



West Oxfordshire Local Plan 2043 Strategic Transport Modelling Report

Oxfordshire County Council and West Oxfordshire
District Council

25 August 2026

WOLP43 Strategic Transport Modelling Report

WEST OXFORDSHIRE LOCAL PLAN 2043 MODELLING

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Executive Summary

West Oxfordshire District Council (WODC) is preparing a new Local Plan to guide development up to 2043. As part of the evidence base, Oxfordshire County Council (OCC) and WODC commissioned strategic transport modelling to understand the likely transport impacts of the emerging spatial strategy and the extent to which different mitigation approaches could address those impacts.

This report presents the outcomes of that work. It uses strategic modelling to test growth and mitigation scenarios, identify pressures on the transport network (particularly along the A40 corridor), and provide evidence to inform future decisions on the scale and nature of transport interventions needed to support delivery of the Local Plan.

Purpose of Strategic Transport Modelling

The purpose of the modelling is to:

- Assess the strategic impacts of planned housing and employment growth associated with the West Oxfordshire Local Plan to 2043.
- Understand how growth affects travel demand, routeing, congestion and mode choice, both within West Oxfordshire and across Oxfordshire more widely.
- Test the relative effectiveness of different mitigation packages, rather than to define a final, deliverable scheme design.
- Provide evidence to support choices on whether additional or more comprehensive transport interventions may be required over time.

The modelling is therefore investigative and strategic in nature. It is intended to inform policy and next steps, rather than to provide final scheme solutions.

What is OSM?

The Oxfordshire Strategic Model (OSM) is a county-wide, variable demand transport model used to assess highway and public transport movements across Oxfordshire and surrounding areas. It represents:

- Travel to, from and within Oxfordshire.
- Mode choice between car, bus, rail and Park & Ride.
- The redistribution of trips in response to changes in congestion, costs and service provision.

OSM is well suited to strategic testing of Local Plan growth scenarios. However, it does not model walking and cycling directly; active travel impacts are therefore assessed using a complementary evidence-led methodology applied outside the core model.

Base Model Updates and Validation

To support assessment of the West Oxfordshire Local Plan, OSM was enhanced and locally refined, building on recent county-wide model updates. Key improvements included:

- Increased spatial detail in Witney and Carterton to better represent existing conditions and future development locations.
- Updates to the highway network, particularly along the A40 corridor and within key towns.
- Targeted refinement of travel demand patterns to reflect observed movements in West Oxfordshire.



The model was validated against available traffic counts and journey time data for both a 2018 base year and a 2023 present year. While there remain localised limitations - particularly within town centres and on rural routes - the validation results demonstrate that the model provides a robust and reasonable strategic platform for comparing future scenarios and identifying broad impacts and trends.

Forecast Scenarios Tested

Four future scenarios were tested:

- Reference Case – committed development and transport schemes, including outstanding allocations from the adopted Local Plan.
- Local Plan Scenario 1 (DS1): Do Minimum Mitigation – emerging Local Plan growth added, with limited highway transport mitigation focused on providing site access only.
- Local Plan Scenario 2 (DS2): Bus and Active Travel Mitigation – DS1 plus enhanced bus services provision, bus priority on the A40, and investment in active travel.
- Local Plan Scenario 3 (DS3): Mass Rapid Transit (MRT) Package – DS1 plus a higher-quality, higher-reliability MRT service, bus priority on the A40, and investment in active travel.

A 2041 forecast year model was used, with West Oxfordshire growth to 2043 applied as a pragmatic and agreed approach.

Given the inherent uncertainty around forecasting assumptions and the impacts infrastructure provision, travel costs and demand growth will have on the performance of the Local Plan 2043, a series of additional sensitivity tests were modelled to provide a range of results under different circumstances. The findings from the sensitivity tests are provided as addenda to this report.

Impacts of Growth

Across all scenarios, the modelling shows that significant growth in travel demand is expected in West Oxfordshire, driven both by Local Plan development and by wider growth across Oxfordshire.

Key findings include:

- Substantial increases in trips to, from and within West Oxfordshire compared with present-day conditions.
- Strong growth in movements between West Oxfordshire and other districts, particularly Cherwell, reflecting differing patterns of housing and employment growth across Oxfordshire.
- Continued pressure on the A40 corridor increased with the additional local plan development (at Carterton and Witney). The modelling indicates that junctions and access points are the primary sources of congestion and delay, highlighting the importance of carefully planning new development access arrangements and considering opportunities for bus priority at key locations.
- Re-routing onto rural roads occurs in some locations where the strategic network becomes congested, increasing vehicle kilometres travelled and affecting communities away from the main corridor.

Even without Local Plan growth, the Reference Case scenario indicates that congestion and delay will continue to increase in the absence of further intervention.

Mitigation Outcomes

The mitigation packages tested deliver clear but modest improvements at a strategic level:

Bus and Active Travel Mitigation (DS2):

- Reduces car trips and increases public transport patronage.



- Delivers the strongest overall mitigation performance of the scenarios tested, increasing public transport use and significantly improving bus journey times and reliability along the A40. The modelling shows that bus priority measures provide some of the most noticeable transport benefits, particularly on journeys between Witney, Carterton, Eynsham and Oxford.
- Investment in active travel supports short trips within Witney, Carterton and between nearby settlements, helping to accommodate growth locally.
- Overall highway and journey time benefits are positive but limited, reflecting the constrained nature of the corridor.

MRT-Based Mitigation (DS3):

- Also increases public transport use but provides only limited additional benefits beyond those achieved by the enhanced bus and active travel package (DS2), due to the dispersed and relatively low-density nature of development in West Oxfordshire.
- As a high-level strategic concept, it would require significant further refinement and integration with the wider public transport network before it could be considered a deliverable solution.

Across both mitigation scenarios, results suggest there is only so much that can be achieved through incremental measures alone on the A40, particularly where junction constraints dominate performance. The results therefore point to the importance of balancing highway management with measures that reduce reliance on car travel, rather than seeking to accommodate growth through highway capacity alone.

