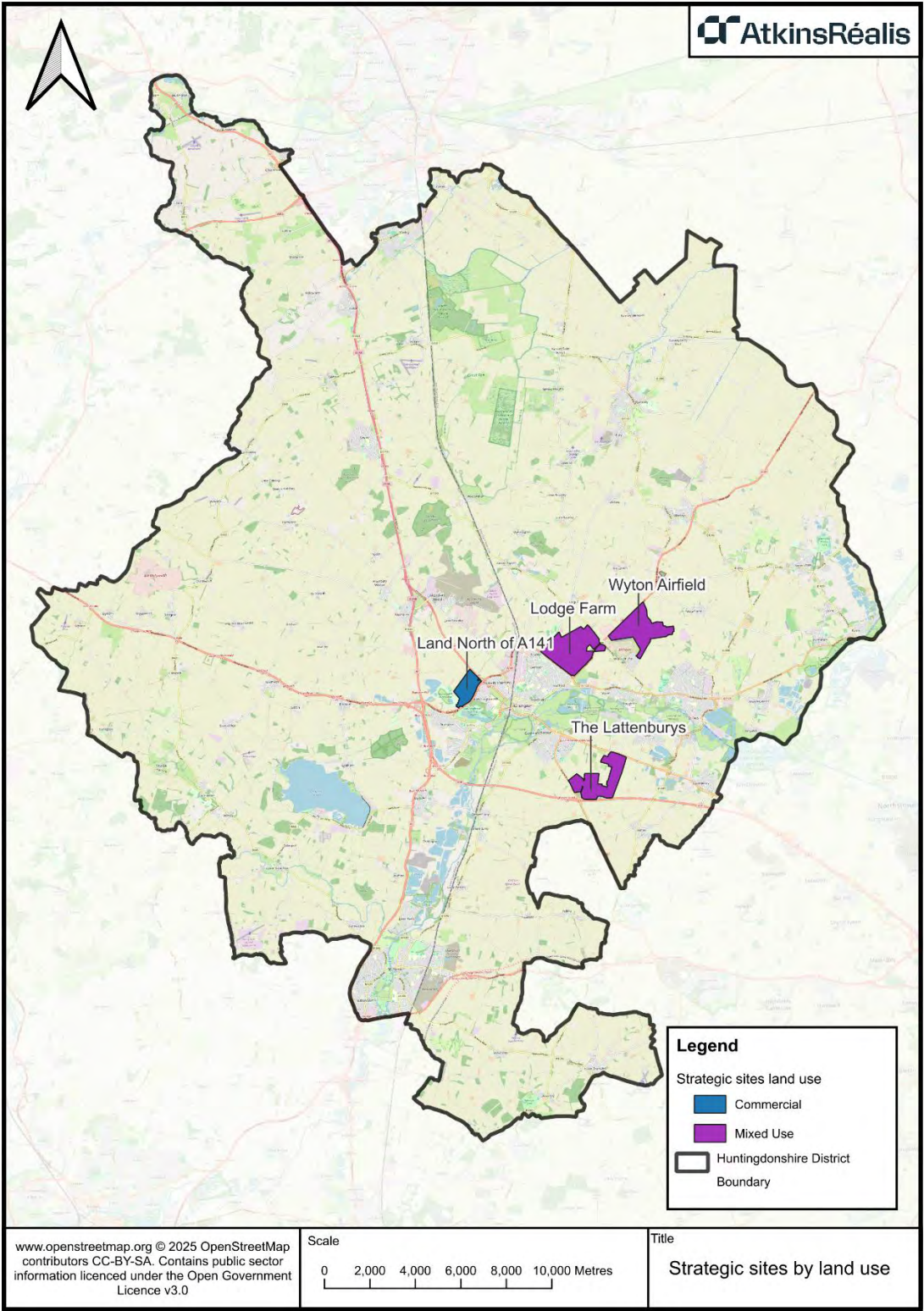
Table 2-1 summarises the strategic sites included within the Core Development Scenario and compares the updated development assumptions against the Hybrid Strategy. The same strategic allocations have been retained, although the number of dwellings and jobs has been revised for some sites to reflect the latest assumptions. The locations of these sites are shown in Figure 2-1.

Table 2-1 - Strategic sites included as part of the Core Development Strategy

Site ID	Strategic Site	Number of Dwellings	Dwelling change from Hybrid	Number of Jobs	Jobs change from Hybrid
7	Lodge Farm	4,900	-89	1,986	-54
9	Wyton Airfield	4,000	-491	2,072	-116
10	The Lattenburys	3,800	-24	1,689	0
12	Land North of A141	-	-	3,439	0
Total strategic allocation		12,700	-604	9,186	-170

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Figure 2-1 - Strategic sites by land use



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Several smaller non-strategic sites are also included within the Core Development Scenario to complement the strategic allocations and support district-wide growth. These sites have been updated, where required, to reflect the latest assumptions provided by HDC.

Table 2-2 summarises the non-strategic allocations included within the Core DM1 and identifies the change in dwellings and jobs compared with the Hybrid Strategy. The Core DM1 scenario represents an updated allocation package from the Hybrid Strategy, with no change to mitigations implemented. In total, the Core Development Scenario includes 6,682 dwellings across non-strategic allocations, representing a decrease of 600 dwellings compared with the Hybrid Strategy. Employment provision across the non-strategic allocations totals 10,403 jobs, representing a reduction of 325 jobs.

Figure 2-2 and Figure 2-3 show the spatial distribution of changes in dwellings and jobs between the Hybrid Strategy and Core Development Scenario.

Table 2-2 - Non-strategic sites included as part of the Core DM1 scenario³

Non-strategic Site	Number of Dwellings	Change from Hybrid	Number of Jobs	Change from Hybrid
Gifford's Park, St Ives	1,750	-78	743	0
Land East of Loves Farm (aka Tithe Farm Extension), St Neots	1,100	-363	554	0
Land West of London Road and South of Stokes Drive, Godmanchester	550	+330	-	-
Land West of Little Paxton	410	0	-	-
Land to the North of Houghton Road, St Ives	350	-7	-	-
Land to the East of St Judith's Lane and West of Toll Bar Way and Green End Road, Sawtry	330	-277	-	-
Land to the West of Glatton Road, Sawtry	330	+2	-	-
South of A1123*	290	+290	-	-
RAF Upwood (Phase 3), Bury	170	-2	-	-
Land East of Glatton Road and North of Brookside Industrial Estate, Sawtry	170	0	-	-
Land North of 23 to 33 Oundle Road, Alwalton	0	-167	-	-
Galley Hill, Fenstanton	-	-	2,090	-5
Land West of A1, South of Peterborough Motorway Services	-	-	1,700	0
Eagle Business Park (Phase 3), Yaxley	-	-	914	0
North of Wintringham Hall, St Neots	-	-	814	0
Huntingdon Racecourse, Brampton	-	-	747	0
RAF Upwood (Phase 4), Bury	-	-	588	0

³ *New site introduced in Core DM1 scenario

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Former Motorway Compound Site, North of A1198 Roundabout, Godmanchester	-	-	567	-204
Land at Little Common Farm, Sawtry	-	-	417	0
Land South East of Bicton Industrial Park, Kimbolton	-	-	309	0
Land North of Harley Industrial Park, Paxton Hill	-	-	303	0
Sites with fewer than 150 dwellings or 200 jobs	1,232	-328	657	-116
<i>Total non-strategic allocation</i>	6,682	-600	10,403	-325

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Figure 2-2 - Change in dwellings between the Hybrid Strategy and Core Development Scenario

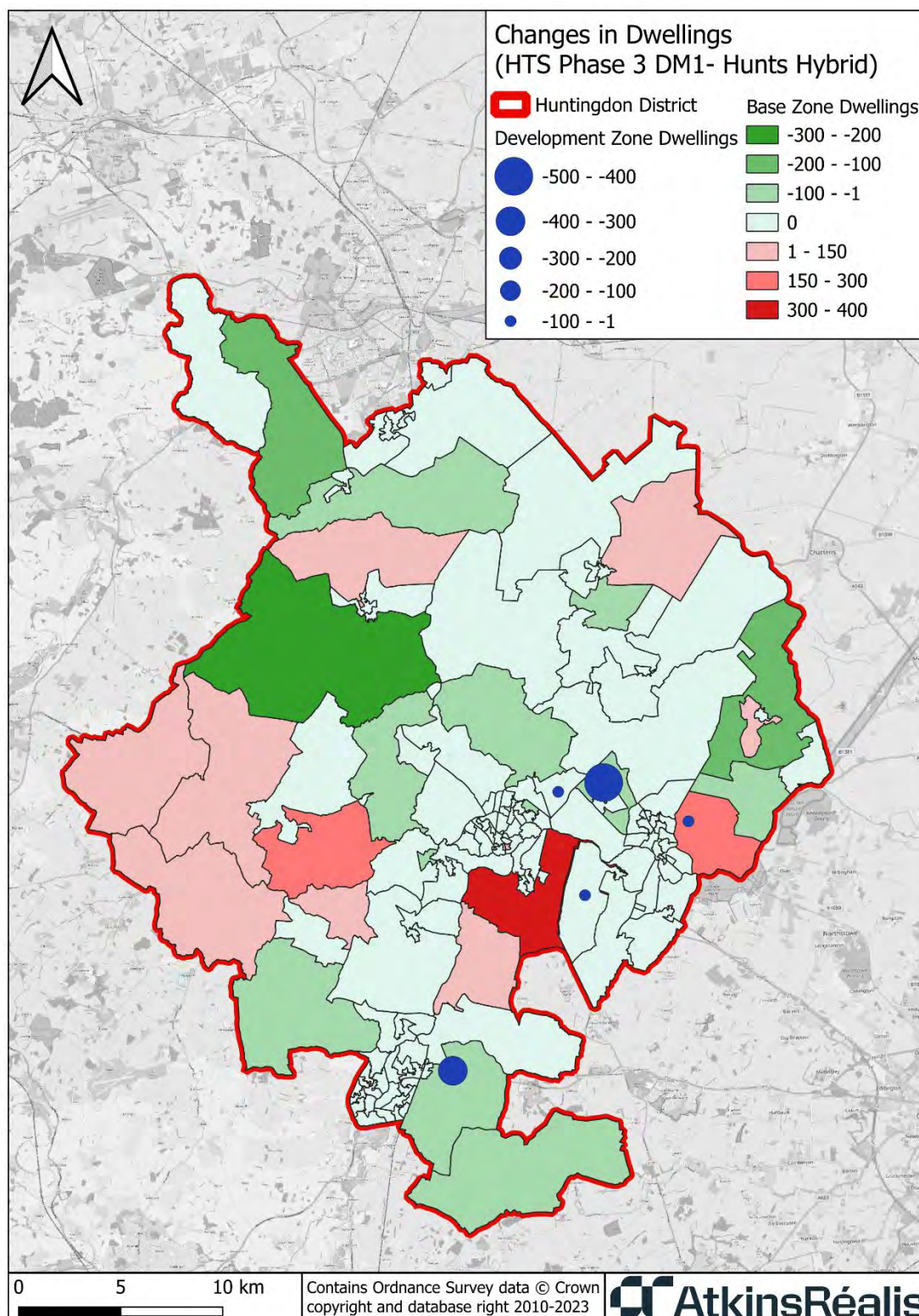
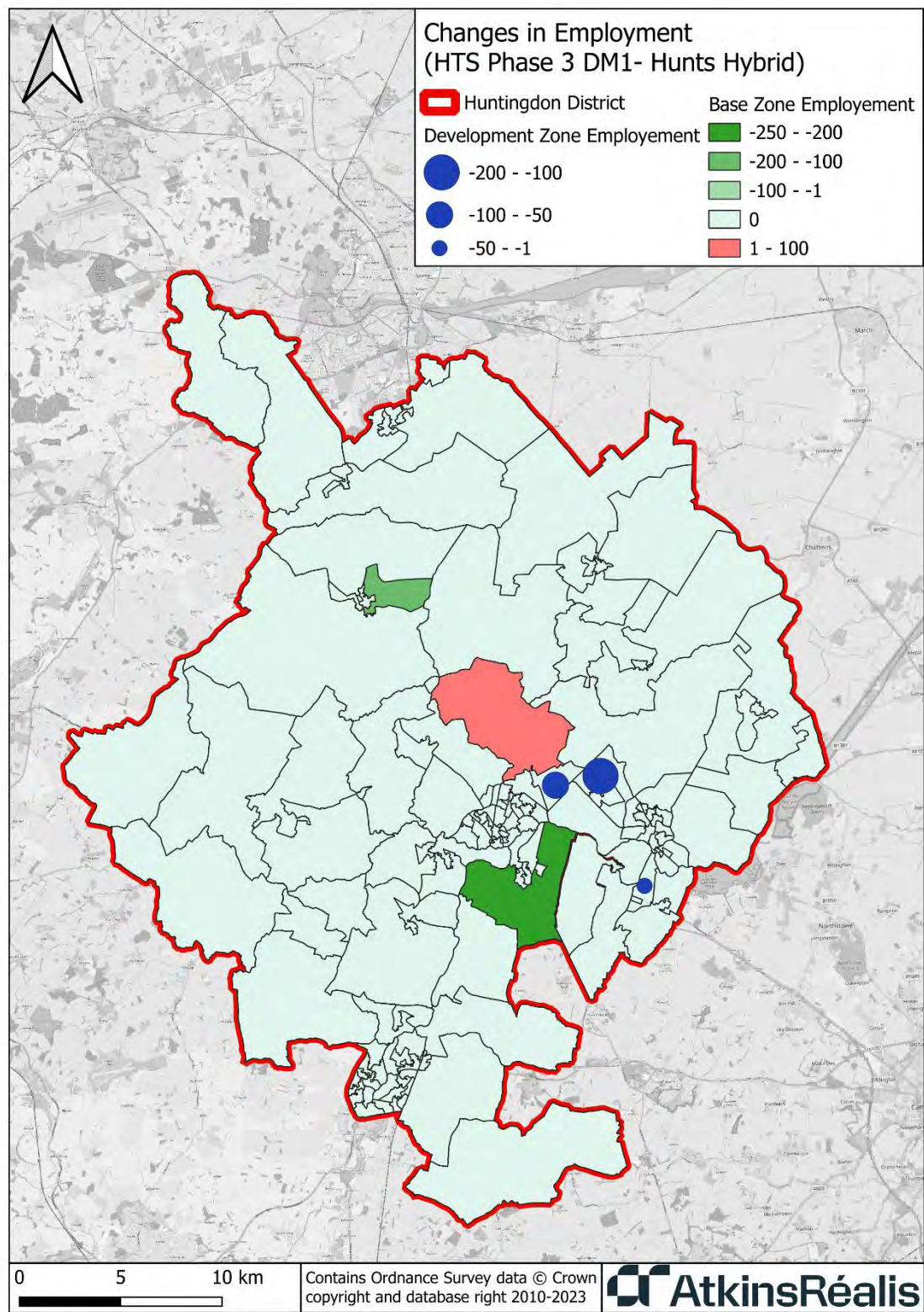


Figure 2-3 - Change in jobs between the Hybrid Strategy and Core Development Scenario



3. Technical Modelling (Core Development Scenario Do-Minimum 1)

3.1 Introduction

This chapter summarises the CaPCAM strategic modelling undertaken to assess the Core DM1. The assessment compares the Core DM1 Scenario against the Hybrid Strategy scenario to identify the transport impacts of the updated growth assumptions.

3.2 Sector system

A set of 19 sectors has been used in this analysis. These are based on the CaPCAM zoning structure and have been grouped to support the specific requirements of this study. The sector system comprises:

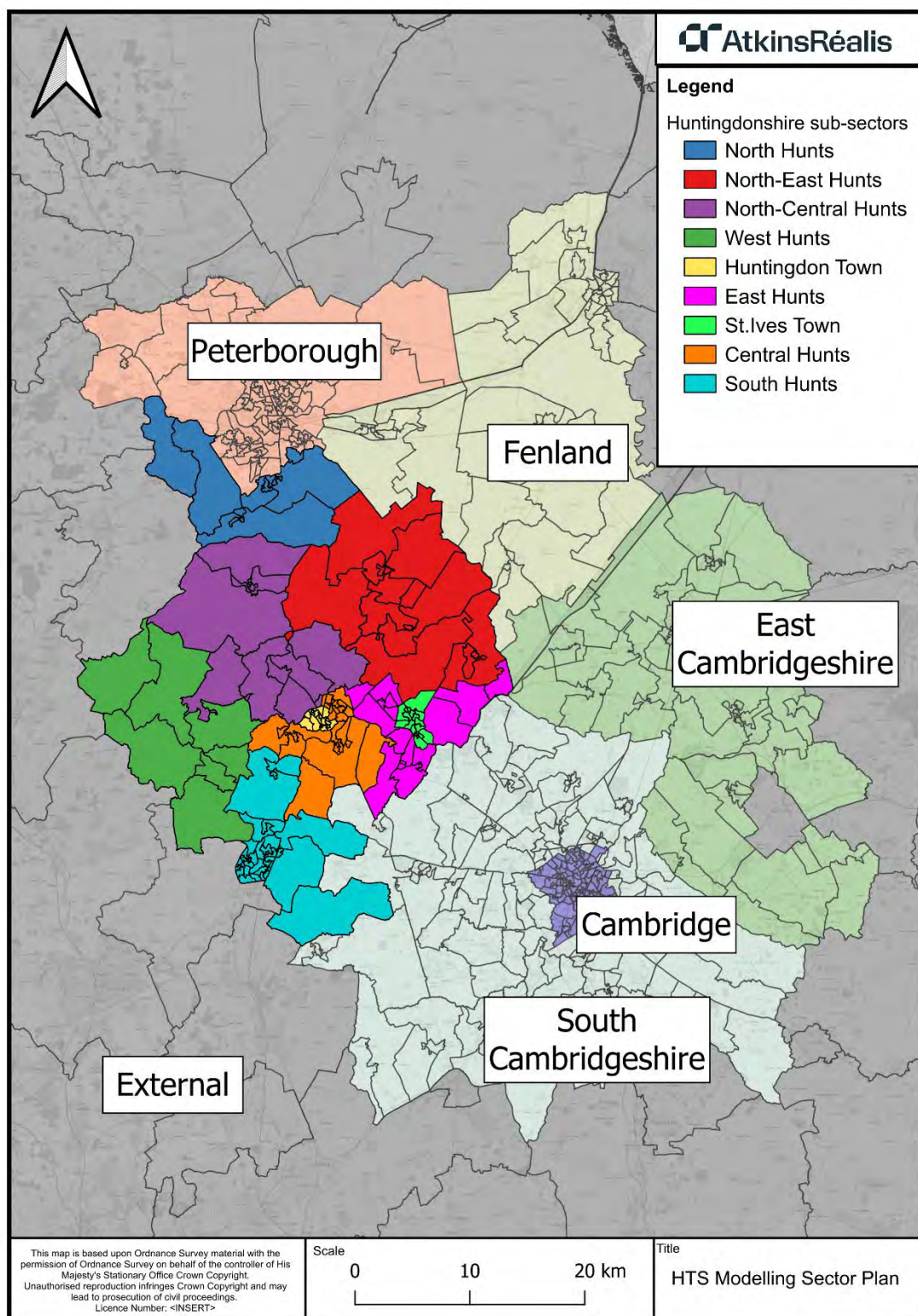
- 6 core CaPCAM sectors aligned with local authority boundaries across the CaPCAM study area.
- 9 Huntingdonshire sub-sectors, which have been derived from the underlying zoning structure in CAPCAM. These provide greater resolution within Huntingdonshire to support localised impact analysis.
- The 4 strategic site sectors.