Summary and Key Findings

- Strategic transport modelling confirms that growth-related pressure on the transport network is unavoidable, even under committed development.
- The rural nature of West Oxfordshire, relatively small population centres and dispersed travel patterns mean that achieving significant reductions in car use will be challenging and will require sustained investment in public transport and active travel. The modelling suggests that high-quality bus and Park & Ride services are likely to be better suited to prevailing travel patterns than MRT in its current tested form.
- The A40 corridor remains the most critical constraint, with specific junctions driving delay rather than link capacity alone. The modelling highlights the importance of carefully planning new development access arrangements, particularly the proposed junctions serving growth around Carterton and Brize Norton, and considering opportunities for bus priority where appropriate.
- Tested mitigation packages provide worthwhile improvements, with the enhanced bus and active travel package (DS2) delivering the strongest overall transport benefits.
- High-quality, frequent and reliable bus services emerge as one of the most effective tools for supporting growth. The modelling demonstrates that bus priority measures can deliver tangible journey time and reliability benefits, that will be important in supporting increases bus use and mode shift from new developments.
- Active travel investment delivers strong benefits for local and shorter trips, particularly within and between Witney, Carterton, Eynsham and other settlements. High-quality active travel connections between new development, existing communities, services and employment will be critical in reducing local car trips and helping to manage future highway demand.
- The modelling highlights the need for a balanced approach across highway, public transport and active travel, and suggests that more comprehensive or combined measures may be required over time.

Overall, this work provides a robust strategic evidence base to support the West Oxfordshire Local Plan, while clearly indicating where further refinement, sensitivity testing and scheme development would be appropriate as the Plan and its supporting transport strategy progress.



1. Introduction

1.1 Context

- 1.1.1 West Oxfordshire District Council (WODC) is currently preparing a new Local Plan to cover the period up to 2043 (the West Oxfordshire Local Plan 2043, WOLP2043). Local Plans set out the scale and distribution of residential and employment growth require, together with the policies that guide how and where this development should be delivered. They provide the long-term strategic framework for managing planned growth, addressing housing need, economic development and transport, while also considering climate impacts and protection of the natural and historic environments. The updated West Oxfordshire Local Plan will replace the current Local Plan adopted in September 2018, which provides the statutory planning framework for the district up to 2031.
- 1.1.2 AtkinsRéalis was commissioned by Oxfordshire County Council (OCC) and WODC to undertake strategic transport modelling using the existing Oxfordshire Strategic Model (OSM). The modelling forms part of the evidence base to support the emerging Local Plan. The objectives of the work were to assess the impacts of the proposed Local Plan strategy and associated development sites on the highway and public transport networks, and to examine the extent to which a package of public transport, active travel and highway measures can support and mitigate the impacts of new development, while also addressing existing transport network issues.
- 1.1.3 This report describes the methodology applied to deliver the transport modelling work, including improvements to the base year model calibration and validation, the implementation of a present year scenario, and the development and assessment of a range of forecast scenarios. These scenarios have been designed to reflect the impacts of the emerging Local Plan developments and potential mitigation measures.

West Oxfordshire

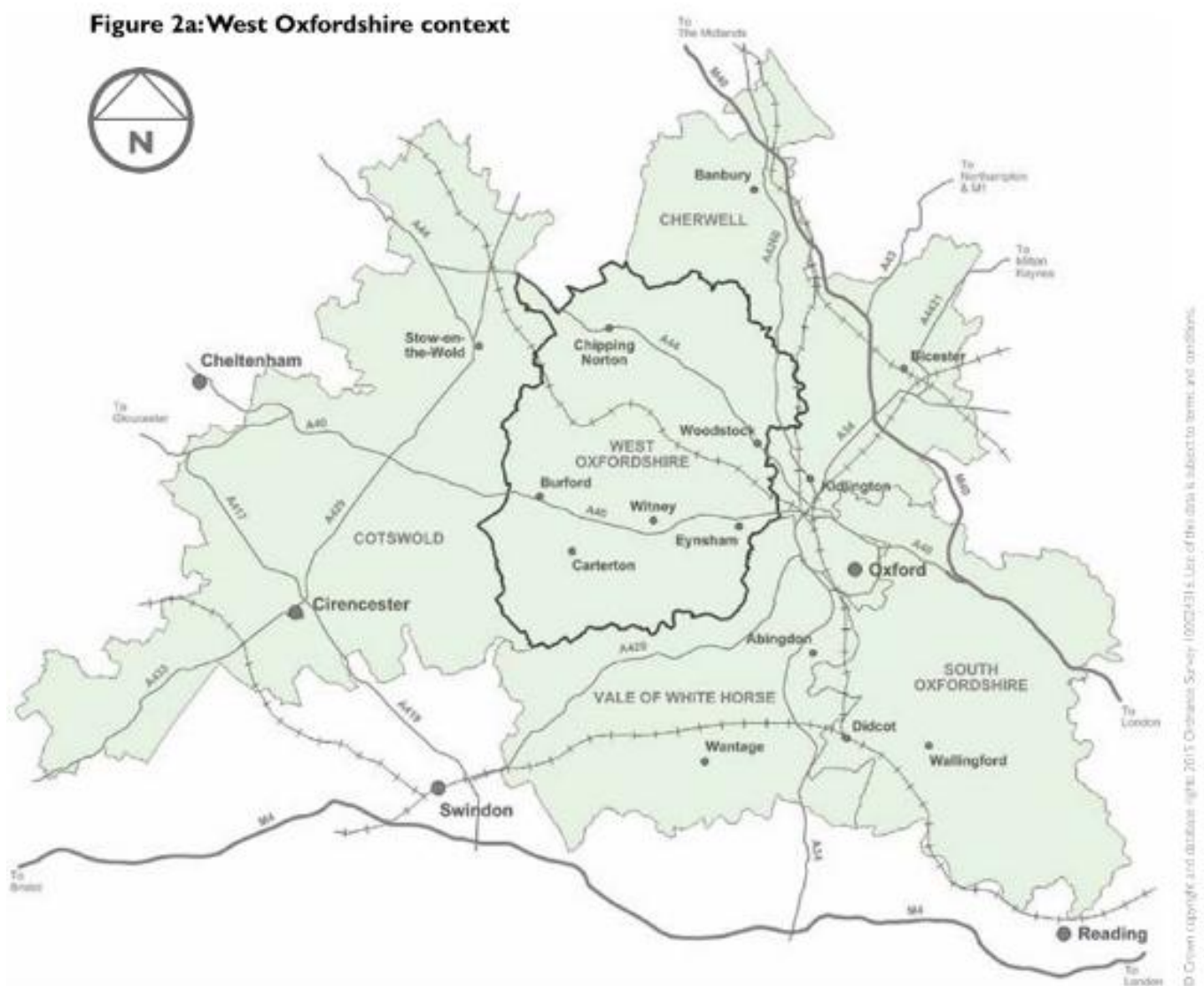
Geographic, demographic and socio-economic context