The CaPCAM External area represents locations outside the fully modelled area, including neighbouring areas such as Bedfordshire and the rest of mainland Great Britain. Household and employment growth within the External area to 2046 is represented using forecasts from the National Trip End Model (NTEM), which inform the forecast number of trips entering and exiting the fully modelled area.

The sector system is plotted in Figure 3-1.

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Figure 3-1 - Sector system - CaPCAM modelled area



3.3 Methodology

3.3.1 HTS Hybrid Strategy

The CaPCAM Hybrid Strategy scenario was developed during Phase 2 of the study to assess the transport impacts of the emerging Huntingdonshire Local Plan growth strategy to 2046. The scenario was informed by the Phase 1 spatial scenario testing and was based broadly on Spatial Scenario 2.

The Hybrid Strategy included a refined set of strategic and non-strategic development sites, reflecting further consideration of site deliverability and the need to provide the required scale of housing and employment growth. The strategic allocations included Lodge Farm, Wyton Airfield, The Lattenburys and Land North of the A141, providing a total of 13,304 dwellings and 9,356 jobs. In addition, a number of smaller non-strategic sites were included to complement growth across the district, providing a further 8,028 dwellings and 10,728 jobs. Overall, the Hybrid Strategy introduces 21,332 dwellings and 20,084 jobs within Huntingdonshire. This growth is additional to the committed development already incorporated within the CaPCAM forecast scenario at the time of model development.

The Phase 2 Hybrid DS scenario is used within this section as a comparator against which the Core DM1 scenario can be assessed.

Phase 2 mitigation package

The Hybrid DS scenario included a package of transport mitigation measures developed to support the level and distribution of growth tested as part of the Hybrid Strategy. The package was intended to improve access to new development, support a shift towards more sustainable modes of travel, and reduce the scale of impacts forecast on the highway network. The A141 and St Ives improvements study is also represented in the Hybrid DS scenario, with its own associated highway, public transport and active travel elements.

The mitigation package included a range of active travel interventions, including selected LCWIP schemes and additional cycleway/shared-use path connections. These measures were focused on improving access between strategic and non-strategic development sites, nearby settlements and the wider walking and cycling network. This included routes serving areas such as Lodge Farm, Wyton Airfield, The Lattenburys, St Ives, Sawtry, Little Paxton and Godmanchester, alongside routes associated with the A141 corridor.

A series of public transport interventions were also included. These comprised new bus stops within or near development sites, new or amended bus routes, frequency improvements to existing services, and additional Park and Ride provision. The public transport package was designed to improve connectivity between development locations and key destinations such as Huntingdon, St Ives, St Neots, Peterborough, Cambridge and surrounding service centres. Bus priority measures were also included in selected locations to improve journey times and support the attractiveness of public transport relative to private car use.

The Phase 2 package included a number of highway interventions, primarily targeted at locations where specific network issues were identified. These included speed limit changes, access restrictions in selected locations, and junction improvements where required to address forecast constraints or support access to development. A number of these measures were associated with the A141 corridor and wider movement between Huntingdon, St Ives and

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surrounding growth locations. Further detail on the mitigation measures included within the Hybrid Strategy DS scenario is provided in the Phase 2 Technical Note⁴

The Hybrid DS mitigation package has been retained within both the Core DM1 and Core DS1 scenarios. As a result, Core DM1 does not represent a fully unmitigated scenario, but instead includes the mitigation measures already coded within the Hybrid DS scenario. The additional mitigation measures coded specifically within Core DS1 are limited in scale and are described in the following section.

This work has been conducted at a strategic level and is not intended to represent a precise forecast of future conditions. Through the planning process there will be more detailed consideration of mitigation measures, including the impact of public transport, walking/cycling infrastructure, placemaking, parking provision, the mix of development and how the growth areas are designed to fit with adjoining communities. This could improve the transport impacts of the strategic testing in this report.

3.3.2 HTS Core Development scenario

The Core DM1 scenario was constructed to test the impact of the updated growth assumptions associated with the Core Development Scenario. The scenario builds upon the Hybrid Strategy and retains the same strategic site allocations, but incorporates revised development assumptions provided by HDC, including updated housing and employment totals, development trajectories and demand inputs as defined in Section 2.

Additional dwellings and employment were represented within CaPCAM on a zonal basis, consistent with the approach adopted during previous phases of the study. Larger strategic allocations were represented using discrete development zones where appropriate, while smaller site allocations were incorporated within existing model zones. Updated trip generation inputs were prepared to reflect the revised housing and employment assumptions. Compared with the Hybrid Strategy, the Core DM1 Scenario includes a higher level of non-strategic housing growth and a slightly lower level of non-strategic employment growth, with 600 fewer dwellings and 325 fewer jobs across the non-strategic allocations.

The Core DM1 Scenario run was assessed without any further mitigation measures associated with the Phase 3 testing. However, the scenario retains the transport mitigation measures already included within the Hybrid DS scenario. The results of this model run are compared against the Hybrid DS scenario in section 3.4.

3.4 Results

3.4.1 Trips

Table 3-1 presents the forecast 24-hour trip volumes in Huntingdonshire, including all strategic sites, by mode for the 2046 forecast year. The table compares the Core DM1 run against the Hybrid DS scenario. Overall, the results show that total trip volumes are slightly lower in the Core DM1 scenario, with a reduction of 3,831 trips compared with the Hybrid DS scenario. This represents a small overall change, indicating that the updated Core Development Scenario growth assumptions result in a broadly similar level of district-wide travel demand.

⁴ 'Hunts STS Phase 2 Technical Note_v2.0.pdf'

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Table 3-1 - 24hr trip volumes by mode in Huntingdonshire (Forecast Year 2046)

Mode	Hybrid DS	Core DM1	Change between Hybrid and Core	
Active Modes	163,619	162,581	-	1,038
Public Transport	36,255	36,003	-	251
P&R	3,316	3,308	-	8
Car	421,511	418,978	-	2,534
Total	624,701	620,870	-	3,831

3.4.2 Mode share

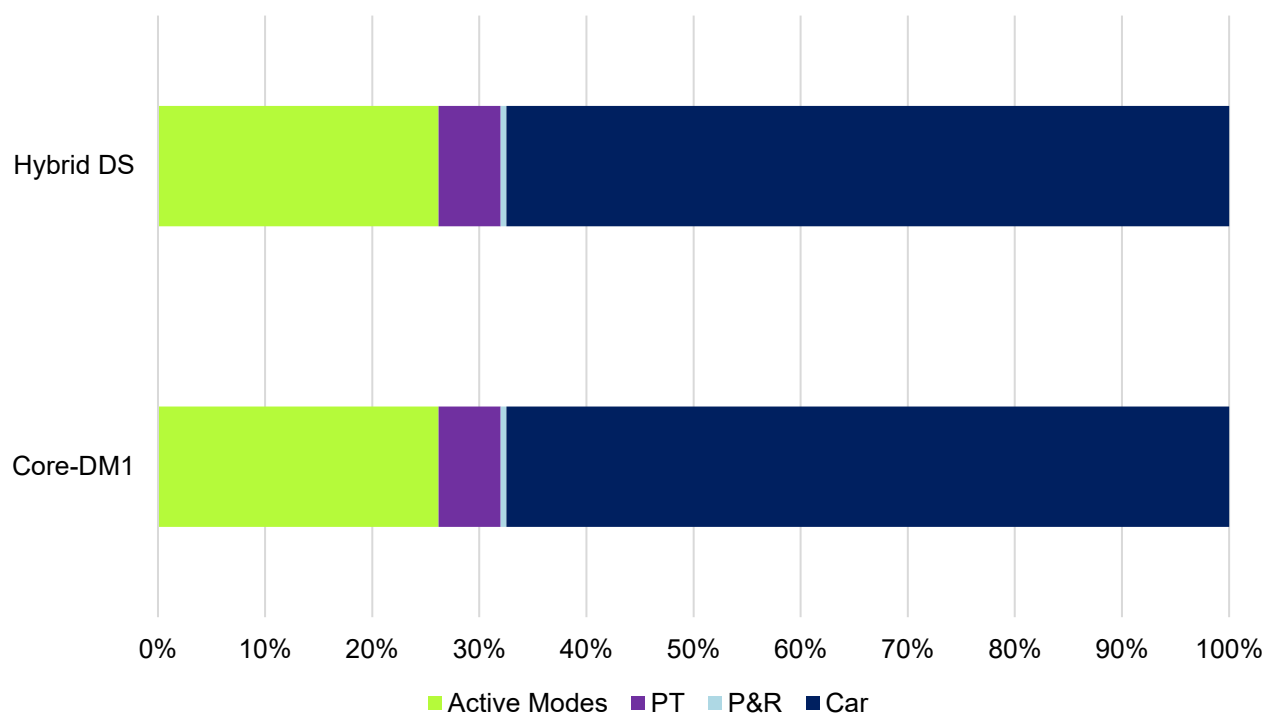
Table 3-2 and Figure 3-2 present the forecast 24-hour mode share of trips with an origin in Huntingdonshire for the 2046 forecast year. The results show no change in overall mode share between the Hybrid DS and Core DM1 scenarios.

Table 3-2 - 24hr mode share (%) in Huntingdonshire (Forecast Year 2046)

Mode	Hybrid DS	Core DM1	Change between Hybrid and Core	
Active Modes	26.2%	26.2%	0.0%	
Public Transport	5.8%	5.8%	0.0%	
P&R	0.5%	0.5%	0.0%	
Car	67.5%	67.5%	0.0%	

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Figure 3-2 - 24hr mode Share split (%) in Huntingdonshire



3.4.3 Sector mode share

Table 3-3 and Table 3-4 present mode share results for trips originating from each sector under the Hybrid DS and Core DM1 scenarios. These tables highlight the changes in mode share and absolute trip volumes associated with the updated Core DM1 growth assumptions, with a focus on both district-wide sectors and individual strategic sites.

Across Huntingdonshire sectors the following can be observed:

- There is minimal change across Huntingdonshire, with mode shares remaining broadly consistent between the Hybrid Strategy and Core DM1.
- Most sectors show changes of less than 1% across all modes, reflecting the limited changes in development assumptions between the two scenarios.
- Huntingdonshire West shows the largest percentage increase in trip volumes, with active mode trips increasing by +6%, public transport by +5%, park and ride by +6% and car by +3%. However, this reflects relatively small absolute changes compared with the larger Huntingdonshire sectors.
- Huntingdonshire North Central shows the largest percentage decrease in public transport trips, at -3%, while car trips reduce by -2%.

Most strategic sites demonstrate only small changes in travel behaviour. The largest reduction in trips is observed at Wyton Airfield, which is expected given that this site has the greatest reduction in both dwellings and jobs compared with the Hybrid Strategy.

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- Lodge Farm: Trips decrease slightly across all modes, with active mode trips reducing by -164, public transport by -29, park and ride by -1 and car by -248. Mode share remains broadly unchanged.
- Wyton Airfield: The site shows the largest reduction in trips across the strategic sites, with active mode trips decreasing by -834 and car trips decreasing by -1,118. This is consistent with the lower dwelling and employment assumptions for Wyton Airfield in Core DM1 compared with the Hybrid Strategy.
- The Lattenburys: The site sees very limited change, with small reductions in active mode, public transport and car trips. Mode share remains effectively unchanged.
- Land North of A141: Trips remain almost unchanged across all modes, reflecting that the employment assumptions for this site are unchanged between the Hybrid Strategy and Core DM1.

Overall, the results show that the Core DM1 scenario produces a very similar pattern of sector-level trip-making and mode share to the Phase 2 Hybrid DS. This is expected given the limited scale of changes between the two scenarios, with differences mainly reflecting updated development assumptions at specific sites rather than a wider change in travel behaviour.

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Table 3-3 - Sector origin trips by mode (24hrs) – Hybrid DS vs Core DM1 (Forecast Year 2046)

	Hybrid DS				Core DM1				Difference (%)			
	Active Modes	PT	P&R	Car	Active Modes	PT	P&R	Car	Active Modes	PT	P&R	Car
Huntingdon Town	11,695	5,614	511	29,657	11,713	5,595	510	29,682	0%	0%	0%	0%
St Ives Town	14,190	3,819	505	26,997	14,200	3,809	506	27,018	0%	0%	0%	0%
Huntingdonshire South	44,360	8,651	521	85,727	43,798	8,587	516	84,847	-1%	-1%	-1%	-1%
Huntingdonshire Central	22,376	5,210	428	55,343	22,875	5,247	435	55,739	2%	1%	2%	1%
Huntingdonshire East	11,531	2,358	329	38,778	11,793	2,374	334	39,169	2%	1%	2%	1%
Huntingdonshire North	8,728	1,787	55	32,498	8,593	1,767	54	32,074	-2%	-1%	-2%	-1%
Huntingdonshire North East	13,727	1,393	208	36,588	13,594	1,378	205	36,272	-1%	-1%	-2%	-1%
Huntingdonshire North Central	18,348	3,258	255	55,672	18,247	3,174	251	54,796	-1%	-3%	-2%	-2%
Huntingdonshire West	1,921	437	74	16,398	2,043	461	78	16,929	6%	5%	6%	3%
Lodge Farm	6,276	1,449	103	13,425	6,112	1,420	102	13,177	-3%	-2%	-1%	-2%
Wyton Airfield	6,715	861	88	12,259	5,881	782	80	11,141	-12%	-9%	-9%	-9%
The Lattenburys	3,255	1,108	124	11,172	3,234	1,101	124	11,130	-1%	-1%	0%	0%
Land North of A141	496	310	114	6,999	497	309	113	7,003	0%	0%	0%	0%
Cambridge	214,831	49,826	9,706	173,065	214,716	49,805	9,685	173,335	0%	0%	0%	0%
South Cambridgeshire	100,580	25,130	2,751	385,029	100,562	25,127	2,748	384,973	0%	0%	0%	0%
East Cambridgeshire	58,917	8,409	638	175,830	58,915	8,407	638	175,789	0%	0%	0%	0%
Peterborough	174,807	40,166	333	535,300	174,775	40,162	332	534,930	0%	0%	0%	0%
Fenland	68,147	8,761	229	193,938	68,141	8,760	229	193,895	0%	0%	0%	0%
External	1,966	14,213	2,085	229,421	1,965	14,208	2,083	229,376	0%	0%	0%	0%
Hunts (excluding SS)	146,877	32,527	2,887	377,657	146,857	32,392	2,889	376,526	0%	0%	0%	0%

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Table 3-4 - Mode share split (%) of sector origin trips (24hrs) - Hybrid DS vs Core DM1 (Forecast Year 2046)

	Hybrid DS				Core DM1				Difference (%)			
	Active Modes	PT	P&R	Car	Active Modes	PT	P&R	Car	Active Modes	PT	P&R	Car
Huntingdon Town	25%	12%	1%	62%	25%	12%	1%	62%	0.0%	0.0%	0.0%	0.0%
St Ives Town	31%	8%	1%	59%	31%	8%	1%	59%	0.0%	0.0%	0.0%	0.0%
Huntingdonshire South	32%	6%	0%	62%	32%	6%	0%	62%	-0.1%	0.0%	0.0%	0.0%
Huntingdonshire Central	27%	6%	1%	66%	27%	6%	1%	66%	0.3%	0.0%	0.0%	-0.3%
Huntingdonshire East	22%	4%	1%	73%	22%	4%	1%	73%	0.2%	0.0%	0.0%	-0.2%
Huntingdonshire North	20%	4%	0%	75%	20%	4%	0%	75%	0.0%	0.0%	0.0%	0.0%
Huntingdonshire North East	26%	3%	0%	70%	26%	3%	0%	71%	0.0%	0.0%	0.0%	0.0%
Huntingdonshire North Central	24%	4%	0%	72%	24%	4%	0%	72%	0.2%	-0.1%	0.0%	-0.1%
Huntingdonshire West	10%	2%	0%	87%	10%	2%	0%	87%	0.3%	0.0%	0.0%	-0.3%
Lodge Farm	30%	7%	0%	63%	29%	7%	0%	63%	-0.2%	0.0%	0.0%	0.2%
Wyton Airfield	34%	4%	0%	62%	33%	4%	0%	62%	-0.8%	0.0%	0.0%	0.8%
The Lattenburys	21%	7%	1%	71%	21%	7%	1%	71%	0.0%	0.0%	0.0%	0.1%
Land North of A141	6%	4%	1%	88%	6%	4%	1%	88%	0.0%	0.0%	0.0%	0.0%
Cambridge	48%	11%	2%	39%	48%	11%	2%	39%	0.0%	0.0%	0.0%	0.1%
South Cambridgeshire	20%	5%	1%	75%	20%	5%	1%	75%	0.0%	0.0%	0.0%	0.0%
East Cambridgeshire	24%	3%	0%	72%	24%	3%	0%	72%	0.0%	0.0%	0.0%	0.0%
Peterborough	23%	5%	0%	71%	23%	5%	0%	71%	0.0%	0.0%	0.0%	0.0%
Fenland	25%	3%	0%	72%	25%	3%	0%	72%	0.0%	0.0%	0.0%	0.0%
External	1%	6%	1%	93%	1%	6%	1%	93%	0.0%	0.0%	0.0%	0.0%
Hunts (excluding SS)	26%	6%	1%	67%	26%	6%	1%	67%	0.1%	0.0%	0.0%	0.0%

3.4.4 Sector to sector car trips

Table 3-5 presents the change in 24-hour car sector-to-sector trips between the Hybrid Strategy and the Core Development Scenario DM1. Overall, the results show a small reduction in car trips, with total car movements decreasing by 2,818 trips compared with the Hybrid Strategy.

Across Huntingdonshire sectors the following can be observed:

- The overall pattern of car movements remains broadly consistent, with changes generally limited in scale.
- The largest reduction in origin trips is from Wyton Airfield, with 1,118 fewer car trips. This is expected given that Wyton Airfield has the largest reduction in both dwellings and jobs compared with the Hybrid Strategy.
- Reductions are also observed for trips originating from Huntingdonshire North and Huntingdonshire West, while increases are forecast from Huntingdonshire North East, Huntingdonshire North Central and East Cambridgeshire.
- In terms of destinations, the largest reductions are for trips to Wyton Airfield, Huntingdonshire North and South Cambridgeshire, while increases are forecast for trips to East Cambridgeshire, Huntingdonshire North Central and Huntingdonshire North East.

Overall, the results indicate that the updated Core DM1 assumptions result in only limited changes to the pattern of car-based movements. As expected, the most notable differences are linked to locations where development assumptions have changed.