- 1.1.4 West Oxfordshire is one of five local authority districts within the County of Oxfordshire and is located to the west of Oxford City. The West Oxfordshire district boundary is shown by the darker outline in Figure 1-1. The figure also shows the remaining four districts within the county: South Oxfordshire, Oxford City, Vale of White Horse and Cherwell.
- 1.1.5 The district comprises around 120 towns, villages and hamlets, with Witney, Carterton and Chipping Norton forming the principal settlements. Witney is the largest town in West Oxfordshire and is located approximately 19 km to the west of Oxford City. It is a relatively compact town, with a developed area extending less than 5 km from east to west, and around 3 km from north to south.
- 1.1.6 Overall, West Oxfordshire is a predominantly rural district and, with a population density of approximately 1.5 people per hectare, is the second most sparsely populated of the 67 local authorities in South-East England. Data from the 2021 Office for National Statistics (ONS) Census indicates that the district has a population of approximately 114,200 and around 48,000 households. This represents an increase compared to the 2011 Census, which recorded a population of 104,800 and 43,200 households. Over the ten-year period, this equates to population growth of around 9% and household growth of approximately 11%.



- 1.1.7 Car ownership levels in West Oxfordshire are relatively high. Data from the 2021 Population Census shows that only 11.5% of households do not have access to a car or van, similar to South Oxfordshire (11%) and the Vale of White Horse (12%). These compare with 16% for Oxfordshire as a whole, due to nearly a third of households in Oxford City not having a car, 17% across the South East and 23.5% nationally. In contrast, 49% of households in the district have access to two or more cars or vans, compared with 43% for Oxfordshire, 42% in the South East and 35% across England as a whole.
- 1.1.8 West Oxfordshire is a relatively affluent district, with average weekly earnings around 8% higher than the national average. The workforce is well educated, with 47.5% of residents qualified to NVQ Level 4 or above, and a high proportion of the working-age population in employment. The district has a jobs-to-population ratio of 0.86, indicating a degree of out-commuting to access employment. However, Oxfordshire as a whole has a job density of around 1.0, suggesting good opportunities for residents to work elsewhere within the county.

Figure 1-1 – West Oxfordshire district in context of surrounding area



Source: Adopted West Oxfordshire Local Plan 2031 (<https://westoxon.gov.uk/media/feyjmpen/local-plan.pdf>)

Transport network and services

- 1.1.9 The main roads serving West Oxfordshire are shown in Figure 1-2. The A40, which forms part of the primary route network (London-Oxford-Gloucester-Fishguard), runs east-west through the district and provides a southern by-pass to Witney. The A40 is a key route for residents in West Oxfordshire travelling to and from Oxford City (or beyond), as well as to access the A34 and M40 to the east; and for westbound travel towards Cheltenham and Gloucester and onward to the M5. The route is a designated through route for the movement of freight.
- 1.1.10 Other important A-class roads serving the district include:
- A44: runs north-west to south-east from Chipping Norton, through Woodstock, towards Oxford.
 - A415: runs from Abingdon and approaches Witney from the south-east.
 - A4095: runs north-east to south-west through Witney, forming part of the route between Bicester and Faringdon.
 - A361: runs north-south from Chipping Norton, through Burford, to Lechlade.
- 1.1.11 West Oxfordshire is served by the North Cotswold Rail Line including stations at Hanborough, Charlbury and Kingham. Services on this line are currently operated by Great Western Railways (GWR), running between London Paddington and Worcester via Reading and Oxford. Much of the line between Oxford and Worcester is single track. Oxford, Didcot and Reading provide onward connections to a wide range of destinations across the country, including services to Birmingham via Banbury, to London Marylebone via Bicester and the Chiltern Line, and towards Swindon, Bristol, the South West and South Wales.
- 1.1.12 The district is also served by a network of local bus services providing connectivity between its main towns and settlements, as well as links to Oxford City. Stagecoach, which operates from a depot in Witney, provides several services between Oxford, Eynsham, Witney and Carterton, as shown in Figure 1-3 (as of September 2024). Many of these services operate along the A40 corridor.