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Table 3-5 - Sector to sector car trips (24hr) – Hybrid DS vs Core DM1 (Forecast Year 2046)

Destinations	Lodge Farm	Wyton Airfield	The Lattenburys	Land North of A141	Cambridge City	South Cambridgeshire	East Cambridgeshire	Huntingdon Town	St Ives Town	Huntingdonshire South	Huntingdonshire Central	Huntingdonshire East	Huntingdonshire North	Huntingdonshire North East	Huntingdonshire North Central	Huntingdonshire West	Peterborough	Fenland	External	Total
Origins																				
Lodge Farm	-29	-50	-2	-3	-6	-19	-3	-15	-9	-10	-27	-8	-3	-10	-20	3	-19	-7	-10	-248
Wyton Airfield	-51	-140	-8	-19	-31	-95	-37	-71	-59	-37	-111	-59	-12	-70	-74	-9	-108	-79	-48	-1,118
The Lattenburys	-2	-8	-4	0	-3	-10	0	-2	-1	-6	-2	3	-1	-2	-5	4	-2	0	-1	-42
Land North of A141	-3	-18	0	0	0	0	1	1	1	-3	12	4	-3	0	-9	18	2	2	1	5
Cambridge City	-6	-30	-3	0	242	42	3	0	2	-49	39	26	-5	-15	-18	24	-1	-4	22	269
South Cambridgeshire	-16	-86	-10	0	39	-1	0	3	9	-156	102	80	-11	-53	-40	66	6	3	9	-56
East Cambridgeshire	-3	-35	0	1	-3	-6	0	3	1	-11	9	29	-1	-37	1	6	4	1	1	-40
Huntingdon Town	-14	-68	-2	1	0	5	3	4	4	-9	48	17	-6	-1	-18	38	9	9	4	25
St Ives Town	-9	-57	-1	1	3	9	1	4	0	-5	19	52	-1	-22	0	9	9	2	8	21
Huntingdonshire South	-9	-36	-6	-3	-50	-165	-11	-8	-5	-513	9	1	-7	-4	-33	34	-13	3	-65	-880
Huntingdonshire Central	-25	-107	-1	12	42	110	10	51	20	13	114	47	-3	-2	-10	52	49	15	9	397
Huntingdonshire East	-7	-57	3	4	28	87	31	17	53	2	46	114	0	-13	6	14	26	20	19	392
Huntingdonshire North	-3	-11	-1	-3	-5	-11	-1	-6	-1	-7	-4	0	-50	-3	-53	7	-242	-10	-17	-423
Huntingdonshire North East	-10	-70	-2	0	-15	-56	-39	-1	-23	-5	-3	-15	-3	-36	-15	7	1	-27	-5	-316
Huntingdonshire North Central	-20	-73	-5	-9	-18	-41	1	-19	0	-34	-12	6	-54	-14	-211	18	-313	-12	-66	-876
Huntingdonshire West	3	-9	5	18	25	68	6	39	10	35	52	15	8	7	18	71	106	12	43	530
Peterborough	-16	-95	-2	1	-1	4	4	5	7	-13	44	22	-231	2	-297	101	37	14	45	-369
Fenland	-7	-75	0	2	-4	2	0	9	1	3	14	18	-10	-25	-12	12	15	-1	15	-42
External	-10	-48	-1	1	21	6	1	4	8	-67	7	19	-17	-5	-66	43	46	15	0	-45
Total	-239	-1,072	-43	3	262	-69	-31	18	18	-871	355	370	-410	-303	-856	519	-389	-43	-37	-2,818

3.4.5 Highway model assignment statistics

Table 3-6 presents a comparison of highway assignment metrics between the Phase 2 Hybrid DS and the Core DM1 across the AM, IP and PM periods. Overall, the results show only marginal changes, with matrix totals reducing by between 0.1% and 0.2% across the three time periods.

Within Huntingdonshire, travel distance and vehicle hours also reduce slightly in Core DM1. Travel distance decreases by around 0.2% to 0.3%, while vehicle hours reduce by up to 0.9% in the AM period. Total delay also decreases across all time periods, with the largest reduction in the AM period at 2.2%.

These changes are minor and are consistent with the limited differences between the Hybrid DS and Core DM1 assumptions. Overall, the results indicate that the updated Core DM1 growth assumptions do not materially alter highway demand or network performance compared with the Phase 2 Hybrid DS.

Table 3-6 - Key highway assignment model statistics for Huntingdonshire – Hybrid DS vs Core DM1 (Forecast Year 2046)

Metric	Analysis area	Time period	Hybrid DS	Core DM1	Difference	Difference (%)
Matrix Totals	Whole model area	AM	246,532	246,138	-393	-0.2%
		IP	182,584	182,332	-253	-0.1%
		PM	254,239	253,916	-324	-0.1%
Travel Distance (km)	Huntingdonshire	AM	1,006,298	1,002,852	-3,446	-0.3%
		IP	779,162	777,433	-1,729	-0.2%
		PM	1,015,922	1,013,206	-2,716	-0.3%
Travel Time (vehicle hours)	Huntingdonshire	AM	16,869	16,715	-153	-0.9%
		IP	11,088	11,051	-36	-0.3%
		PM	16,093	16,011	-81	-0.5%
Total Delay (hours)	Huntingdonshire	AM	4,703	4,599	-105	-2.2%
		IP	1,713	1,701	-12	-0.7%
		PM	3,833	3,784	-49	-1.3%

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3.4.6 Junction delay

Figure A-1 to Figure A-12 in Appendix A present the differences in mean link delay and traffic flows between the Phase 2 Hybrid DS and Core DM1 across the AM, inter-peak and PM periods. The plots are presented for two geographical extents, covering the Huntingdon and St Neots areas which see the most growth.

For the St Neots extent, there is little to no change in delay across the three time periods, both within St Neots and on routes towards/from Central Bedfordshire. This indicates that the updated Core DM1 development assumptions have no material effect on highway performance in this area.

For the Huntingdon extent, the only notable change occurs during the AM peak, where Figure A-2 shows reduced delay at the A141/B1090 roundabout compared with the Hybrid DS. This is consistent with the lower housing and employment allocations at Wyton Airfield, which reduce pressure on the junction. The corresponding flow difference plot in Figure A-8 indicates some re-routing onto the A141 bypass from the A1123, supported by the reduction in delay at the roundabout.

Changes during the inter-peak and PM periods are limited, with delay patterns remaining broadly consistent with the Hybrid DS. Although AM peak delay at the five-arm roundabout is lower in Core DM1, the junction continues to experience notable delay, reflecting the high level of congestion identified at this location in the Phase 2 Hybrid DS scenario.

3.5 Further steps

The Core DM1 assessment shows a lower increase in AM peak delay at the A141/B1090 roundabout compared with the Phase 2 Hybrid DS. However, the difference is small relative to the overall level of delay, and the junction remains a significant network constraint. Further mitigation testing was therefore undertaken to consider how the highway network could better accommodate the proposed level of growth and support the feasibility of the Core Development Scenario. The additional measures represented in Core DS1 are outlined in the following section.

4. Proposed Mitigation Package

As part of the mitigation development process, a mitigation log was prepared and shared with HDC. The log records the interventions considered throughout the study, including a description of each measure, its intended transport outcome, indicative deliverability, and high-level cost estimates. The cost information was provided to support wider viability and infrastructure planning work being undertaken by HDC. This chapter summarises the approach used to develop and review potential mitigation measures and highlights the key interventions tested as part of the Core DS1 scenario.

4.1 Core scenario mitigation measures

The Core DS1 scenario includes a small number of additional mitigation measures beyond those already retained from Hybrid DS as described in Section 3.3.1. These focus on specific residual constraints and connectivity requirements identified through the Phase 2 assessment, rather than representing a further district-wide mitigation package.

No additional public transport mitigation measures were coded as part of Core DS1.

4.1.1 Active travel interventions

The active travel interventions coded in Core DS1 were focused on improving connections from strategic development locations to the surrounding active travel network. These changes were intended to improve the representation of pedestrian and cycle access within the model.

An active travel connection was coded between Lodge Farm and Huntingdon town, including updates to existing active mode links and the addition of a pedestrian and cycle connection in both directions. A new active travel connector was also added from Wyton Airfield towards the western roundabout. These measures provide additional active travel connectivity from key strategic sites and supplement the wider active travel package already included within the Hybrid DS.

4.1.2 Highway interventions

The additional highway interventions coded in Core DS1 were focused on the A141 / B1090 Sawtry Way area near Wyton-on-the-Hill. The Phase 2 assessment identified continuing constraints in this area, including delay associated with the operation of the A141 corridor and the highway network surrounding Wyton Airfield. The Core DS1 highway measures were therefore coded to test the effect of further capacity in this part of the network.

The A141-related updates have been included as modelling assumptions to test how changes in highway capacity and connectivity could affect network performance. They should be treated as indicative at this stage for the purposes of this strategic testing, with any future scheme design subject to further development and review.

The key highway updates included:

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- Updates to the modelled A141 / B1090 Sawtry Way roundabout, including a larger roundabout arrangement, longer entry flares on all arms and the removal of signalisation implemented as a Hybrid DS mitigation. This was coded to test the effect of additional approach capacity at this location.
- A new three-arm roundabout representing the connection between the A141 bypass and B1090 Sawtry Way. This provided an amended modelled connection between the bypass infrastructure and the existing highway network.
- Further changes to the modelled highway connection between the A141 bypass and the existing A141 / B1090 Sawtry Way junction.
- An update to the representation of the A141 bypass alignment, with the modelled connection amended relative to the Core DM1 scenario. Other elements of the A141 bypass coding were retained as per Core DM1.

5. Technical Modelling (Core Development Do-Something Scenario 1 vs Core Development Do-Minimum Scenario 1)

5.1 Introduction

This chapter summarises the CaPCAM strategic modelling undertaken to assess the Core DS1. The assessment compares the Core DS1 against the Core DM1 to evaluate the effectiveness of the proposed mitigation measures outlined in section 4.

5.2 Results

5.2.1 Trips

Table 5-1 presents the forecast 24-hour trip volumes in Huntingdonshire, including all strategic sites, by mode for the 2046 forecast year. The table compares the Core DS1 run against the Core DM1. Overall, the results show that total trip volumes are slightly higher in the Core DS1 scenario, with an increase of 240 trips compared with the Core DM1 scenario. Both active modes and public transport see decreases in trip volumes. Whilst park and ride sees a small increase in trips, the increases are largely driven by increases in highway network conditions. This represents a minor change at the district-wide level, which is expected given the limited additional mitigation introduced in Core DS1.

Table 5-1 - 24hr trip volumes by mode in Huntingdonshire (Forecast Year 2046)

Mode	Core DM1	Core DS1	Change between Core DM1 and Core DS1
Active Modes	162,581	162,267	-314
Public Transport	36,003	35,901	-102
P&R	3,308	3,324	16
Car	418,978	419,618	641
Total	620,870	621,110	240

5.2.2 Mode Share

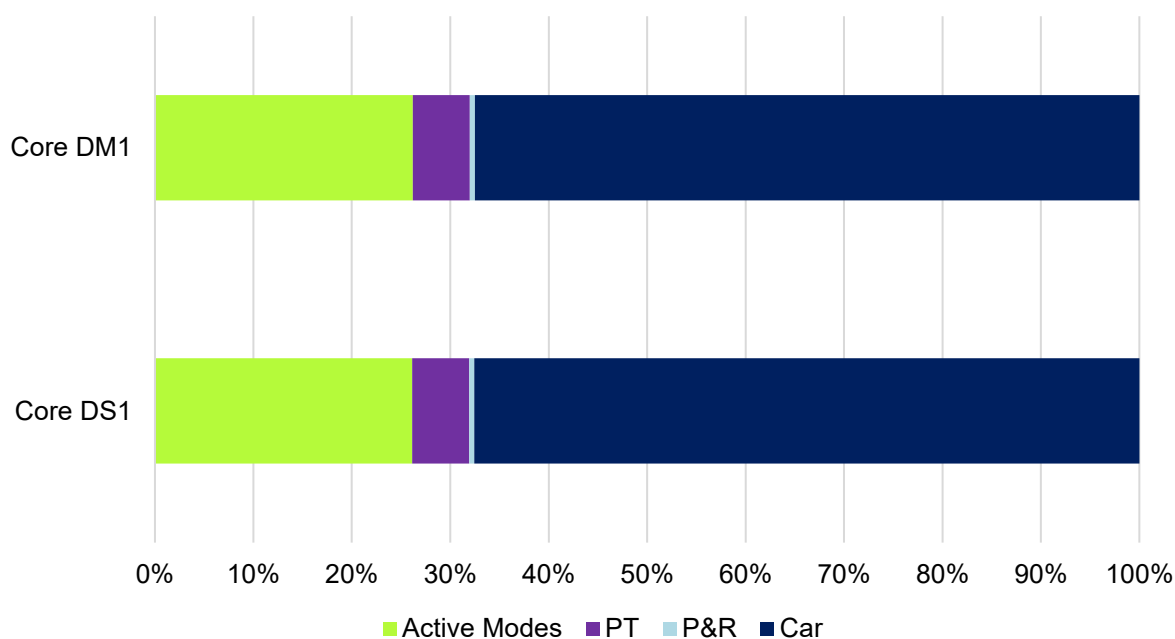
Table 5-2 and Figure 5-1 present the forecast 24-hour mode share for trips originating in Huntingdonshire for the 2046 forecast year. The results show only negligible changes in overall mode share, with car mode share increasing by 0.1% and active mode share decreasing by 0.1%. Public transport and park and ride mode shares remain unchanged. Overall, the additional mitigation measures included in Core DS1 have no material impact on mode share at the district-wide level.

TECHNICAL NOTE

Table 5-2 - 24hr mode share (%) in Huntingdonshire (Forecast Year 2046)

Mode	Core DM1	Core DS1	Change between Core DM1 and Core DS1
Active Modes	26.2%	26.1%	-0.1%
Public Transport	5.8%	5.8%	0.0%
P&R	0.5%	0.5%	0.0%
Car	67.5%	67.6%	0.1%

Figure 5-1 - 24hr mode Share split (%) in Huntingdonshire



5.2.3 Sector Mode Share

Table 5-3 and Table 5-4 present mode share results for trips originating from each sector under the Core DM1 and Core DS1 scenarios. These tables assess the effectiveness of the do something scenario by highlighting changes in mode share and absolute trip volumes, with a focus on both district-wide sectors and individual strategic sites.

Across Huntingdonshire sectors the following can be observed:

- There is minimal change across Huntingdonshire.
- Public transport sees the largest decreases at -1% change for Huntingdon East which equates to -13 trips.
- Park and ride see the largest increases at +1% change for Huntingdon North and North East. This percentage change however equates to only +2 trips and +1 trip respectively.

TECHNICAL NOTE

Most strategic sites demonstrate a small shift in travel behaviour suggesting that the changes between Core DM1 and Core DS1 are having little impact on mode choice.

- **Lodge Farm:** Public transport trips decrease by -20 (-1.4%) where car trips increase by +2 (+1.5%). Active travel and park and ride increase by +0.7% and +0.5% respectively.
- **The Lattenburys:** The site sees little to no change where active travel, public transport and car see no change in percentage. Park and ride sees +0.6% increase however this is only +1 trip.
- **Wyton Airfield:** Car trips increases by +190, with a +1.7% increase. Active travel sees a -1.7% decrease which is equal to a decrease of -100 trips. Public transport sees a decrease of -1.8% which equates to a -14 decrease. Park and ride sees +1% increase however this is only +1 trip.
- **Land North of A141:** Trips across all modes only change by -2 to +1 trips. Active travel and public transport decrease by -0.3% and -0.2% respectively. Car and park and ride see no change in percentages.

These results show that strategic sites have a minimal response to the changes in mitigation.

TECHNICAL NOTE

Table 5-3 - Sector origin trips by mode (24hrs) - Core DM1 vs Core DS1 (Forecast Year 2046)

	Core DM1				Core DS1				Difference (%)			
	Active Modes	PT	P&R	Car	Active Modes	PT	P&R	Car	Active Modes	PT	P&R	Car
Huntingdon Town	11,713	5,595	510	29,682	11,687	5,584	509	29,710	0%	0%	0%	0%
St Ives Town	14,200	3,809	506	27,018	14,159	3,788	512	27,138	0%	-1%	1%	0%
Huntingdonshire South	43,798	8,587	516	84,847	43,787	8,589	517	84,832	0%	0%	0%	0%
Huntingdonshire Central	22,875	5,247	435	55,739	22,822	5,232	436	55,818	0%	0%	0%	0%
Huntingdonshire East	11,793	2,374	334	39,169	11,745	2,361	335	39,269	0%	-1%	0%	0%
Huntingdonshire North	8,593	1,767	54	32,074	8,591	1,767	54	32,071	0%	0%	1%	0%
Huntingdonshire North East	13,594	1,378	205	36,272	13,561	1,375	207	36,315	0%	0%	1%	0%
Huntingdonshire North Central	18,247	3,174	251	54,796	18,211	3,170	252	54,828	0%	0%	0%	0%
Huntingdonshire West	2,043	461	78	16,929	2,042	461	79	16,926	0%	0%	0%	0%
Lodge Farm	6,112	1,420	102	13,177	6,154	1,400	104	13,246	1%	-1%	1%	1%
Wyton Airfield	5,881	782	80	11,141	5,781	767	81	11,331	-2%	-2%	1%	2%
The Lattenburys	3,234	1,101	124	11,130	3,232	1,100	124	11,130	0%	0%	1%	0%
Land North of A141	497	309	113	7,003	495	308	113	7,006	0%	0%	0%	0%
Cambridge	214,716	49,805	9,685	173,335	214,722	49,789	9,708	173,286	0%	0%	0%	0%
South Cambridgeshire	100,562	25,127	2,748	384,973	100,544	25,120	2,753	384,921	0%	0%	0%	0%
East Cambridgeshire	58,915	8,407	638	175,789	58,906	8,405	638	175,774	0%	0%	0%	0%
Peterborough	174,775	40,162	332	534,930	174,760	40,157	334	534,874	0%	0%	0%	0%
Fenland	68,141	8,760	229	193,895	68,100	8,754	230	193,918	0%	0%	0%	0%
External	1965	14208	2083	229,376	1,965	14,200	2,085	229,374	0%	0%	0%	0%
Hunts (excluding SS)	146,857	32,392	2,889	376,526	146,604	32,326	2,901	376,906	0%	0%	0%	0%

TECHNICAL NOTE

Table 5-4 - Mode share split (%) of sector origin trips (24hrs) - Core DM1 vs Core DS1 (Forecast Year 2046)

	Core DM1				Core DS1				Difference (%)			
	Active Modes	PT	P&R	Car	Active Modes	PT	P&R	Car	Active Modes	PT	P&R	Car
Huntingdon Town	25%	12%	1%	62%	25%	12%	1%	63%	0.0%	0.0%	0.0%	0.1%
St Ives Town	31%	8%	1%	59%	31%	8%	1%	60%	-0.1%	-0.1%	0.0%	0.2%
Huntingdonshire South	32%	6%	0%	62%	32%	6%	0%	62%	0.0%	0.0%	0.0%	0.0%
Huntingdonshire Central	27%	6%	1%	66%	27%	6%	1%	66%	-0.1%	0.0%	0.0%	0.1%
Huntingdonshire East	22%	4%	1%	73%	22%	4%	1%	73%	-0.1%	0.0%	0.0%	0.1%
Huntingdonshire North	20%	4%	0%	75%	20%	4%	0%	75%	0.0%	0.0%	0.0%	0.0%
Huntingdonshire North East	26%	3%	0%	71%	26%	3%	0%	71%	-0.1%	0.0%	0.0%	0.1%
Huntingdonshire North Central	24%	4%	0%	72%	24%	4%	0%	72%	0.0%	0.0%	0.0%	0.0%
Huntingdonshire West	10%	2%	0%	87%	10%	2%	0%	87%	0.0%	0.0%	0.0%	0.0%
Lodge Farm	29%	7%	0%	63%	29%	7%	0%	63%	0.1%	-0.1%	0.0%	0.0%
Wyton Airfield	33%	4%	0%	62%	32%	4%	0%	63%	-0.7%	-0.1%	0.0%	0.8%
The Lattenburys	21%	7%	1%	71%	21%	7%	1%	71%	0.0%	0.0%	0.0%	0.0%
Land North of A141	6%	4%	1%	88%	6%	4%	1%	88%	0.0%	0.0%	0.0%	0.0%
Cambridge	48%	11%	2%	39%	48%	11%	2%	39%	0.0%	0.0%	0.0%	0.0%
South Cambridgeshire	20%	5%	1%	75%	20%	5%	1%	75%	0.0%	0.0%	0.0%	0.0%
East Cambridgeshire	24%	3%	0%	72%	24%	3%	0%	72%	0.0%	0.0%	0.0%	0.0%
Peterborough	23%	5%	0%	71%	23%	5%	0%	71%	0.0%	0.0%	0.0%	0.0%
Fenland	25%	3%	0%	72%	25%	3%	0%	72%	0.0%	0.0%	0.0%	0.0%
External	1%	6%	1%	93%	1%	6%	1%	93%	0.0%	0.0%	0.0%	0.0%
Hunts (excluding SS)	26%	6%	1%	67%	26%	6%	1%	67%	0.0%	0.0%	0.0%	0.1%

5.2.4 Sector to sector car trips

Table 5-5 presents the change in 24-hour car movements between sectors in Core DS1 compared with Core DM1. Overall, the changes are minimal relative to the volume of trips represented, with a net increase of 489 car trips across the matrix. The most notable change relates to Wyton Airfield, with 190 additional trips originating from the site and 180 additional trips travelling to it. Although modest in scale, this localised increase is consistent with the highway measures in Core DS1 improving the operation of the network around Wyton Airfield and enabling more trips to enter and leave the site. Other sector-to-sector changes are small and do not indicate a material shift in the wider pattern of car travel.