Figure 1-2 – West Oxfordshire's road and rail network

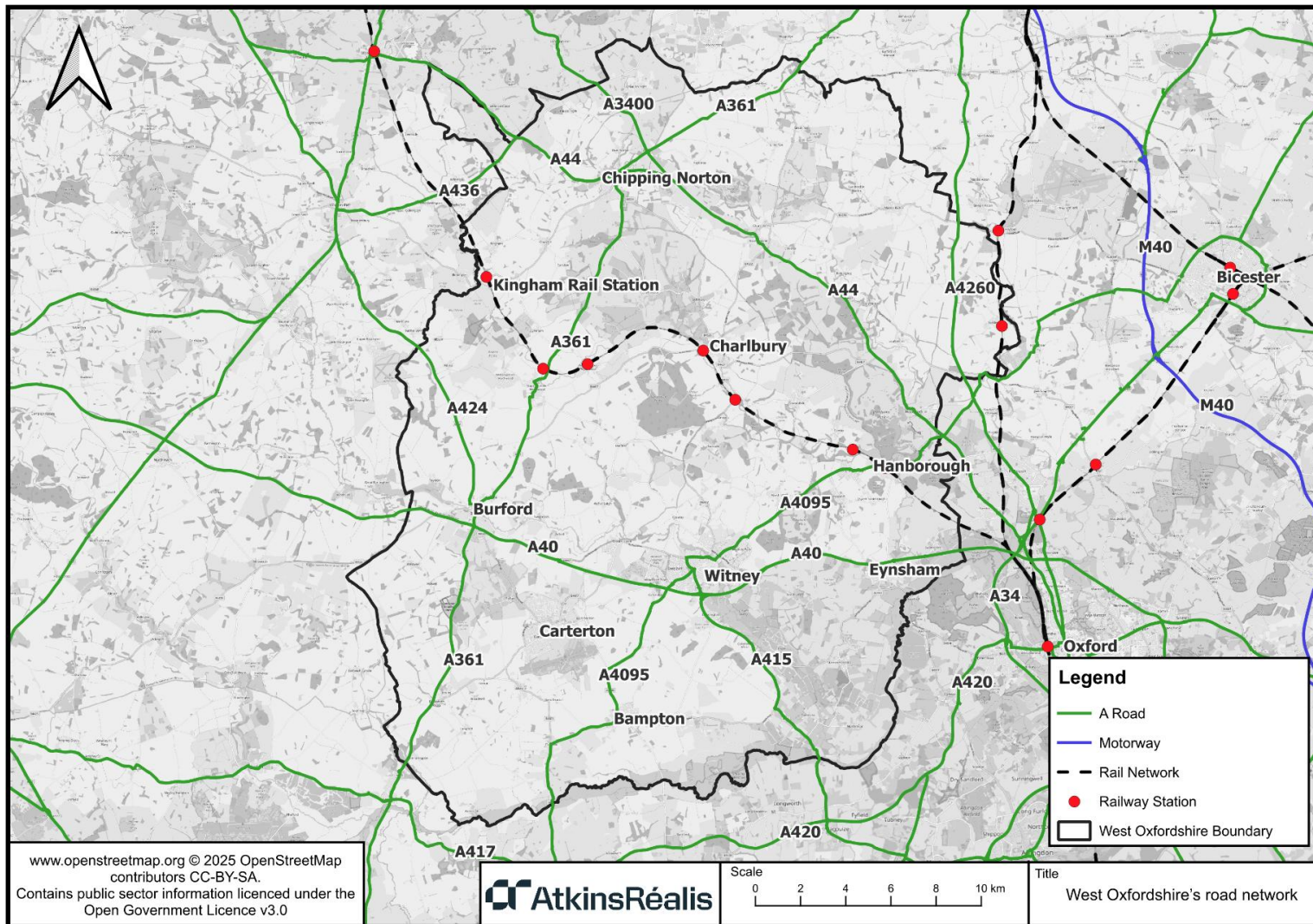
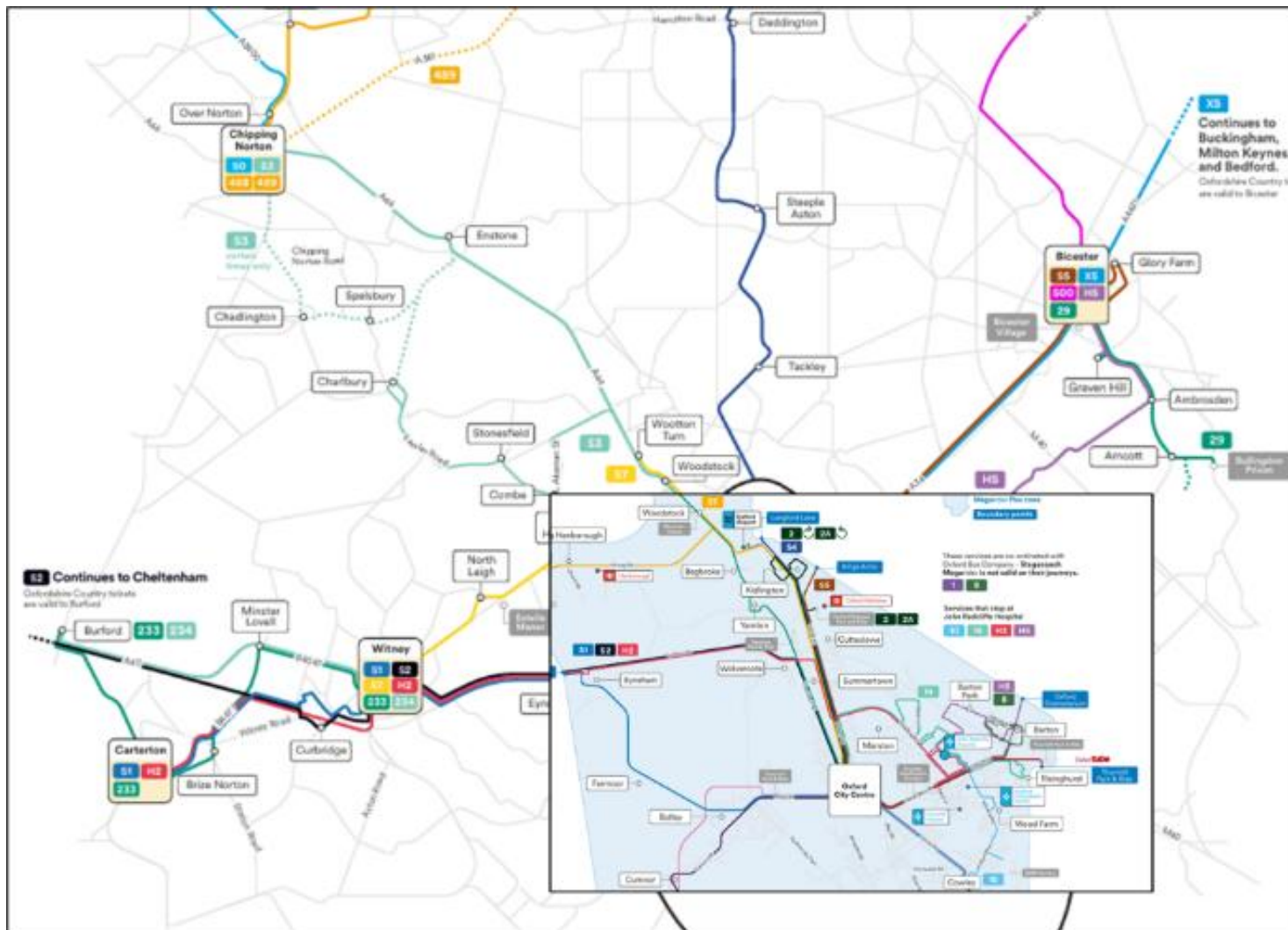