TECHNICAL NOTE

Table 5-5 - Sector to sector car trips (24hr) - Core DM 1 vs Core DS 1 (Forecast Year 2046)

Destinations	Lodge Farm	Wyton Airfield	The Lattenburys	Land North of A141	Cambridge City	South Cambridgeshire	East Cambridgeshire	Huntingdon Town	St Ives Town	Huntingdonshire South	Huntingdonshire Central	Huntingdonshire East	Huntingdonshire North	Huntingdonshire North East	Huntingdonshire North Central	Huntingdonshire West	Peterborough	Fenland	External	Total
Origins																				
Lodge Farm	-23	41	-4	-1	-13	-31	17	-19	50	-12	-33	29	-1	38	0	-1	-7	48	-8	69
Wyton Airfield	39	-31	6	1	15	33	-16	21	11	17	58	9	4	-21	24	3	30	-31	16	190
The Lattenburys	-4	7	-1	0	-1	-3	1	-3	2	-1	-5	3	0	3	0	0	0	4	0	0
Land North of A141	-2	-1	0	0	0	0	0	0	4	0	-2	3	0	1	-1	0	0	2	-1	2
Cambridge City	-13	16	-1	0	-50	-6	-1	-2	3	0	-7	-1	1	3	0	0	6	1	1	-48
South Cambridgeshire	-29	32	-3	0	-9	-25	4	-10	4	-8	-24	-5	2	2	0	0	12	3	0	-52
East Cambridgeshire	16	-15	1	1	0	8	-30	7	-10	1	15	-16	1	-10	15	1	2	-10	6	-16
Huntingdon Town	-18	20	-3	-1	-2	-12	7	-8	8	-8	-21	12	1	21	-5	-2	5	37	-4	28
St Ives Town	44	15	2	4	2	4	-10	7	-34	3	11	-33	6	-3	36	5	46	-6	23	120
Huntingdonshire South	-12	17	-1	0	0	-10	1	-8	3	-23	-13	7	0	12	-5	-2	0	25	-6	-16
Huntingdonshire Central	-33	58	-5	-1	-7	-28	16	-21	14	-13	-39	24	0	45	-7	-2	6	74	-2	79
Huntingdonshire East	25	11	3	2	-2	-7	-16	11	-33	7	22	-39	5	8	31	4	36	14	19	100
Huntingdonshire North	-1	3	0	0	1	2	1	0	6	0	0	5	-2	-1	-4	0	-11	0	-3	-4
Huntingdonshire North East	37	-21	2	2	2	1	-11	22	-4	12	46	7	-1	-29	11	2	-14	-26	4	42
Huntingdonshire North Central	0	21	0	-1	0	-1	12	-5	38	-5	-7	31	-4	8	-25	-3	-40	25	-14	32
Huntingdonshire West	-1	3	0	0	0	-1	1	-2	6	-3	-2	4	0	1	-3	-3	-3	4	-4	-2
Peterborough	-8	18	0	0	5	10	0	1	39	-1	1	30	-10	-14	-39	-3	-52	-7	-27	-56
Fenland	44	-29	3	4	0	2	-13	38	-7	24	73	11	0	-25	31	5	-4	-133	-3	23
External	-8	16	0	-1	1	0	5	-4	23	-6	-2	19	-3	4	-14	-4	-26	-4	0	-2
Total	52	180	0	9	-57	-64	-32	25	123	-15	72	100	1	43	45	0	-14	22	-3	489

5.2.5 Highway model assignment statistics

Table 5-6 compares highway assignment metrics between Core DM1 and Core DS1 across the AM, inter-peak and PM periods.

Travel distance increases slightly across all periods, by between 0.2% and 0.4%, while travel time decreases by 0.8% in the AM peak but increases marginally during the inter-peak and PM periods. Delay reduces across all three periods, with the largest improvement occurring in the AM peak. Total delay decreases by 6.0% in the AM peak, compared with 3.1% in the inter-peak and 1.6% in the PM peak, with a similar pattern observed for delay per vehicle kilometre. This is significant because the AM peak experienced the greatest delay in both the Hybrid Strategy and Core DM1, particularly around the A141/B1090 junction. The results therefore indicate that the additional highway mitigation measures in Core DS1 help to address the principal highway constraint identified during the testing of the Hybrid DS.

Table 5-6 - Key highway assignment model statistics for Huntingdonshire - Core DM 1 vs Core DS 1 (Forecast Year 2046)

Metric	Analysis area	Time period	Core DM1	Core DS1	Difference	Difference (%)
Matrix Totals	Whole model area	AM	246,138	246,168	30	0.0%
		IP	182,332	182,340	9	0.0%
		PM	253,916	253,917	1	0.0%
Travel Distance (km)	Huntingdonshire	AM	1,002,852	1,007,161	4,308	0.4%
		IP	777,433	778,633	1,200	0.2%
		PM	1,013,206	1,015,571	2,365	0.2%
Travel Time (vehicle hours)	Huntingdonshire	AM	16,715	16,584	-132	-0.8%
		IP	11,051	11,090	38	0.3%
		PM	16,011	16,106	95	0.6%
Delay per vehicle KM (hours)	Huntingdonshire	AM	17	15	-1	-6.4%
		IP	8	8	0	-3.2%
		PM	13	13	0	-1.8%
Total Delay (hours)	Huntingdonshire	AM	4,599	4,321	-278	-6.04%
		IP	1,701	1,648	-52	-3.08%
		PM	3,784	3,725	-59	-1.55%

5.2.6 Junction delay

Figure B-1 to Figure B-12 in Appendix B present the differences in mean link delay and traffic flows between Core DM1 and Core DS1 across the AM, inter-peak and PM periods. The plots are presented for two geographical extents, covering the Huntingdon and St Neots areas.

For the St Neots extent, there is little to no change in delay or traffic flows across the three time periods. This is expected, as no additional mitigation measures were introduced in this area as part of Core DS1.

For the Huntingdon extent, the most notable changes occur during the AM peak. Figure B-2 shows substantial reductions in delay on the approach arms of the updated A141/B1090 roundabout, as well as at the new roundabout connecting the A141 bypass with B1090 Sawtry Way. The corresponding flow difference plot (Figure B-8) shows increased traffic using the bypass and reduced flows on routes through Huntingdon, indicating that improved conditions encourage traffic to reassign onto the bypass. Changes during the inter-peak and PM periods are more limited. In the PM peak, reduced delay is observed on the eastbound approach to the new roundabout, although some additional delay is transferred onto the connection between the two roundabouts.

Overall, the Core DS1 testing demonstrates that targeted improvements in the A141/B1090 area can reduce delay, improve highway conditions and encourage traffic to use the bypass rather than routes through Huntingdon in the AM peak. This indicates that the differing growth included within the Core Development Scenario compared to the Hybrid Strategy can be supported through appropriate mitigation in this area.

6. Technical Modelling (Core Development Do Something Scenario 1 vs Reference Case)

6.1 Introduction

This section compares the Core DS1 scenario against the 2046 CaPCAM Reference Case. The Reference Case represents committed growth and transport schemes expected by 2046 that are not associated with the emerging Huntingdonshire Local Plan.

The comparison therefore identifies the additional transport impacts associated with the entire Core Development Scenario, including its proposed growth and associated mitigation measures. The results provide an indication of how the Core DS1 scenario affects travel demand, mode share and highway network performance relative to the 2046 baseline.

6.2 Results

6.2.1 Trips

Table 6-1 presents the forecast 24-hour trip volumes in Huntingdonshire, including all strategic sites, by mode for the 2046 forecast year. The table compares the Core DS1 run against the Reference Case scenario. Overall, the results show that total trip volumes are higher in the DS1 scenario, with an increase of 125,930 trips compared with the Reference Case scenario. Car trips see the largest increase, making up 66% of the total change, followed by active travel which increases by 24%. Public transport and park and ride see much smaller increases, making up 8% and 2% of the change respectively. The additional Local Plan growth increases demand across all modes, although most additional trips are forecast to be made by car.

Table 6-1 - 24hr trip volumes by mode in Huntingdonshire (Forecast Year 2046)

Mode	Reference Case	Core DS1	Change between Reference Case and Core DS1
Active Modes	131,684	162,267	30,583
Public Transport	25,204	35,901	10,697
P&R	1,409	3,324	1,915
Car	336,883	419,618	82,735
Total	495,180	621,110	125,930

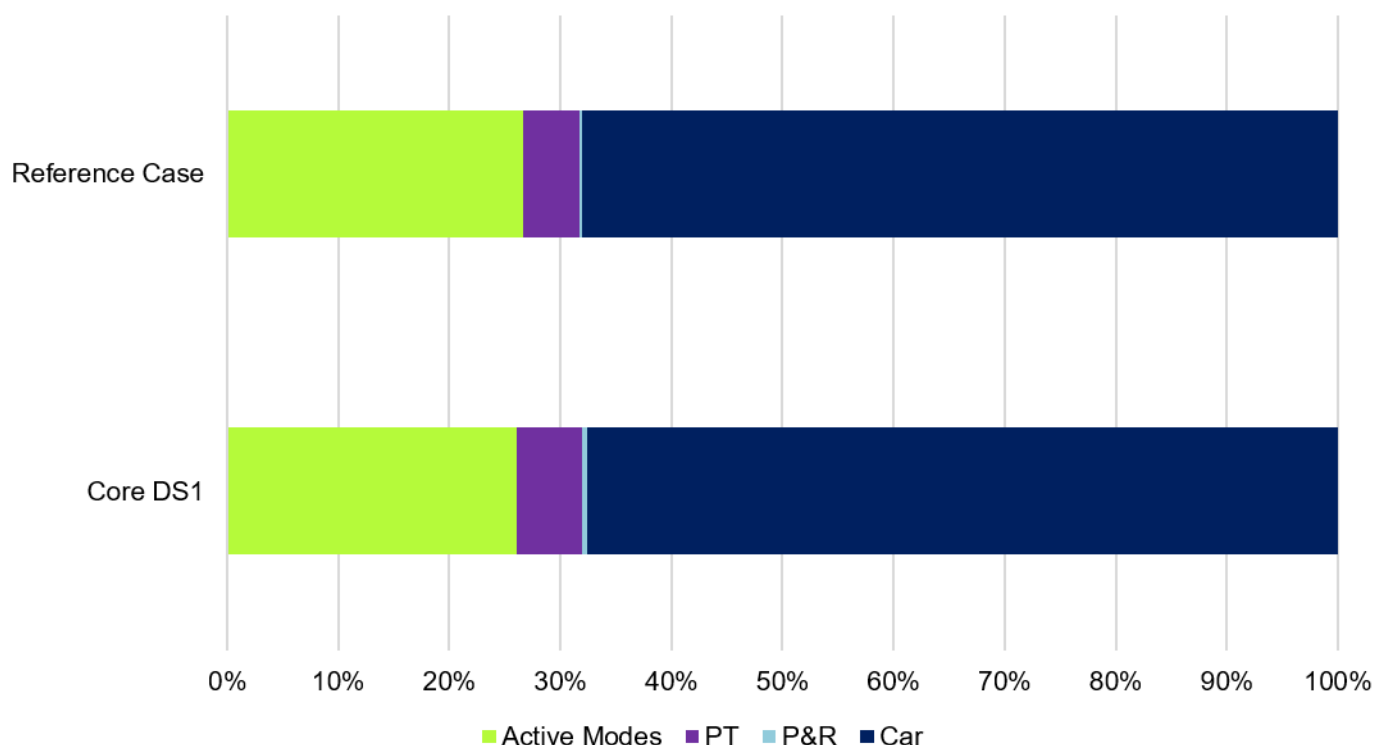
6.2.2 Mode Share

Table 6-2 and Figure 6-1 present the forecast 24-hour mode share in Huntingdonshire for the 2046 forecast year. The results show minimal change in overall mode share between the Core Development Scenario DS1 run against the Reference Case scenario. The trends observed in mode share do not mirror those in trip volumes, with car dependency and active travel decreasing. Public transport and park and ride increase as proportions of overall trips. Overall, the results indicate a modest shift away from car travel, with public transport and park and ride accounting for a greater proportion of trips in Core DS1 than in the Reference Case.

Table 6-2 - 24hr mode share (%) in Huntingdonshire (Forecast Year 2046)

Mode	Reference Case	Core DS1	Change between Reference Case and Core DS1
Active Modes	26.6%	26.1%	-0.5%
Public Transport	5.1%	5.8%	0.7%
P&R	0.3%	0.5%	0.2%
Car	68.0%	67.6%	-0.4%

Figure 6-1 - 24hr mode Share split (%) in Huntingdonshire



6.2.3 Sector Mode Share

Table 6-3 and Table 6-4 present mode share results for trips originating from each sector under the Reference Case and DS1 scenarios. These tables demonstrate the overall impact of the Core DS1 scenario by highlighting changes in mode share and absolute trip volumes.

Across the existing Huntingdonshire sectors, the following can be observed:

- Trip volumes increase across most modes and sectors, reflecting the additional development included in Core DS1. Across Huntingdonshire excluding the strategic sites, car trips increase by 12%, active-mode trips by 11%, public transport trips by 28% and park and ride trips by 106%.
- The largest increases in absolute trip volumes occur in Huntingdonshire East and Huntingdonshire North Central. In Huntingdonshire East, active-mode trips increase by 4,419, public transport trips by 978 and car trips by 12,293. In Huntingdonshire North Central, the corresponding increases are 4,137 active-mode trips, 1,286 public transport trips and 8,463 car trips.
- Huntingdonshire East also records the largest proportional increases in active-mode, public transport and car trips, at 60%, 71% and 46% respectively. These increases reflect the concentration of additional development within and around this sector.
- Park and ride trips increase across all existing Huntingdonshire sectors as a result of several new park and ride sites introduced through mitigation packages. The largest proportional increase occurs in Huntingdon Town, where trips increase from 83 to 509. Although this represents an increase of 515%, the percentage change reflects the low number of park and ride trips in the district in the Reference Case. The largest absolute increase is also associated with Huntingdon Town, at approximately 426 additional trips.
- Huntingdon Town, with minimal additional growth, is the only existing Huntingdonshire sector to record a reduction in car trips, with 379 fewer trips than in the Reference Case. Together with increases of 1,378 public transport trips and 426 park and ride trips, this reduces car mode share by 3.0 percentage points.

The changes in mode share are more limited than the increases in trip volumes:

- Car mode share decreases in six of the nine existing Huntingdonshire sectors. The largest reductions occur in Huntingdon Town, Huntingdonshire North Central and Huntingdonshire East, where car mode share decreases by 3.0, 2.6 and 2.1 percentage points respectively.
- Public transport mode share increases or remains broadly unchanged across the existing Huntingdonshire sectors. The largest increases occur in Huntingdon Town and St Ives Town, at 2.6 and 2.1 percentage points respectively. Huntingdonshire North Central also records an increase of 1.1 percentage points.
- Active-mode share increases in Huntingdonshire East, Huntingdonshire Central and Huntingdonshire North Central. The largest increase occurs in Huntingdonshire East, at 1.4 percentage points. Reductions occur elsewhere, most notably in Huntingdonshire North, where active-mode share decreases by 2.0 percentage points.
- Huntingdonshire North is the only sector to record a material increase in car mode share, rising by 1.7 percentage points. Huntingdonshire South records a smaller increase of 0.5 percentage points, while the changes in Huntingdonshire North East and the remaining sectors are limited.
- Changes outside Huntingdonshire are comparatively small. Although trip volumes change in some external sectors, the mode-share differences are generally no greater than 0.4 percentage points.

The four strategic sites generate approximately 62,400 trips in Core DS1. Lodge Farm and Wyton Airfield have the lowest car mode shares, at approximately 63%, supported by active-mode shares of 29% and 32% respectively. The Lattenburys has a higher car mode share of 71%, while Land North of A141 has the most car-dependent profile, with

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88% of trips forecast to be made by car. This reflects the predominantly employment-based development represented at Land North of A141 and its comparatively low forecast active-mode share.

Overall, Core DS1 increases travel demand across Huntingdonshire but results in modest reductions in car mode share across most existing sectors. The most pronounced changes occur in Huntingdon Town, Huntingdonshire East and Huntingdonshire North Central, where increased public transport, park and ride or active-mode shares accompany reductions in the proportion of trips made by car. The results therefore indicate that the development and mitigation represented in Core DS1 support some redistribution away from car travel, although the scale and composition of this change vary across the district.

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Table 6-3 - Sector origin trips by mode (24hrs) - Reference Case vs Core DS 1 (Forecast Year 2046)

	Reference Case				Core DS1				Difference (%)			
	Active Modes	PT	P&R	Car	Active Modes	PT	P&R	Car	Active Modes	PT	P&R	Car
Huntingdon Town	11,487	4,206	83	30,089	11,687	5,584	509	29,710	2%	33%	515%	-1%
St Ives Town	14,044	2,734	263	27,002	14,159	3,788	512	27,138	1%	39%	95%	1%
Huntingdonshire South	41,707	7,588	390	77,969	43,787	8,589	517	84,832	5%	13%	33%	9%
Huntingdonshire Central	20,092	4,224	213	51,596	22,822	5,232	436	55,818	14%	24%	105%	8%
Huntingdonshire East	7,326	1,383	163	26,976	11,745	2,361	335	39,269	60%	71%	106%	46%
Huntingdonshire North	8,146	1,435	32	27,047	8,591	1,767	54	32,071	5%	23%	68%	19%
Huntingdonshire North East	12,941	1,320	121	34,277	13,561	1,375	207	36,315	5%	4%	71%	6%
Huntingdonshire North Central	14,074	1,884	102	46,365	18,211	3,170	252	54,828	29%	68%	147%	18%
Huntingdonshire West	1,867	429	42	15,561	2,042	461	79	16,926	9%	7%	86%	9%
Lodge Farm	-	-	-	-	6,154	1,400	104	13,246	-	-	-	-
Wyton Airfield	-	-	-	-	5,781	767	81	11,331	-	-	-	-
The Lattenburys	-	-	-	-	3,232	1,100	124	11,130	-	-	-	-
Land North of A141	-	-	-	-	495	308	113	7,006	-	-	-	-
Cambridge	215,772	48,976	8,473	172,554	214,722	49,789	9,708	173,286	0%	2%	15%	0%
South Cambridgeshire	101,338	24,291	2,327	384,243	100,544	25,120	2,753	384,921	-1%	3%	18%	0%
East Cambridgeshire	59,196	8,481	603	176,307	58,906	8,405	638	175,774	0%	-1%	6%	0%
Peterborough	176,966	40,186	213	538,232	174,760	40,157	334	534,874	-1%	0%	57%	-1%
Fenland	68,873	8,649	176	194,999	68,100	8,754	230	193,918	-1%	1%	31%	-1%
External	1,974	14,336	1,761	229,115	1,965	14,200	2,085	229,374	0%	-1%	18%	0%
Hunts (excluding SS)	131,684	25,204	1,409	336,883	146,604	32,326	2,901	376,906	11%	28%	106%	12%

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Table 6-4 - Mode share split (%) of sector origin trips (24hrs) - Reference Case vs Core DS 1 (Forecast Year 2046)

	Reference Case				Core DS1				Difference (%)			
	Active Modes	PT	P&R	Car	Active Modes	PT	P&R	Car	Active Modes	PT	P&R	Car
Huntingdon Town	25%	9%	0%	66%	25%	12%	1%	63%	-0.4%	2.6%	0.9%	-3.0%
St Ives Town	32%	6%	1%	61%	31%	8%	1%	60%	-0.8%	2.1%	0.5%	-1.8%
Huntingdonshire South	33%	6%	0%	61%	32%	6%	0%	62%	-0.9%	0.3%	0.1%	0.5%
Huntingdonshire Central	26%	6%	0%	68%	27%	6%	1%	66%	0.7%	0.7%	0.2%	-1.6%
Huntingdonshire East	20%	4%	0%	75%	22%	4%	1%	73%	1.4%	0.5%	0.2%	-2.1%
Huntingdonshire North	22%	4%	0%	74%	20%	4%	0%	75%	-2.0%	0.2%	0.0%	1.7%
Huntingdonshire North East	27%	3%	0%	70%	26%	3%	0%	71%	-0.2%	0.0%	0.2%	0.1%
Huntingdonshire North Central	23%	3%	0%	74%	24%	4%	0%	72%	1.3%	1.1%	0.2%	-2.6%
Huntingdonshire West	10%	2%	0%	87%	10%	2%	0%	87%	0.0%	0.0%	0.2%	-0.2%
Lodge Farm	-	-	-	-	29%	7%	0%	63%	-	-	-	-
Wyton Airfield	-	-	-	-	32%	4%	0%	63%	-	-	-	-
The Lattenburys	-	-	-	-	21%	7%	1%	71%	-	-	-	-
Land North of A141	-	-	-	-	6%	4%	1%	88%	-	-	-	-
Cambridge	48%	11%	2%	39%	48%	11%	2%	39%	-0.4%	0.1%	0.3%	0.0%
South Cambridgeshire	20%	5%	0%	75%	20%	5%	1%	75%	-0.2%	0.2%	0.1%	0.0%
East Cambridgeshire	24%	3%	0%	72%	24%	3%	0%	72%	0.0%	0.0%	0.0%	0.0%
Peterborough	23%	5%	0%	71%	23%	5%	0%	71%	-0.1%	0.0%	0.0%	0.1%
Fenland	25%	3%	0%	72%	25%	3%	0%	72%	-0.1%	0.1%	0.0%	0.0%
External	1%	6%	1%	93%	1%	6%	1%	93%	0.0%	-0.1%	0.1%	-0.1%
Hunts (excluding SS)	27%	5%	0%	68%	26%	6%	1%	67%	-0.4%	0.7%	0.2%	-0.6%

6.2.4 Sector to sector car trips

Table 6-5 presents the change in forecast 24-hour car trips between each origin and destination sector in Core DS1 relative to the Reference Case. Overall, Core DS1 generates an additional 79,432 car trips across the modelled area. This reflects trips associated with the four strategic sites together with changes in movements between the existing sectors.

The following can be observed:

- The four strategic sites generate approximately 42,700 car trip origins in Core DS1. Lodge Farm generates the largest number, at approximately 13,200 trips, followed by Wyton Airfield and the Lattenburys at approximately 11,300 and 11,100 trips respectively. Land North of A141 generates approximately 7,000 trips.
- Among the existing Huntingdonshire sectors, the largest increases in origin trips occur in Huntingdonshire East, Huntingdonshire South and Huntingdonshire North, at approximately 12,300, 6,900 and 5,000 trips respectively.
- Huntingdonshire East records increases in both local movements and trips to other parts of the district, including approximately 2,500 additional trips within the sector and 1,800 additional trips to South Cambridgeshire.
- Huntingdonshire South also records a substantial increase in trips within the sector, while much of the increase from Huntingdonshire North is associated with movements to Peterborough and other external destinations.
- Several existing Huntingdonshire sectors record small net reductions in origin trips. These combine additional trips to the strategic sites with reductions in movements to some existing destinations, indicating a redistribution of established travel patterns and mode shift due to proposed mitigations.
- Movements outside Huntingdonshire are mixed. Additional trips are forecast to and from Cambridge and South Cambridgeshire, while total movements associated with East Cambridgeshire Peterborough and Fenland decrease.

Overall, the increase in car travel in Core DS1 is strongly influenced by trips associated with the four strategic sites. The additional growth increases car travel overall while also redistributing movements within Huntingdonshire and between the district and surrounding areas.

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Table 6-5 - Sector to sector car trips (24hr) - Reference Case vs Core DS1 (Forecast Year 2046)

Destinations	Lodge Farm	Wyton Airfield	The Lattenburys	Land North of A141	Cambridge City	South Cambridgeshire	East Cambridgeshire	Huntingdon Town	St Ives Town	Huntingdonshire South	Huntingdonshire Central	Huntingdonshire East	Huntingdonshire North	Huntingdonshire North East	Huntingdonshire North Central	Huntingdonshire West	Peterborough	Fenland	External	Total
Origins																				
Lodge Farm	766	522	134	231	432	1,322	333	1,016	694	544	1,697	793	150	614	995	186	1,425	710	681	13,246
Wyton Airfield	525	706	98	184	333	1,045	373	736	616	418	1,226	684	125	705	791	150	1,186	824	606	11,331
The Lattenburys	133	96	529	123	849	2,862	297	597	458	663	1,153	770	85	176	432	151	814	193	749	11,130
Land North of A141	219	170	109	122	129	601	103	334	147	495	759	263	124	253	826	250	978	263	859	7,006
Cambridge City	418	319	848	155	-166	-471	-22	-184	-196	267	-120	480	13	-86	73	14	-176	-64	-370	732
South Cambridgeshire	1,203	940	2,729	634	-563	-3,920	-309	-625	-628	799	-335	1,783	64	-195	131	22	-502	-237	-943	678
East Cambridgeshire	314	349	287	105	-65	-405	-859	-118	-151	56	-121	590	17	-6	45	-4	-79	-169	-319	-533
Huntingdon Town	997	714	575	376	-187	-679	-124	-243	-231	-156	-249	172	-8	-118	131	-50	-626	-177	-496	-380
St Ives Town	686	603	463	161	-199	-664	-158	-223	-352	-84	-327	1,027	-2	-103	46	-23	-310	-125	-280	136
Huntingdonshire South	530	403	660	548	231	753	53	-163	-96	2,707	196	485	89	-19	208	107	-82	-66	319	6,862
Huntingdonshire Central	1,662	1,190	1,128	827	-124	-346	-126	-247	-338	213	199	711	68	-103	364	15	-452	-178	-240	4,222
Huntingdonshire East	776	666	765	281	445	1,822	587	139	951	447	664	2,453	70	484	440	86	284	417	517	12,292
Huntingdonshire North	142	117	80	121	5	46	13	-20	-6	76	51	65	555	118	373	42	2,202	324	720	5,024
Huntingdonshire North East	620	708	180	272	-90	-212	-12	-119	-105	-14	-105	516	135	115	249	24	-40	-57	-28	2,038
Huntingdonshire North Central	997	784	427	907	68	114	46	135	43	216	366	470	418	243	1,462	142	1,340	197	87	8,463
Huntingdonshire West	193	154	155	303	12	11	-5	-53	-25	113	13	98	51	25	147	101	5	13	52	1,365
Peterborough	1,246	1,014	714	757	-172	-471	-66	-486	-246	-51	-375	251	2,226	-36	1,292	23	-7,297	-251	-1,432	-3,358
Fenland	678	780	187	265	-79	-296	-233	-174	-125	-58	-177	419	361	-52	190	13	-562	-1,895	-322	-1,081
External	688	610	764	914	-387	-1,010	-308	-502	-284	373	-241	563	756	-27	94	55	-1,488	-311	0	259
Total	12,791	10,846	10,831	7,287	473	732	-418	-201	126	7,025	4,274	12,591	5,298	1,991	8,288	1,305	-3,378	-589	161	79,432

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6.2.5 Highway model assignment statistics

Table 6-6 compares key highway assignment statistics between the Reference Case and Core DS1 across the AM, inter-peak and PM periods. As expected, the additional Local Plan growth represented in Core DS1 increases vehicle trips, travel distance, travel time and total delay across all three periods.

Matrix totals increase by 3.0% in the AM peak, 2.0% in the inter-peak and 2.7% in the PM peak. Within Huntingdonshire, travel distance increases by between 6.7% and 8.6%, while travel time increases by between 10.1% and 17.2%, reflecting the additional highway demand associated with Local Plan growth.

The largest impacts occur during the AM peak. Average delay increases from 12 to 15 seconds per vehicle-kilometre, while total delay increases because of both higher traffic volumes and longer journey times. The corresponding increases are smaller during the inter-peak and PM peak periods, where average delay increases by approximately 1 and 2 seconds per vehicle-kilometre respectively.

Overall, Core DS1 results in higher highway demand than the Reference Case, with the greatest impacts occurring during the AM peak. While some increase in congestion is expected as a result of the additional Local Plan growth represented in Core DS1, the mitigation package helps manage the impacts at key locations across the network and supports the continued operation of the highway network in 2046.

Table 6-6 - Key highway assignment model statistics for Huntingdonshire – Reference Case vs Core DS 1 (Forecast Year 2046)

Metric	Analysis area	Time period	Reference Case	Core DS1	Difference	Difference (%)
Matrix Totals	Whole model area	AM	238,917	246,168	7,252	3.0%
		IP	178,690	182,340	3,651	2.0%
		PM	247,224	253,917	6,693	2.7%
Travel Distance (km)	Huntingdonshire	AM	927,184	1,007,161	79,976	8.6%
		IP	729,761	778,633	48,872	6.7%
		PM	949,886	1,015,571	65,686	6.9%
Travel Time (vehicle hours)	Huntingdonshire	AM	14,155	16,584	2,429	17.2%
		IP	10,076	11,090	1,014	10.1%
		PM	14,312	16,106	1,794	12.5%
Delay per vehicle KM (secs per Veh-km)	Huntingdonshire	AM	12	15	4	30.3%
		IP	7	8	1	13.4%
		PM	11	13	2	17.9%
Total Delay (hours)	Huntingdonshire	AM	3,052	4,321	1,269	41.6%

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IP	1,362	1,648	286	21.0%
PM	2,956	3,725	769	26.0%

6.2.6 Junction delay

Figure C-1 to Figure C-12 in Appendix C present the differences in mean link delay and traffic flows between the Reference Case and Core DS1 across the AM, inter-peak and PM periods. The plots are presented for the Huntingdon and St Neots areas.

For the St Neots area, there is no material change in link delay across the three time periods. The flow difference plots show some additional traffic on the A428/A421 corridor between St Neots, the Black Cat roundabout and Bedford, including increases of up to approximately 77 vehicles towards Bedford during the AM peak and 115 vehicles towards St Neots during the PM peak. Smaller increases are also observed on parts of the A1. However, these changes do not result in a corresponding increase in modelled link delay, indicating that the additional traffic is accommodated without a material deterioration in network performance within the plotted area.

For the Huntingdon area, the principal change in traffic flow is the reassignment associated with the A141 bypass and revised A141/B1090 junction arrangement represented in Core DS1. The flow difference plots show increased traffic on the bypass and corresponding reductions on sections of the existing A141 and routes through Huntingdon. As the bypass is not included in the Reference Case, the increases shown on these links primarily represent use of the new route rather than increased traffic on an existing highway connection.

Despite the additional Local Plan growth represented in Core DS1, no material increase in delay is forecast at the revised A141/B1090 junction. This indicates that the proposed mitigation accommodates the additional demand at this location and supports the reassignment of traffic onto the bypass. However, localised increases in delay occur elsewhere on the surrounding network. These include approximately 40 seconds of additional delay in each direction on the A141 between Wyton Airfield and Old Hurst, together with more substantial increases on the A1123 and Harrison Way around St Ives. These locations therefore remain areas of increased network pressure in Core DS1.

Overall, the plots show that the additional demand in Core DS1 is accommodated without a material increase in delay in the St Neots area. Around Huntingdon, the A141 bypass and revised A141/B1090 junction facilitate the reassignment of traffic away from the existing A141 and routes through the town while avoiding additional delay at the principal mitigation location. Some increased delay is transferred to other parts of the network, particularly the A141 north of the B1090 and the A1123 and Harrison Way around St Ives, although the proposed infrastructure provides additional capacity and manages the effects of growth at key locations.

7. Conclusions and Recommendations

7.1 Context

This Technical Note has assessed the transport implications of the Core Development Scenario, developed to represent the latest growth assumptions for the emerging Huntingdonshire Local Plan. The assessment considered the effect of the revised development allocations relative to the Phase 2 Hybrid Strategy, evaluated the additional mitigation measures tested in Core DS1, and assessed the overall impact of the mitigated scenario against the 2046 Reference Case.

The Core Development Scenario retains the strategic sites established through the Hybrid Strategy but incorporates updated housing and employment assumptions across the strategic and non-strategic allocations. The Phase 2 mitigation package is retained within both Core DM1 and Core DS1, with Core DS1 including additional highway and active travel measures developed in response to the remaining constraints identified through the Phase 2 assessment.

7.2 Key findings

The updated development assumptions within the Core Development Scenario result in only minor changes compared with the Phase 2 Hybrid Strategy. Core DM1 generates 3,831 fewer daily trips, while district-wide mode share and overall highway performance remain broadly unchanged. The most notable difference occurs at Wyton Airfield, where the reduction in trips reflects the lower housing and employment allocations in Core DM1. Despite this reduction, the A141/B1090 roundabout remains the principal local highway constraint, particularly during the AM peak.

The additional mitigation measures tested in Core DS1 have a positive effect on highway performance. Compared with Core DM1, total delay reduces by 6.0% during the AM peak, 3.1% during the inter-peak and 1.6% during the PM peak. The greatest benefit therefore occurs during the AM peak, which was the principal area of concern identified through the Phase 2 Hybrid Strategy and Core DM1 assessments.

The junction-level results show substantial reductions in AM peak delay on the approaches to the updated A141/B1090 roundabout and at the new modelled connection between the A141 bypass and B1090 Sawtry Way. The associated flow changes show increased use of the bypass and reduced traffic on routes through Huntingdon. A modest increase in trips to and from Wyton Airfield also indicates that the mitigation improves access between the site and the wider highway network.

Compared with the 2046 Reference Case, Core DS1 results in higher travel demand and increased pressure on the highway network, as expected given the additional growth introduced through the Core Development Scenario. However, network conditions around the A141/B1090 area are improved compared with those observed in the Phase 2 Hybrid Strategy and Core DM1 testing, indicating that the additional mitigation measures introduced in Core DS1 have been effective in addressing the principal constraint identified through the earlier assessments.

The effects vary geographically. Around St Neots and on routes to and from Central Bedfordshire, there is little change in delay or traffic flows compared with the Reference Case. Around Huntingdon, the A141 bypass and associated mitigation reduce pressure on the existing A141 and routes through the town, while

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limiting additional delay at the revised A141/B1090 junction despite the additional growth. Overall, the results show that the proposed mitigation can help to accommodate the additional demand associated with the Core Development Scenario and manage its effects on the highway network.

7.3 Conclusion

The Phase 3 strategic modelling shows that the combined Phase 2 and Phase 3 mitigation measures help to accommodate the additional demand associated with the Core Development Scenario. The updated development assumptions produce broadly similar transport outcomes to the Phase 2 Hybrid Strategy. However, the additional mitigation tested in Core DS1 improves highway performance and significantly reduces the delay at the A141/B1090 roundabout, which was identified as the main highway constraint in the Phase 2 Hybrid DS assessment.

Across Huntingdonshire, the strategic modelling indicates that the highway network can largely accommodate the proposed growth with the mitigation measures tested. The principal remaining pressure is localised around the A141/B1090 junction, where delay remains despite being significantly reduced compared with the Phase 2 assessment. The improvements in this area also support more effective use of the A141 bypass and reduce traffic on routes through Huntingdon.

The additional dwellings and jobs included within the Core Development Scenario result in increased traffic flows on parts of the highway network connecting Huntingdonshire with neighbouring authority areas when compared with the Reference Case. These increases are expected as a result of the additional growth within the district. However, they are not accompanied by notable increases in delay, indicating that the proposed growth should not result in significant additional congestion on the highway network within the neighbouring authority areas assessed.

Overall, the results provide confidence that the transport impacts of the Core Development Scenario could be managed through the proposed mitigation. Most of the highway network can accommodate the proposed growth, with the principal remaining pressure concentrated around the A141/B1090 junction. This location continues to be considered as part of the wider A141 and St Ives Improvements Study.

This work has been conducted at a strategic level and is not intended to represent a precise forecast of future conditions. Through the planning process there will be more detailed consideration of mitigation measures, including the impact of public transport, walking/cycling infrastructure, placemaking, parking provision, the mix of development and how the growth areas are designed to fit with adjoining communities. This could improve the transport impacts of the strategic testing in this report.