Figure 1-3 – West Oxfordshire bus services (September 2024)



Source: Stagecoach Route Maps Sept 2024



1.2 Adopted West Oxfordshire Local Plan 2031

- 1.2.1 The current West Oxfordshire Local Plan was adopted in September 2018 and covers the 20-year period from 2011 to 2031. The plan seeks to balance housing and economic needs with the preservation of the district's rural character, biodiversity and historic environment. A key element of the plan is its spatial strategy, which directs the majority of the new development to the larger, better-served towns of Witney, Carterton and Chipping Norton. Eynsham is identified for major expansion, including the delivery of a new Oxfordshire Cotswolds Garden Village (now known as Salt Cross Garden Village).
- 1.2.2 Major development allocations are designed to provide a mix of affordable and specialist housing, alongside appropriate supporting infrastructure and community facilities. The plan's economic policies aim to strengthen the local employment base by supporting existing businesses, sustaining the rural economy, promoting sustainable tourism, and maintaining the vitality of town centres. Smaller rural settlements are expected to accommodate only limited, sensitively designed development that maintains local character and distinctiveness. Overall, the plan adopts a presumption in favour of sustainable development, directing growth to locations best able to accommodate it.
- 1.2.3 Drawing on housing needs evidence published in 2014, the adopted plan made provision for at least 15,950 new homes. This comprised 13,200 homes in the period 2011 – 2031 to meet West Oxfordshire's identified housing needs, together with a further 2,750 homes in the period 2021 – 2031 to contribute to Oxford City's unmet housing needs. Housing delivery was expected to accelerate over the plan period, increasing from around 550 dwellings per annum in the early years to approximately 1,125 dwellings per annum by 2031. The adopted plan has played a significant role in shaping development across the district, with many allocated sites either completed, granted planning permission, or currently under construction. Housing delivery has remained strong, with 7,719 new homes completed between 1 April 2011 and 31 March 2024¹, only 356 dwellings short of the total requirement for that period. Nevertheless, some delays have been experienced in the delivery of larger strategic sites.
- 1.2.4 The transport policies within the adopted Local Plan 2031 focus on promoting sustainable travel and ensuring new developments are designed to minimise the need to travel, especially by private car. This is to be achieved through the creation of well-connected, less car-dependent communities, supported by enhanced public transport provision, improved walking and cycling infrastructure, targeted improvements along the A40 corridor, and other highway interventions where required to support development.

1.3 New West Oxfordshire Local Plan 2043

- 1.3.1 The emerging Local Plan is expected to cover the period from adoption (currently targeted for 2027) through to 2043. WODC completed consultation on the preferred spatial options at the end of 2025. The consultation considered a range of issues, including revisions to the settlement hierarchy and spatial strategy, together with potential locations for future housing and employment development.
- 1.3.2 Under the preferred spatial option, towns and villages within West Oxfordshire are categorised into five tiers based on their size and sustainability, reflecting their ability to meet day-to-day needs locally (often referred to as 'containment'). The Preferred Spatial Strategy seeks to direct the majority of new housing

¹ West Oxfordshire Local Plan 2031, Annual Monitoring Report (2023-2024)

https://www.westoxon.gov.uk/media/kpunjpcq/local-plan-annual-monitoring-report-2023_24.pdf



development to locations within the three principal Tier 1 settlements of Witney, Carterton and Chipping Norton.

- 1.3.3 Based on national planning policy guidance, the identified housing requirement for West Oxfordshire is 905 dwellings per annum. Over the period from 1 April 2025 to 31 March 2043, this equates to a requirement for approximately 16,290 additional homes. To provide greater resilience in housing delivery and reduce reliance on windfall sites, WODC has applied a 10% buffer to the planned level of supply. This results in a rounded housing target of approximately 18,000 new homes over the plan period. The anticipated sources of housing land supply are summarised in Table 1-1 and include around 5,000 dwellings at sites allocated in the adopted Local Plan that have not yet secured planning permission, including Salt Cross Garden Village, the West Eynsham Strategic Development Area, and the North Witney Strategic Development Area.
- 1.3.4 The employment land requirements set out in the Preferred Spatial Options consultation are expressed as broad ranges, reflecting a number of scenarios developed as part of an Economic Needs Assessment. The development growth assumptions tested in the transport modelling work include existing commitments and windfall development from the adopted Local Plan, together with proposed site allocations comprising 13,550 dwellings and 177,000 sqm Gross Floor Area of employment space. The new Local Plan site allocations are expected to be distributed across the locations shown in Figure 1-4, predominantly on land adjacent to Witney and Carterton, as well as at other sites elsewhere in the district. More detailed plots illustrating the Local Plan site references are provided in Appendix C and are cross-referenced with Local Plan development sites Table 5-2.