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Appendices

Appendix A. Highway assignment delay and flow difference plots for Hybrid DS1 vs Core DM1

TECHNICAL NOTE

Figure A-1 - Difference in mean link delay (seconds) between Hybrid DS and Core DM1 in AM peak – St Neots



TECHNICAL NOTE

Figure A-2 - Difference in mean link delay (seconds) between Hybrid DS and Core DM1 in AM peak – Huntingdon



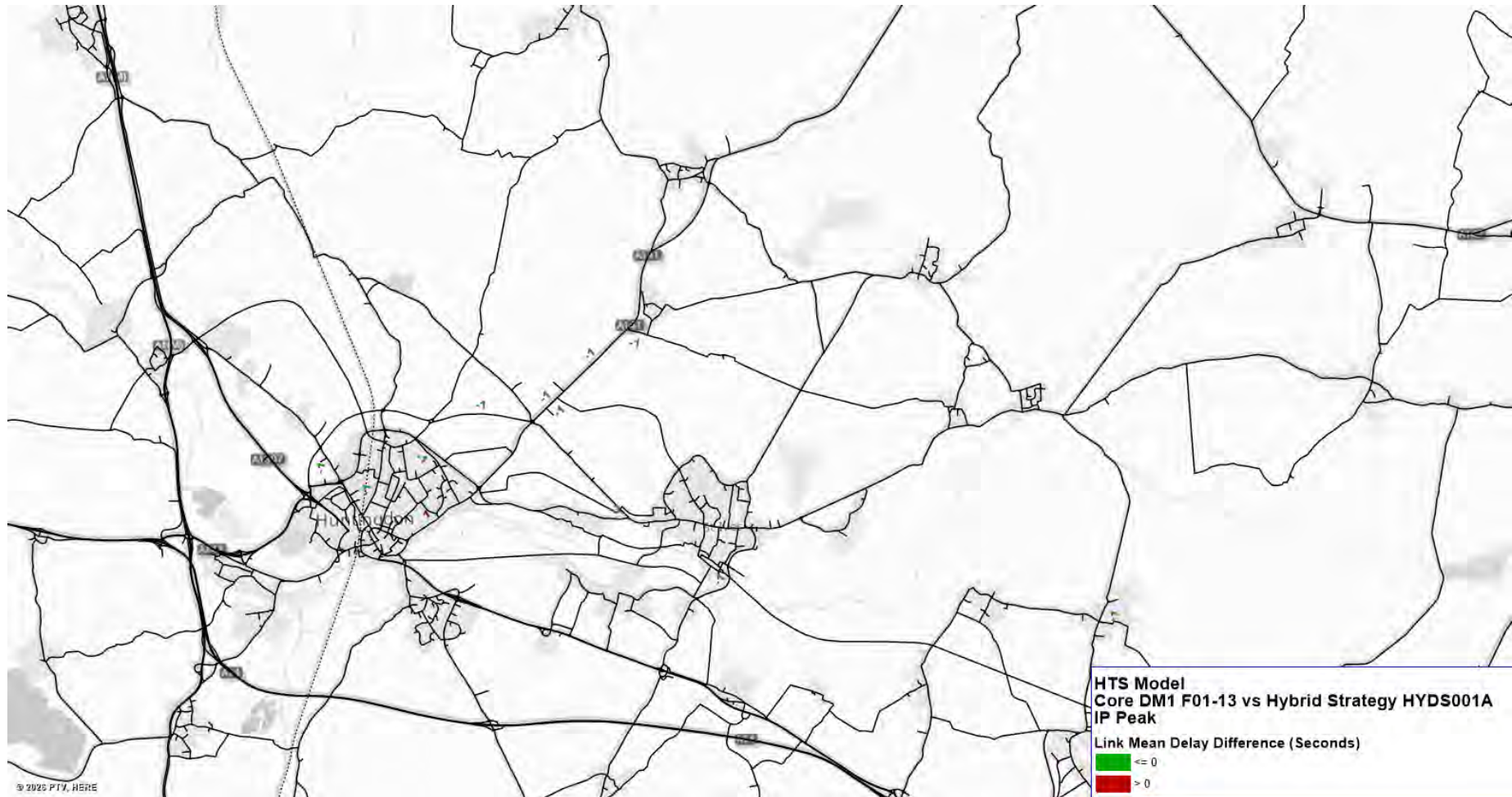
TECHNICAL NOTE

Figure A-3 - Difference in mean link delay (seconds) between Hybrid DS and Core DM1 in IP peak – St Neots



TECHNICAL NOTE

Figure A-4 - Difference in mean link delay (seconds) between Hybrid DS and Core DM1 in IP peak – Huntingdon



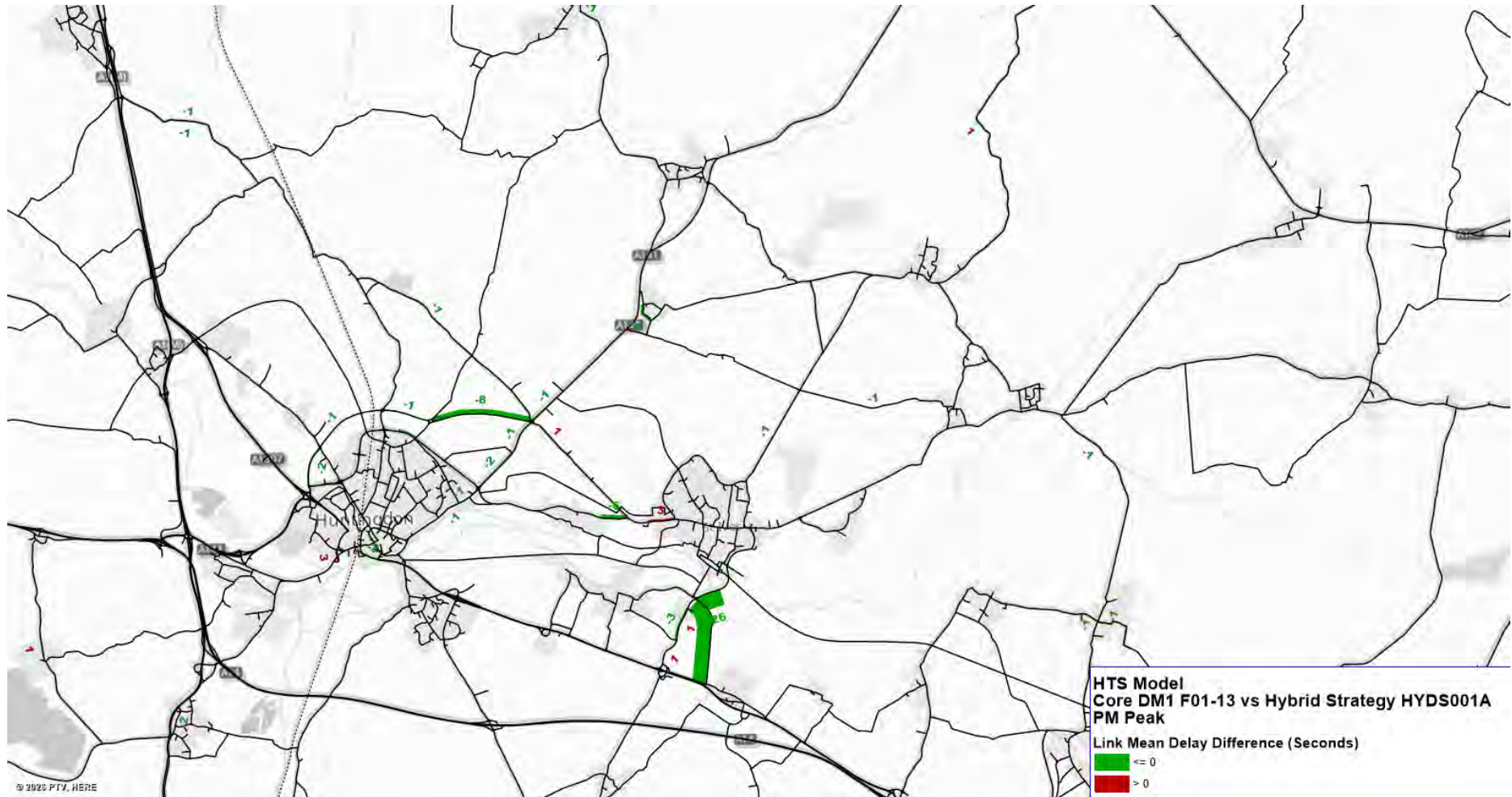
TECHNICAL NOTE

Figure A-5 - Difference in mean link delay (seconds) between Hybrid DS and Core DM1 in PM peak – St Neots



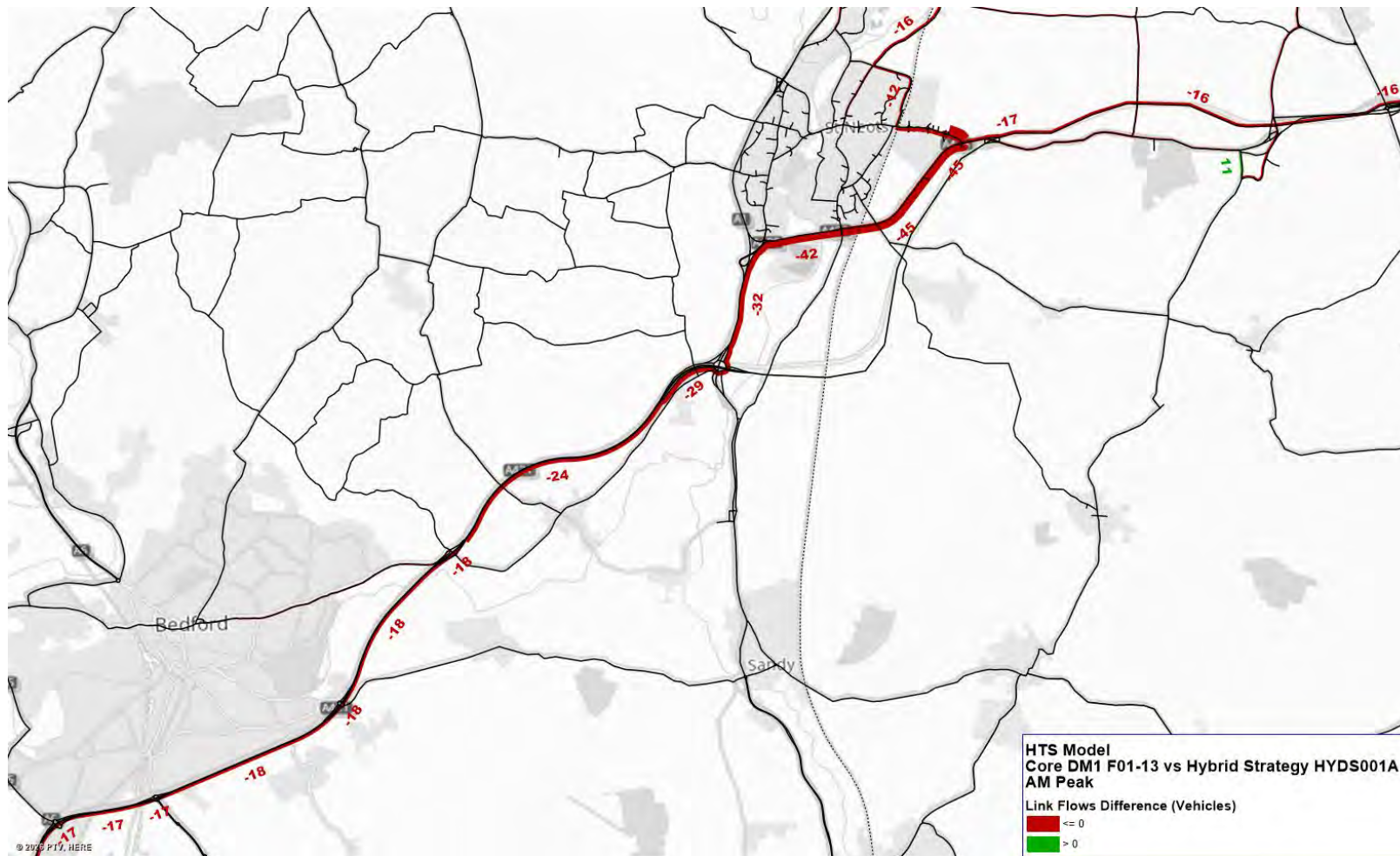
TECHNICAL NOTE

Figure A-6 - Difference in mean link delay (seconds) between Hybrid DS and Core DM1 in PM peak – Huntingdon



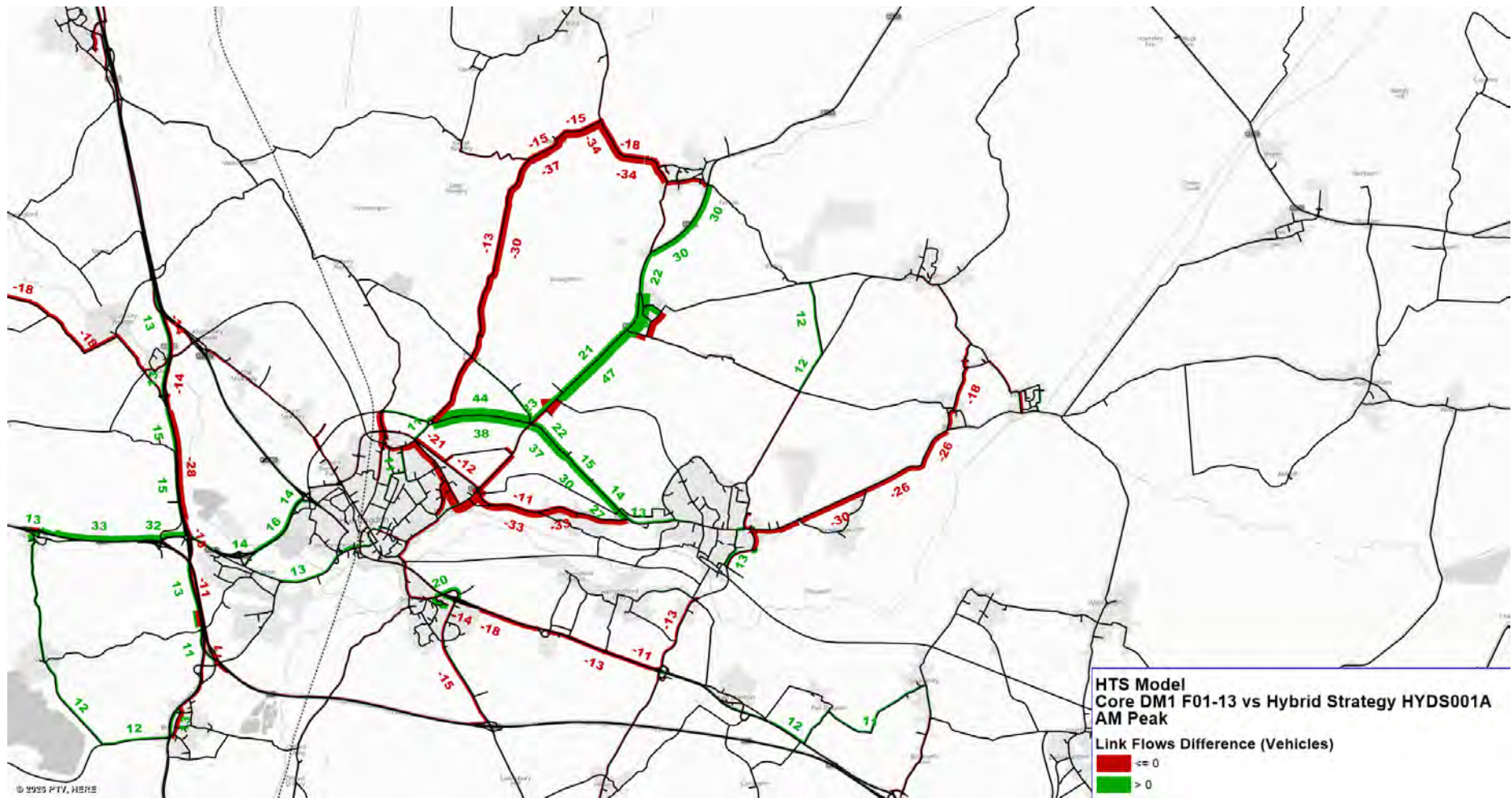
TECHNICAL NOTE

Figure A-7 - Difference in total vehicle flow between Hybrid DS and Core DM1 in AM – St Neots



TECHNICAL NOTE

Figure A-8 - Difference in total vehicle flow between Hybrid DS and Core DM1 in AM – Huntingdon



TECHNICAL NOTE

Figure A-9 - Difference in total vehicle flow between Hybrid DS and Core DM1 in IP – St Neots



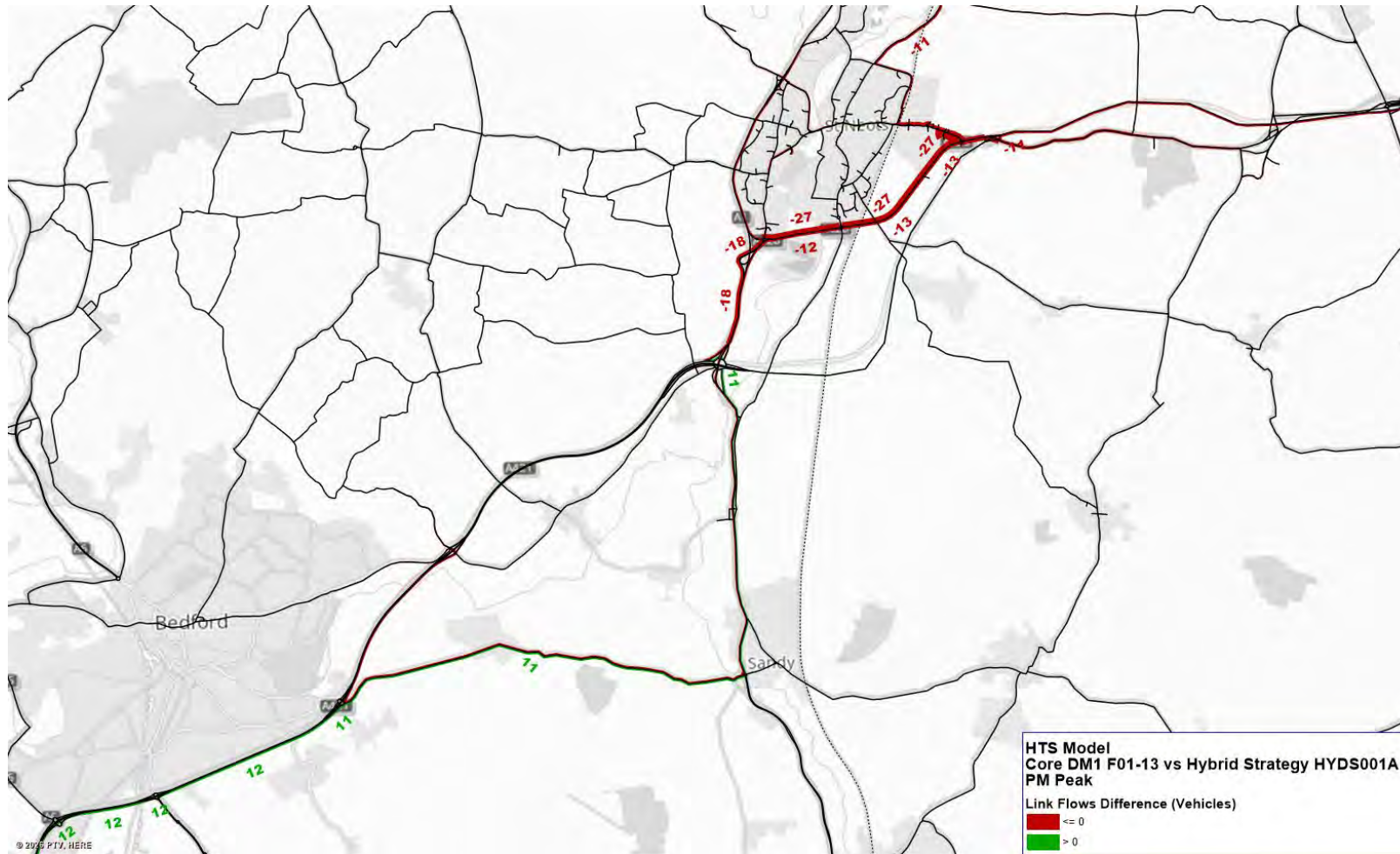
TECHNICAL NOTE

Figure A-10 - Difference in total vehicle flow between Hybrid DS and Core DM1 in IP – Huntingdon



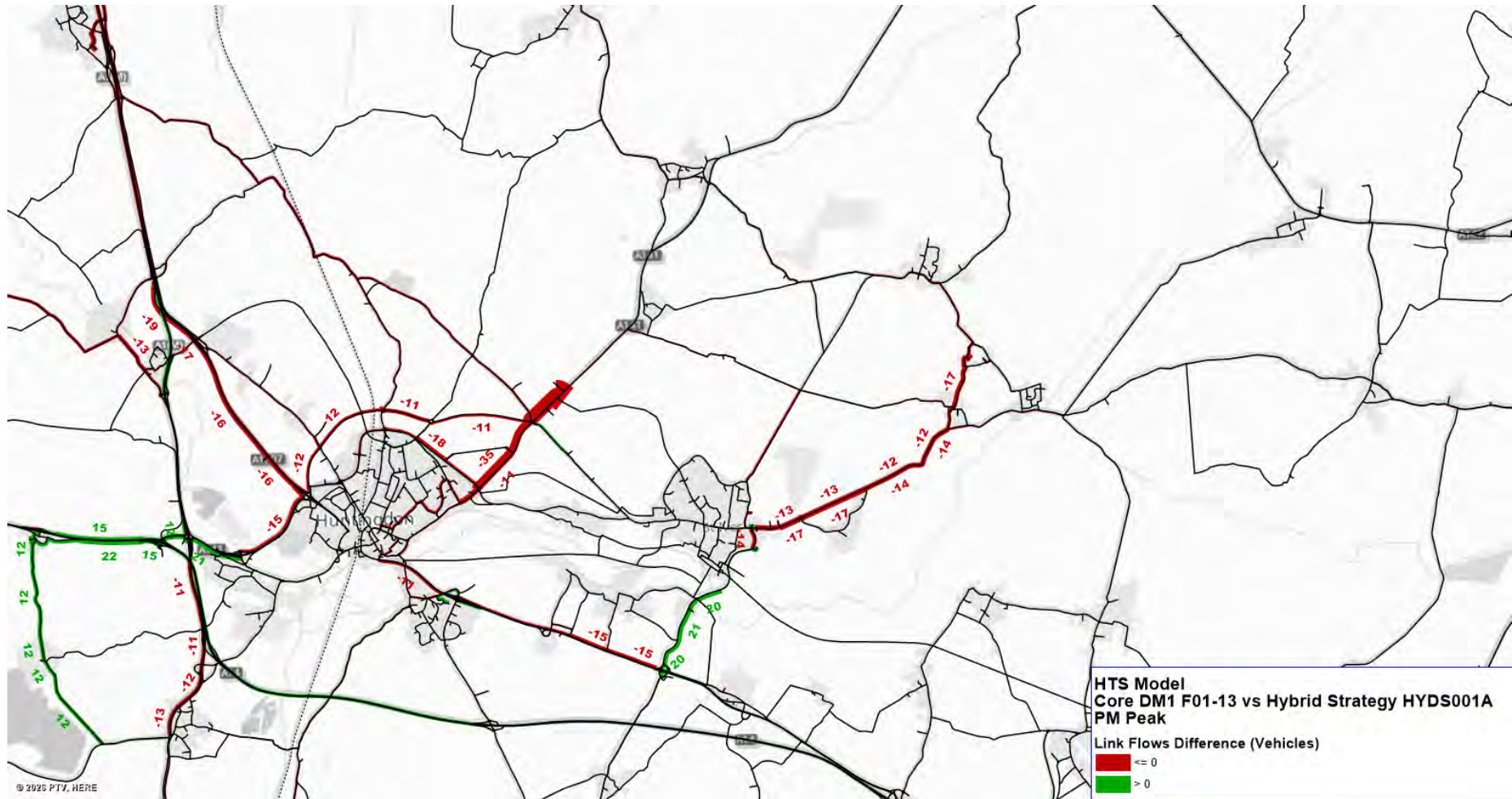
TECHNICAL NOTE

Figure A-11 - Difference in total vehicle flow between Hybrid DS and Core DM1 in PM – St Neots



TECHNICAL NOTE

Figure A-12 - Difference in total vehicle flow between Hybrid DS and Core DM1 in PM – Huntingdon



Appendix B. Highway assignment delay and flow difference plots for DM1 vs DS1 comparison

TECHNICAL NOTE

Figure B-1 - Difference in mean link delay (seconds) between Core DM1 and Core DS1 in AM Peak – St Neots



TECHNICAL NOTE

Figure B-2 - Difference in mean link delay (seconds) between Core DM1 and Core DS1 in AM Peak – Huntingdon



TECHNICAL NOTE

Figure B-3 - Difference in mean link delay (seconds) between Core DM1 and Core DS1 in IP Peak – St Neots



TECHNICAL NOTE

Figure B-4 - Difference in mean link delay (seconds) between Core DM1 and Core DS1 in IP Peak – Huntingdon



TECHNICAL NOTE

Figure B-5 - Difference in mean link delay (seconds) between Core DM1 and Core DS1 in PM Peak – St Neots



TECHNICAL NOTE

Figure B-6 - Difference in mean link delay (seconds) between Core DM1 and Core DS1 in PM Peak – Huntingdon



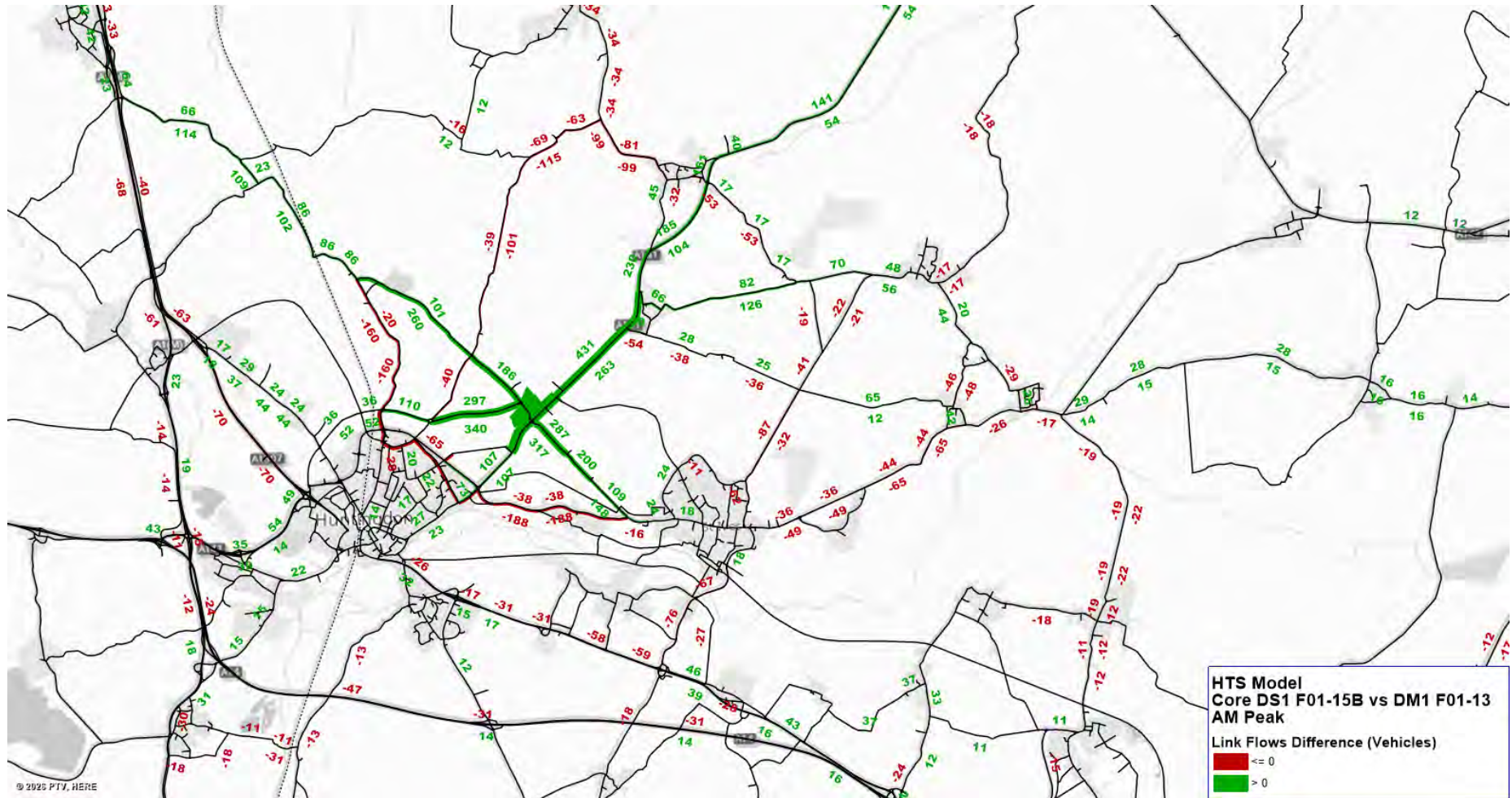
TECHNICAL NOTE

Figure B-7 - Difference in vehicle flow between Core DM1 and Core DS1 in AM Peak – St Neots



TECHNICAL NOTE

Figure B-8 - Difference in vehicle flow between Core DM1 and Core DS1 in AM Peak – Huntingdon



TECHNICAL NOTE

Figure B-9 - Difference in vehicle flow between the Core DM1 and Core DS1 in IP Peak – St Neots



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Figure B-10 - Difference in vehicle flow between Core DM1 and Core DS1 in IP Peak – Huntingdon



TECHNICAL NOTE

Figure B-11 - Difference in vehicle flow between the DM and DS in PM Peak – St Neots



TECHNICAL NOTE

Figure B-12 - Difference in vehicle flow between Core DM1 and Core DS1 in PM Peak – Huntingdon



Appendix C. Highway assignment delay and flow difference plots for Reference Case vs DS1 comparison

TECHNICAL NOTE

Figure C-1 - Difference in mean link delay (seconds) between Reference Case and Core DS1 in AM Peak – St Neots



TECHNICAL NOTE

Figure C-2 - Difference in mean link delay (seconds) between Reference Case and Core DS1 in AM Peak – Huntingdon



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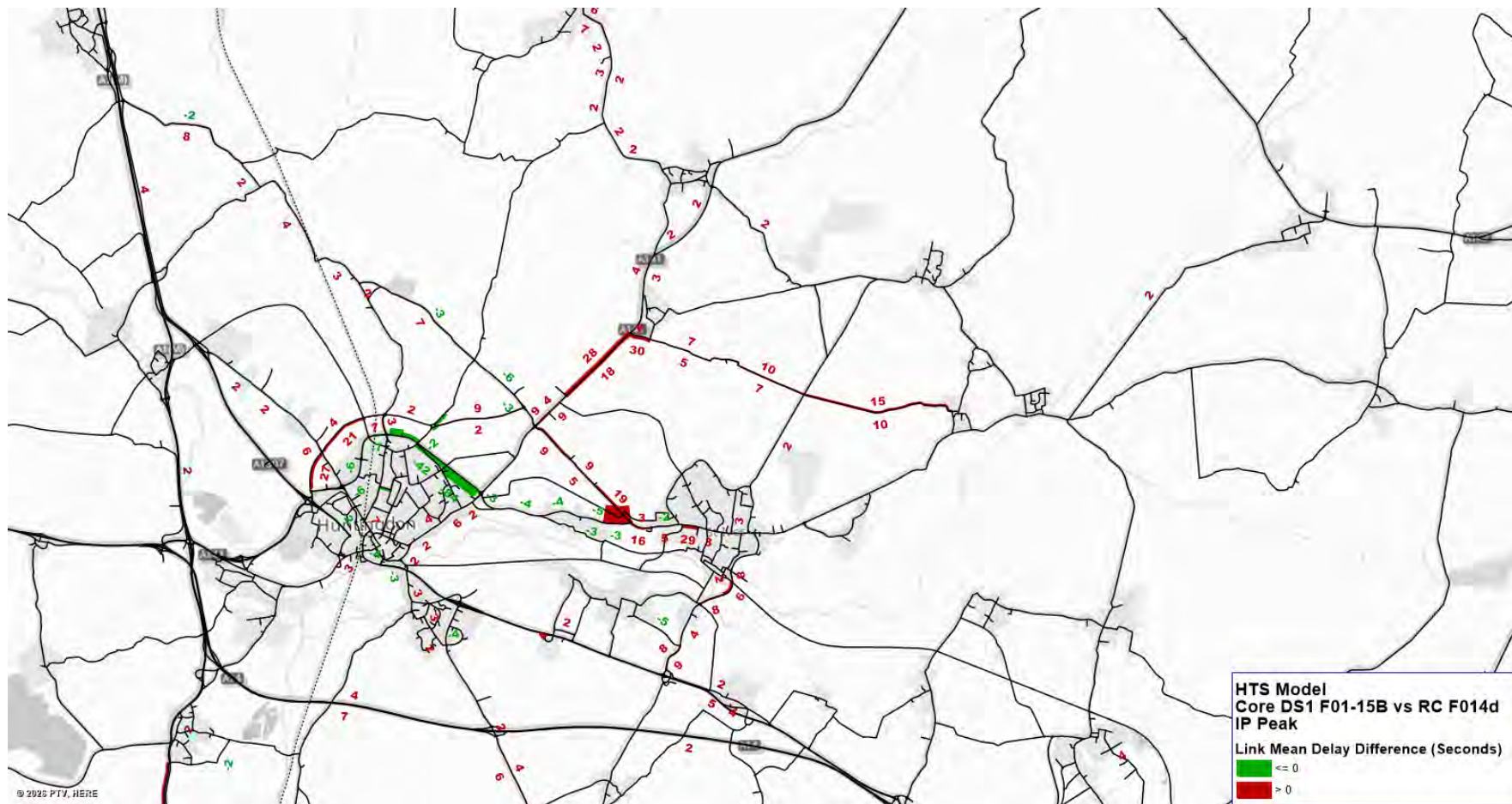
TECHNICAL NOTE

Figure A-3 - Difference in mean link delay (seconds) between Reference Case and Core DS1 in IP peak – St Neots



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Figure A-4 - Difference in mean link delay (seconds) between Reference Case and Core DS1 in IP peak – Huntingdon



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TECHNICAL NOTE

Figure A-5 - Difference in mean link delay (seconds) between Reference Case and Core DS1 in PM peak – St Neots



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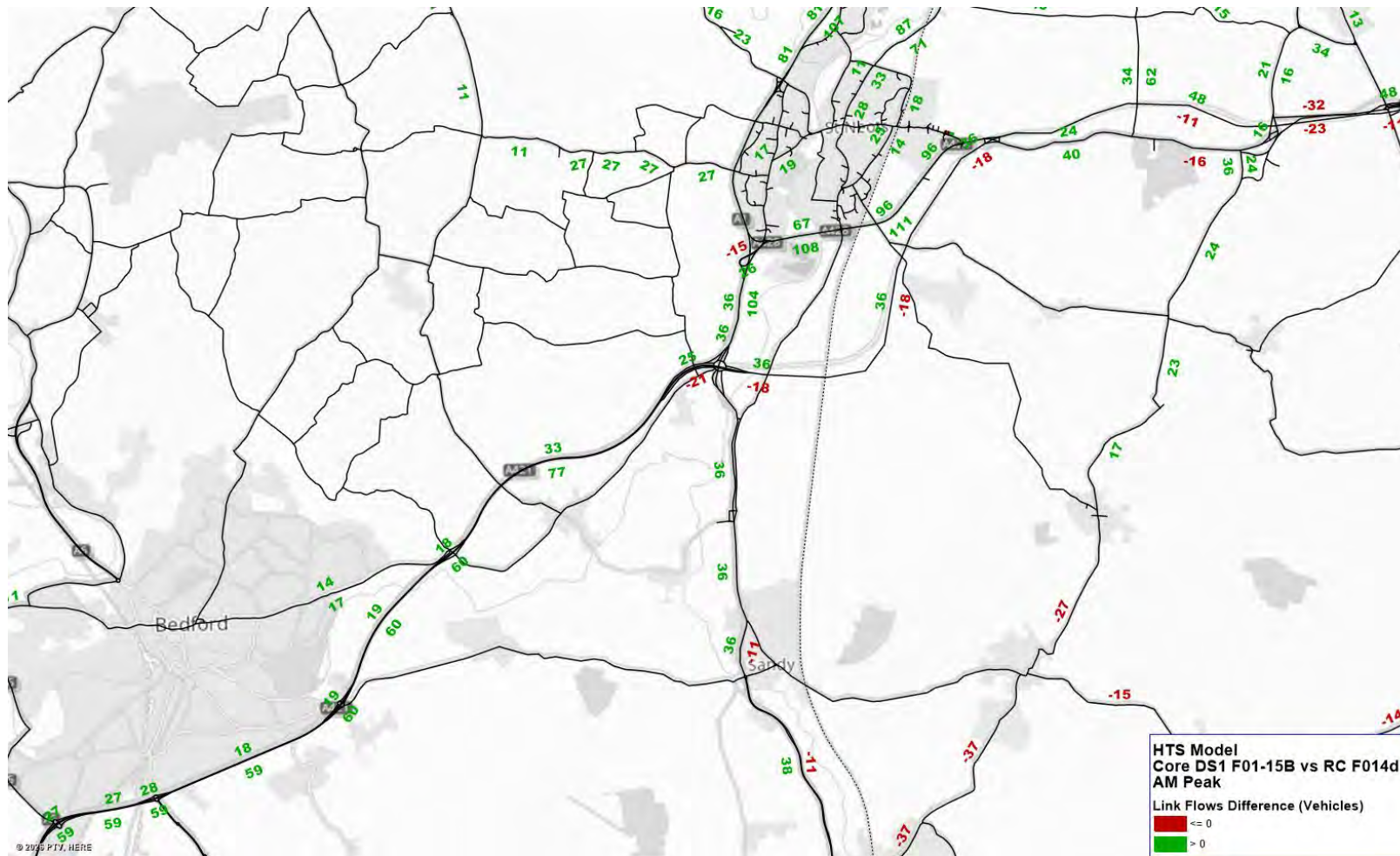
Figure A-6 - Difference in mean link delay (seconds) between Reference Case and Core DS1 in PM peak – Huntingdon