Table 1-1 – Sources of housing land supply for Local Plan 2043

Source	Number of homes
Major existing residential commitments (planning permissions of 10 or more units as of 1st April 2025)	2,036
Small existing residential commitments (planning permissions of less than 10 units as of 1st April 2025)	294
Windfall (2028 – 2043)	2,250
Allocations	13,420
Total	18,000

Source: West Oxfordshire Local Plan 2043: Preferred Spatial Options Consultation Paper (October 2025)
<https://www.westoxon.gov.uk/media/ae0jcxni/local-plan-preferred-spatial-options-consultation-october-2025.pdf>

1.4 Purpose of strategic transport modelling

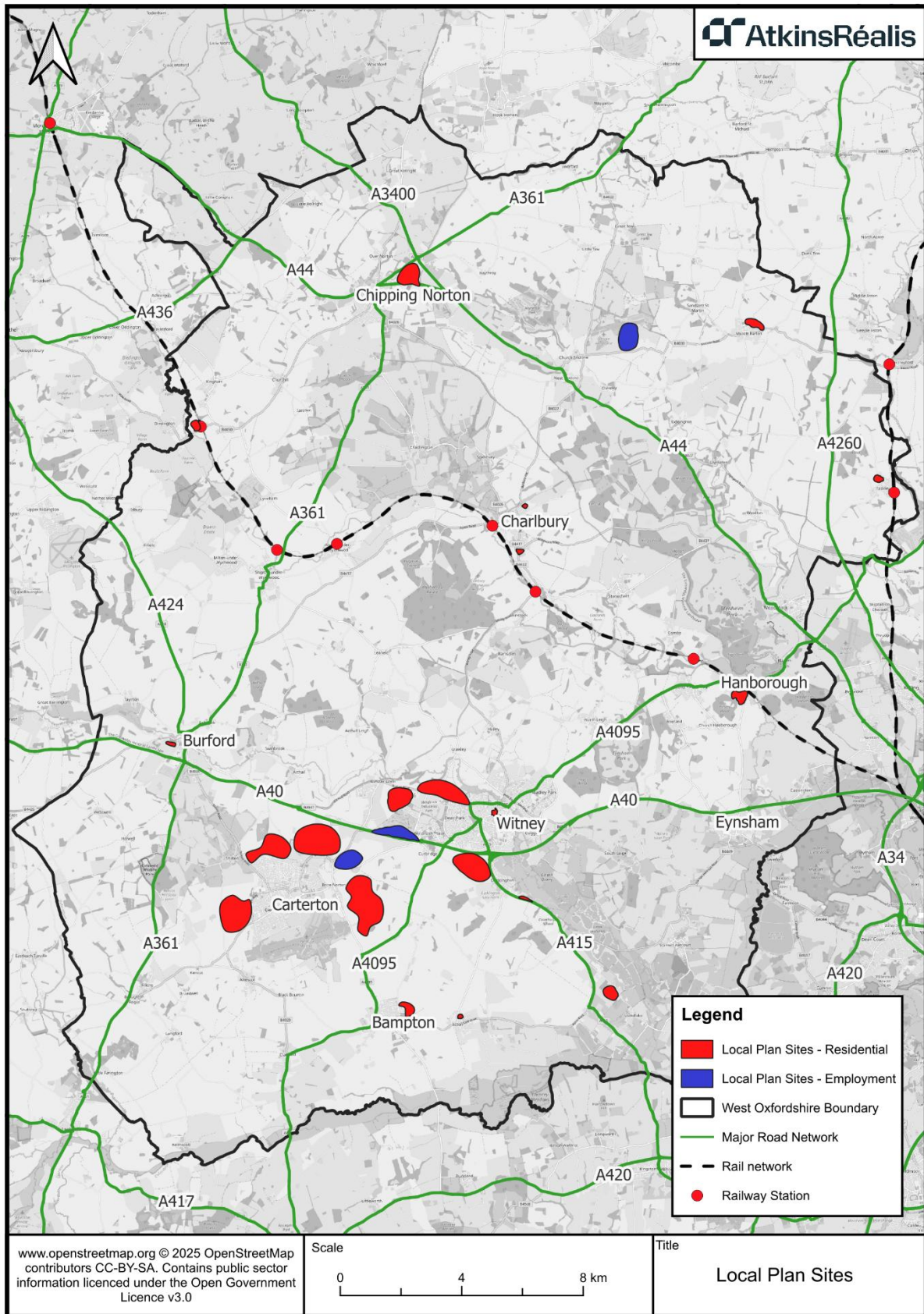
- 1.4.1 The purpose of assessing the emerging Local Plan using the OSM is to develop an evidence base to understand the likely strategic transport impacts arising from the:
- overall scale of growth and proposed spatial strategy.
 - individual, and clusters of, development sites proposed
 - transport mitigation or enabling measures and schemes proposed.
- 1.4.2 This approach enables potential transport issues to be identified and examined at an early stage, allowing further mitigation to be considered where necessary, and ultimately to demonstrate the acceptability of the proposed new Local Plan development.



- 1.4.3 The transport modelling was undertaken using the existing OSM, which has a base year of 2018. Recent model development and validation work had been focussed primarily on Oxford City. To ensure the model provided an appropriate level of detail and robustness for assessing impacts in West Oxfordshire, enhancements were made to the base year model, including increased spatial detail and validation against additional 2018 traffic count and journey time data within the district. Given the age of the base year and the effects of COVID-19 on travel behaviour, a present year scenario for 2023 was subsequently developed and validated against observed 2023 traffic count data.
- 1.4.4 The following 2043 forecast year model scenarios were then developed and tested:
- **2043 Reference Case scenario** – reflecting committed developments with planning consent, together with the outstanding allocations from the adopted West Oxfordshire Local Plan 2031, and incorporating committed transport infrastructure schemes.
 - **WOLP2043 scenario 1 (DS1)** – Reference Case plus emerging West Oxfordshire Local Plan 2043 allocations, with 'Do Minimum' transport mitigation measures.
 - **WOLP2043 scenario 2 (DS2)** – WOLP2043 scenario 1 plus a package of active travel and bus based public transport and highway mitigation measures.
 - **WOLP2043 scenario 3 (DS3)** – WOLP2043 scenario 1 plus a package of active travel and transport mitigation measures including a new mass rapid transit (MRT) corridor.