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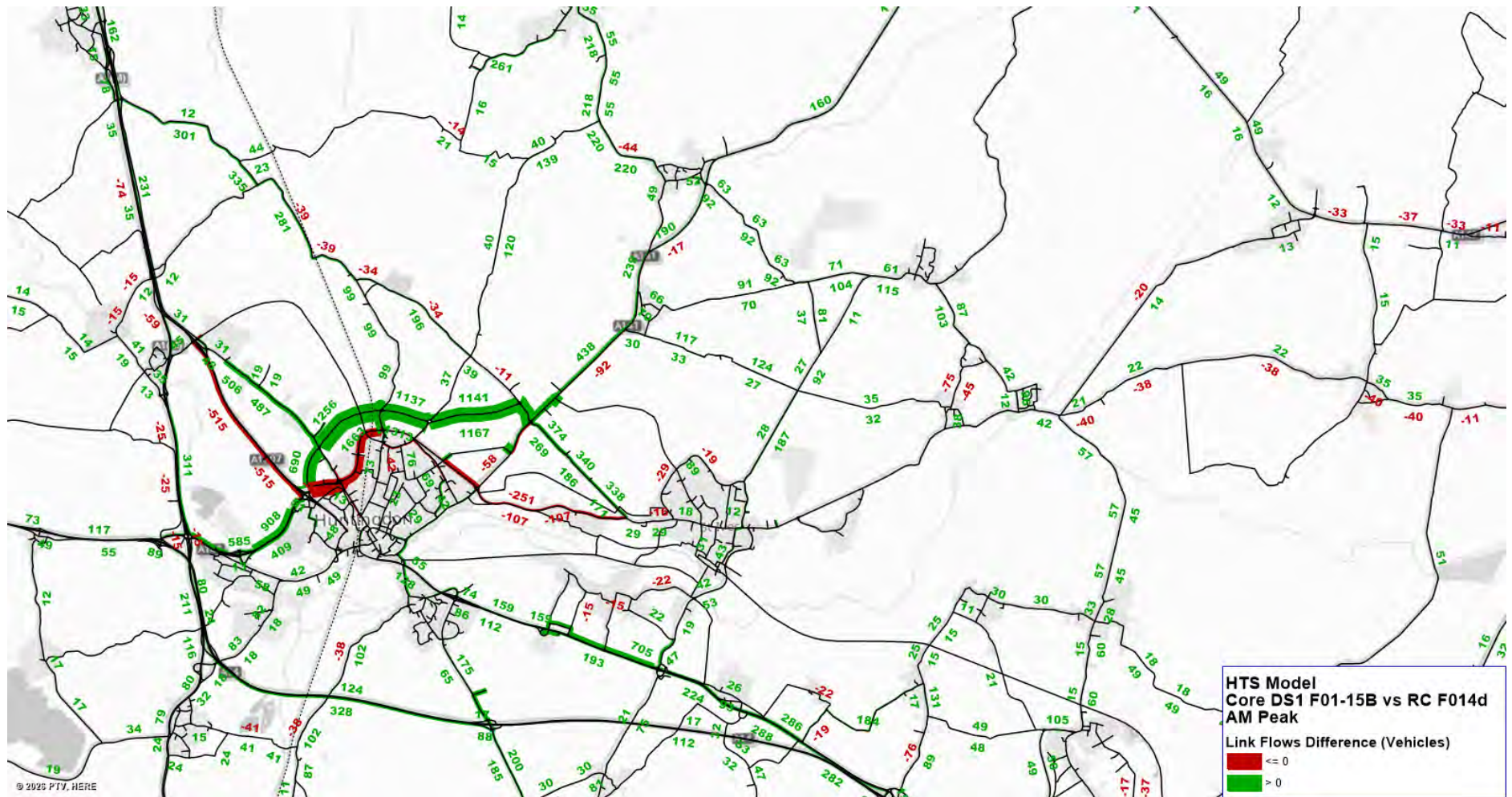
TECHNICAL NOTE

Figure A-7 - Difference in vehicle flow between Reference Case and Core DS1 in AM Peak – St Neots



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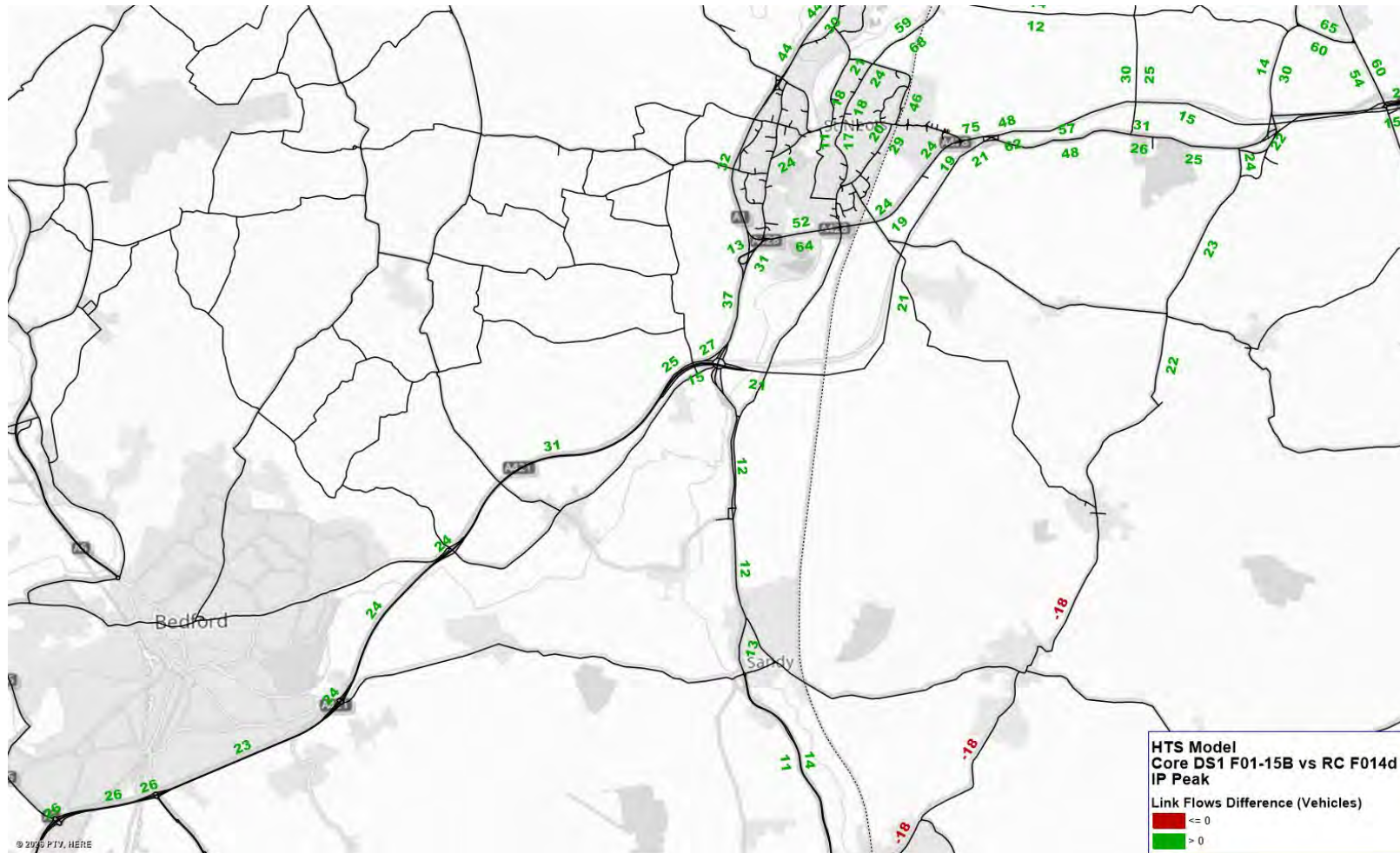
Figure A-8 - Difference in vehicle flow between Reference Case and Core DS1 in AM Peak – Huntingdon



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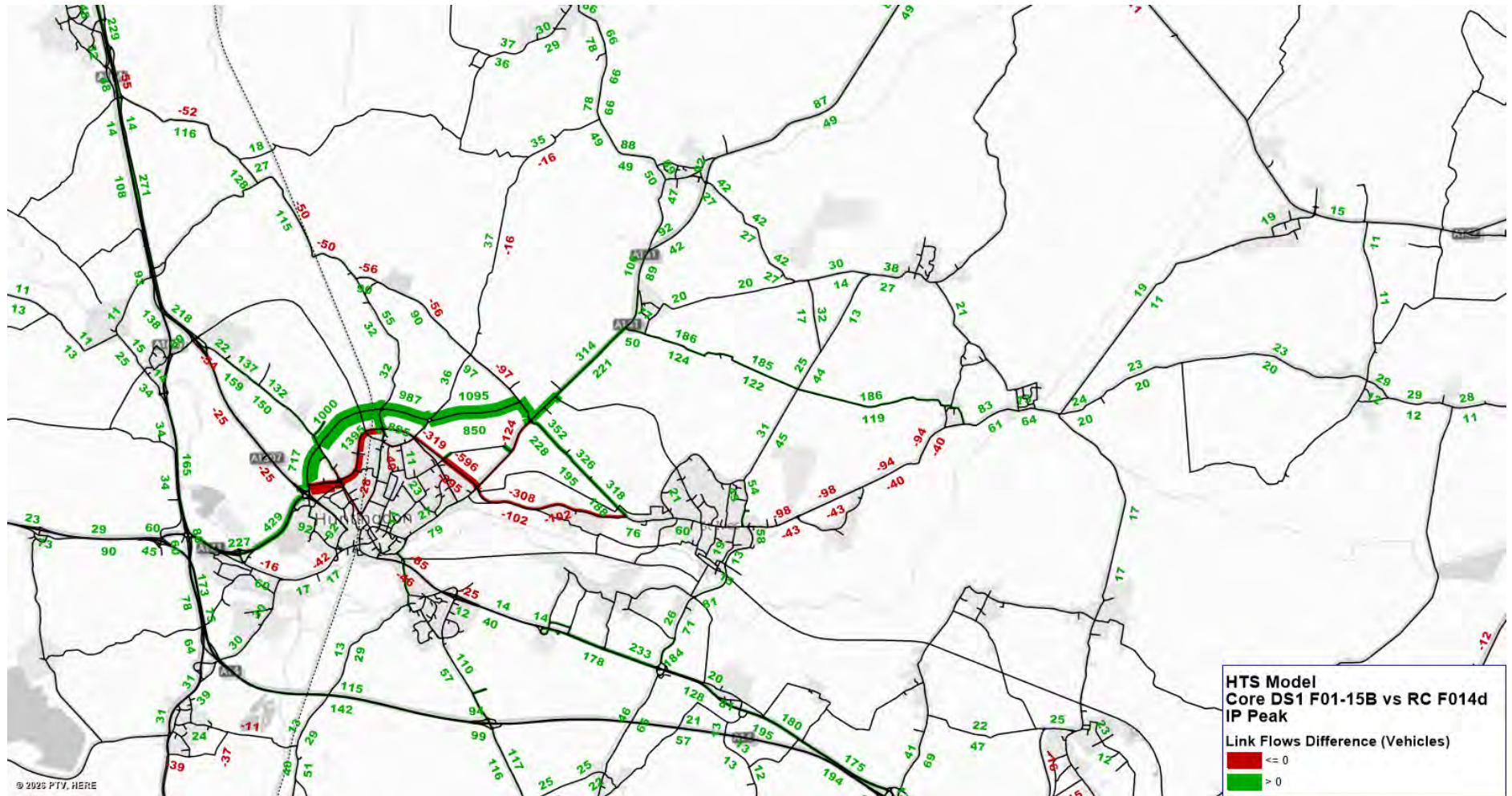
TECHNICAL NOTE

Figure A-9 - Difference in vehicle flow between Reference Case and Core DS1 in IP peak –St Neots



TECHNICAL NOTE

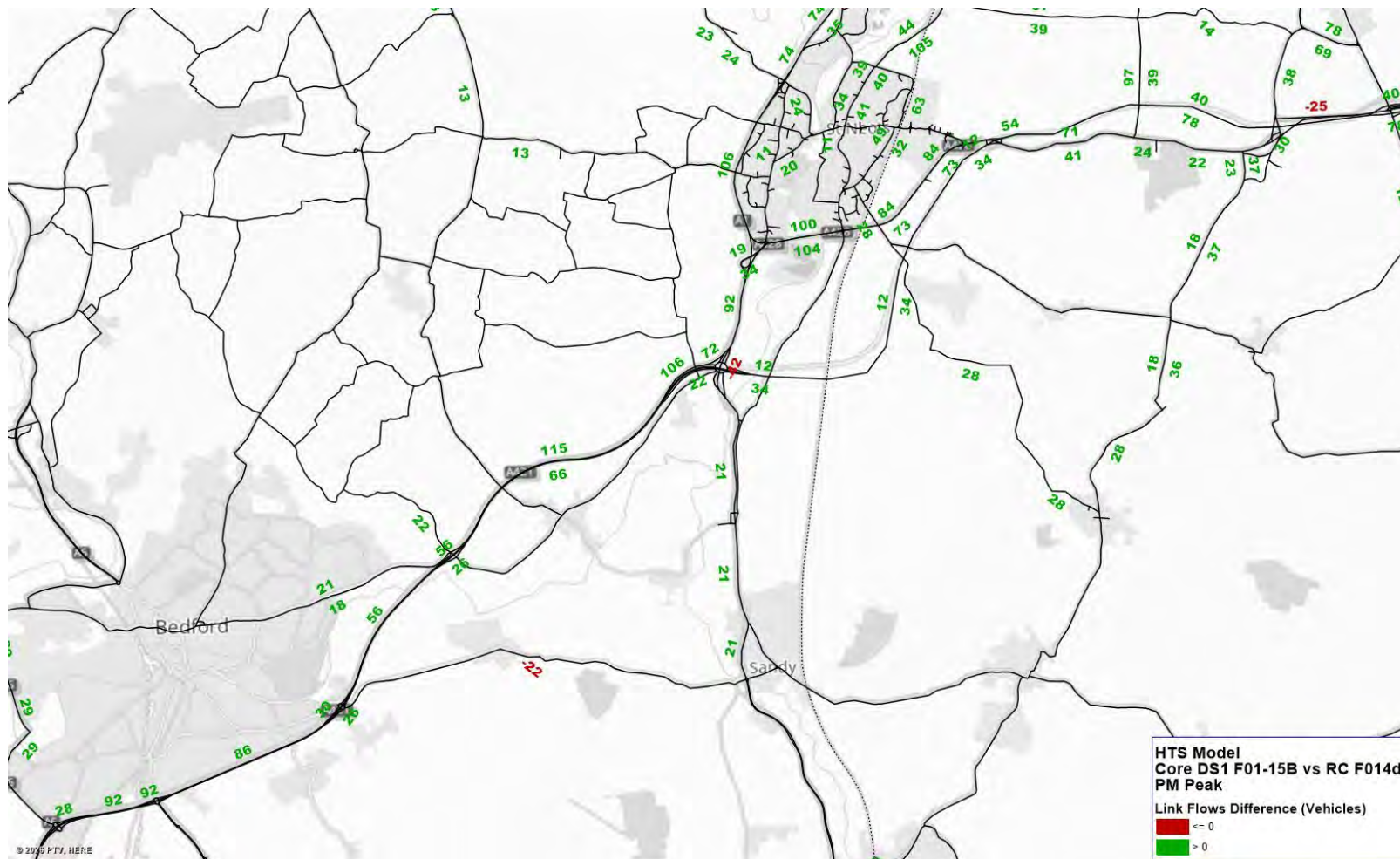
Figure A-10 - Difference in vehicle flow between Reference Case and Core DS1 in IP peak – Huntingdon



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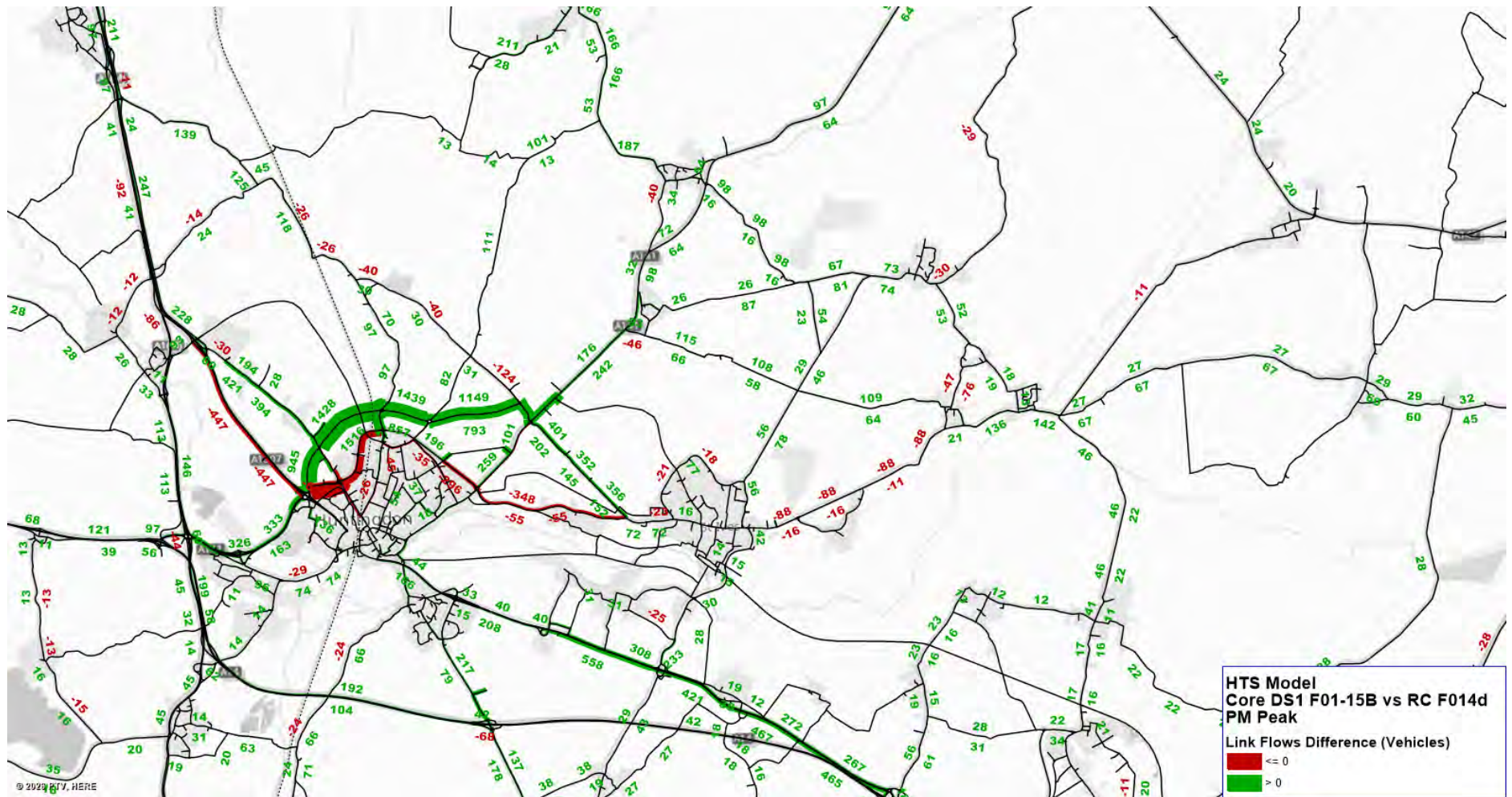
TECHNICAL NOTE

Figure A-11 - Difference in vehicle flow between Reference Case and Core DS1 in PM – St Neots



TECHNICAL NOTE

Figure C-12 - Difference in vehicle flow between Reference Case and Core DS1 in PM – Huntingdon



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