Figure 1-4 – New Local Plan Sites in West Oxfordshire



1.5 Summary

- 1.5.1 WODC are developing their new Local Plan to provide the basis for development in the district up to 2043. The emerging plan builds on the policies in the current Local Plan adopted in 2018, with a presumption of sustainable development, reducing the need to travel and focusing the needs for new housing and associated services and employment in and around the three principal towns of Witney, Carterton and Chipping Norton.
- 1.5.2 The emerging plan is looking to accommodate a total of 18,000 new homes in the district between 2025 and 2043 and up to 30 hectares of employment space. The strategic impacts of this development on the transport system have been assessed using the existing county wide Oxfordshire strategic transport model (OSM). The spatial detail in West Oxfordshire was improved in the OSM to undertake the work and the validity of the representation of existing travel conditions confirmed.
- 1.5.3 Four forecast scenarios were then undertaken using OSM:
- A Reference Case based on committed development plus the outstanding adopted Local Plan growth assumptions and committed transport schemes, to act as a comparator for the new Local Plan scenarios.
 - West Oxfordshire Scenario 1 based on the emerging Local Plan growth assumptions, with 'Do Minimum' transport mitigation measures.
 - West Oxfordshire Scenarios 2 and 3 based on Scenario 1 with additional transport mitigation measures.
- 1.5.4 The OSM represents the whole of Oxfordshire, growth assumptions in the other districts were held constant in all forecast scenarios tested based on their current (adopted) Local Plans. This report provides information on the assumptions made for modelling the forecast scenarios and likely impacts on travel in and around West Oxfordshire associated with the developments set out in the Local Plan to 2043.
- 1.5.5 The modelling results presented in this report are based on assumptions available at the time of model development. Recognising the inherent uncertainty associated with forecasting future travel patterns, a series of sensitivity tests have been undertaken and reported separately as addendums to this report. These tests consider alternative assumptions relating to infrastructure provision and future demand growth, providing an indication of the robustness of the findings under different future scenarios.

2. OSM for West Oxfordshire Local Plan

2.1 Background to OSM

Key features of OSM

- 2.1.1 The OSM represents highway and public transport travel to, from and within Oxfordshire, as well as the impacts of long-distance highway trips passing through the county. The model was originally developed in 2015 in line with the Department for Transport's (DfT's) transport analysis guidance (TAG) for strategic models, with a fully calibrated and validated base year of 2013. Since then, the model has been updated to a base year of 2018 and refinements made to spatial detail and underlying data.
- 2.1.2 The OSM comprises three modules:
- A variable demand model (VDM) which forecasts the impact of growth, new infrastructure and changing travel conditions on the number of trips made, and the choice of mode (car, bus, rail and Park & Ride), time period and destination for travel.
 - A highway assignment model (HAM) to assess the choice of route and congestion impacts on the highway network. The HAM is implemented for the morning and evening peak hours of 08:00-09:00 and 17:00-18:00, and an average interpeak hour (10:00-16:00) of an average weekday.
 - A public transport assignment model (PTAM) to assess the use of both bus and rail public transport services running throughout Oxfordshire. The time periods for the PTAM are the same as the HAM.
- 2.1.3 The HAM has a detailed representation of the road network throughout Oxfordshire and provides connectivity in the areas outside the county for travel to, from and through the study area. The 2013 base year HAM was developed, calibrated and validated across the county to the standards set out in TAG. The majority of applications of the updated 2018 base year model have been for Oxford City. Additional local validation has therefore been carried out when applying the OSM for other areas of interest. This approach has been adopted for the West Oxfordshire Local Plan strategic modelling, with more spatial detail included and a local West Oxfordshire model validation check carried out as set out later in this chapter.
- 2.1.4 As recommended by TAG, the OSM is an incremental model and takes the form of a pivot point incremental model. This operates by first developing forecast travel demand by applying the expected growth in travel, based on the land use residential and commercial developments, to the base year validated matrices. The VDM is then run to forecast the changes in travel behaviour due to changes in travel characteristics caused by any new infrastructure, improved public transport connectivity, updated cost assumptions and predicted levels of highway congestion. As walk and cycle are not part of the current OSM, post-model run assessments of the update of these modes is required.

Recent applications of OSM

- 2.1.5 The OSM has been used for a wide range of studies considering new and improved transport infrastructure, alternative growth scenarios, Local Plans and major developments, and for a range of demand management initiatives primarily in Oxford City.



2.1.6 Some of the more recent applications include:

- Testing the impacts of the emerging Joint Local Plan 2041 for the districts of South Oxfordshire and the Vale of the White Horse (South and Vale Local Plan).
- Assessing the impact of improvements to the A40 corridor between Witney and Oxford to underpin the development and submission of a full business case to the DfT for funding for the A40 Science Transit Scheme (incorporating a new Park & Ride (P&R) site at Eynsham alongside bus priority lanes and active travel infrastructure improvement between Eynsham and Dukes Cut Bridges) and the Homes England funded HIF scheme on the A40.
- Assessing potential improvements along the A4074 corridor between Oxford City and Berinsfield, including the provision of Park & Ride (P&R) sites at several potential locations in South Oxfordshire.
- Forecast scenarios to support the Oxfordshire Park & Ride Strategy development looking at the impacts of opening new bus-based Park & Ride sites on the periphery of Oxford.
- Modelling to assess the impact of various transport schemes in Oxford City including proposals for traffic filters, a zero-emission zone and a workplace parking levy.

2.1.7 The OSM has also provided information to assist in local modelling studies, by providing the demand and network elements which are subsequently enhanced with additional local detail. Of direct relevance to this work, is the A40 corridor model, a highway only model developed by cordoning the A40 corridor area from OSM highway assignment model, developed in 2020 using the OSM as a donor model.

2.2 Model updates

Overview

2.2.1 Updates to the West Oxfordshire district area were required in OSM as, although the model covers the whole of Oxfordshire, its more recent use cases have been focused on Oxford City and South and Vale districts. The base model from the South and Vale Local Plan update carried out in the first half of 2024 was selected as the most appropriate starting point for the West Oxfordshire area updates.

2.2.2 The updates focused on improving highway network accuracy, zoning detail, and zone connectivity and the levels of demand being modelled in West Oxfordshire, to ensure that the model reflects base-year conditions and provides a consistent foundation for forecast year scenario testing:

- Highway network improvements: Checked and refined network coding along A40 and A44 key corridors and junctions, verifying that junction layouts match 2018 base-year conditions and enhancing network detail, particularly in Witney, to allow more realistic routing options.
- Spatial detail: Disaggregated model zones in Witney and Carterton and added development zones to correctly locate future development trips, maintaining consistent matrices between base and forecast years for more robust comparison.
- Zone connector updates: Added or repositioned centroid connectors at appropriate access points, sometimes splitting links to create connection nodes, and aligned connector locations with planned infrastructure to keep the base and forecast networks comparable.

Spatial detail

2.2.3 Updates were made to improve the spatial representation of Witney and Carterton in the model. This focused on splitting and reorganising model zones, with extensive disaggregation in Witney and a more



targeted approach applied in Carterton. The original and resulting OSM zoning systems in Witney and Carterton can be seen in Figure 2-1 and Figure 2-2 respectively, with the revised zones shown against the previous zones used in the South and Vale Local Plan base year model.

- 2.2.4 In Witney, zones containing both residential and employment land uses were separated where feasible. In Carterton, adjustments were concentrated within the town centre. Two large zones were divided to better reflect their distinct loading points and land-use characteristics. The additional detail allowed the zonal connections to the network to be improved by placing access points.

Figure 2-1 – Updated OSM zoning in West Oxfordshire – Witney

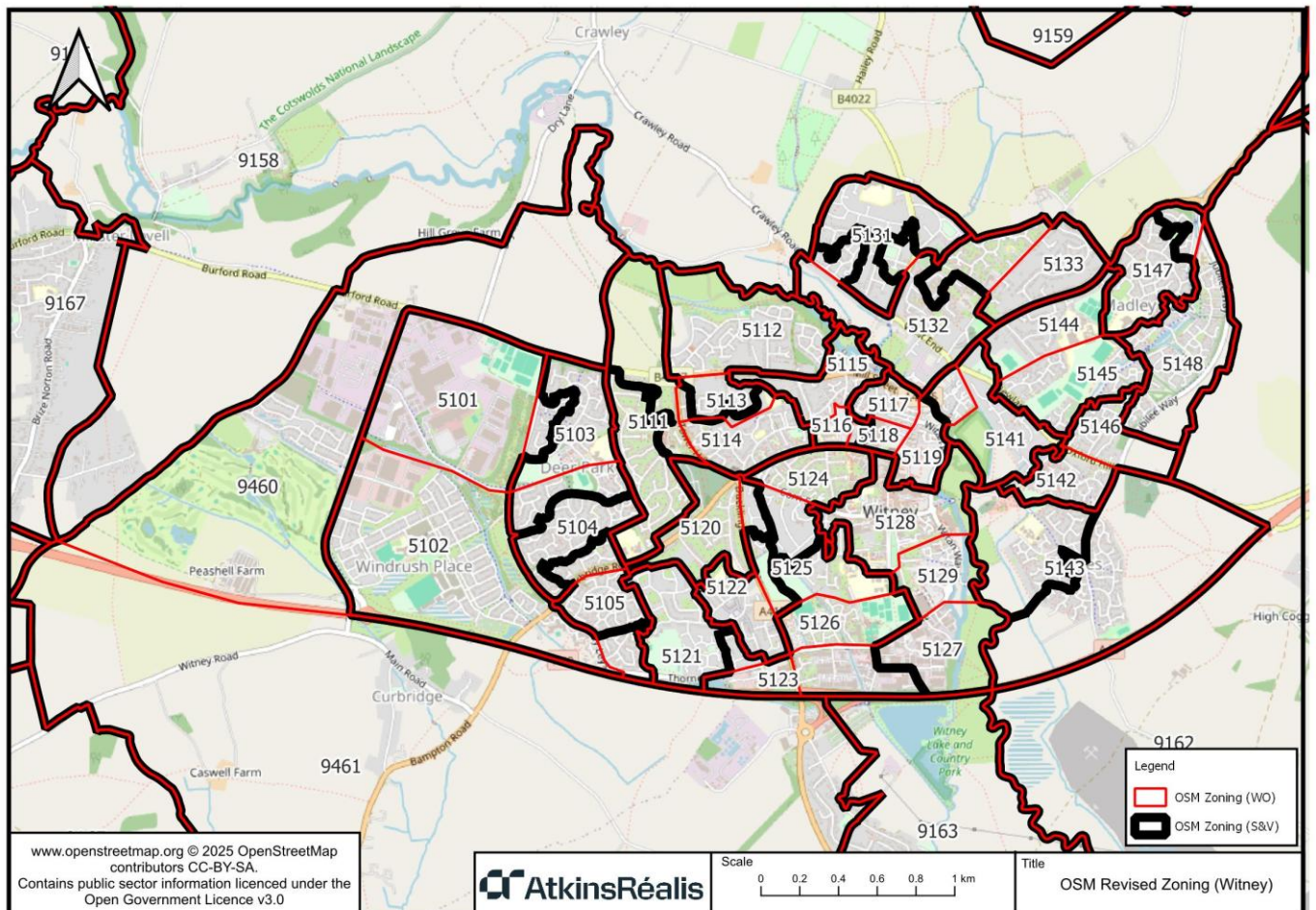
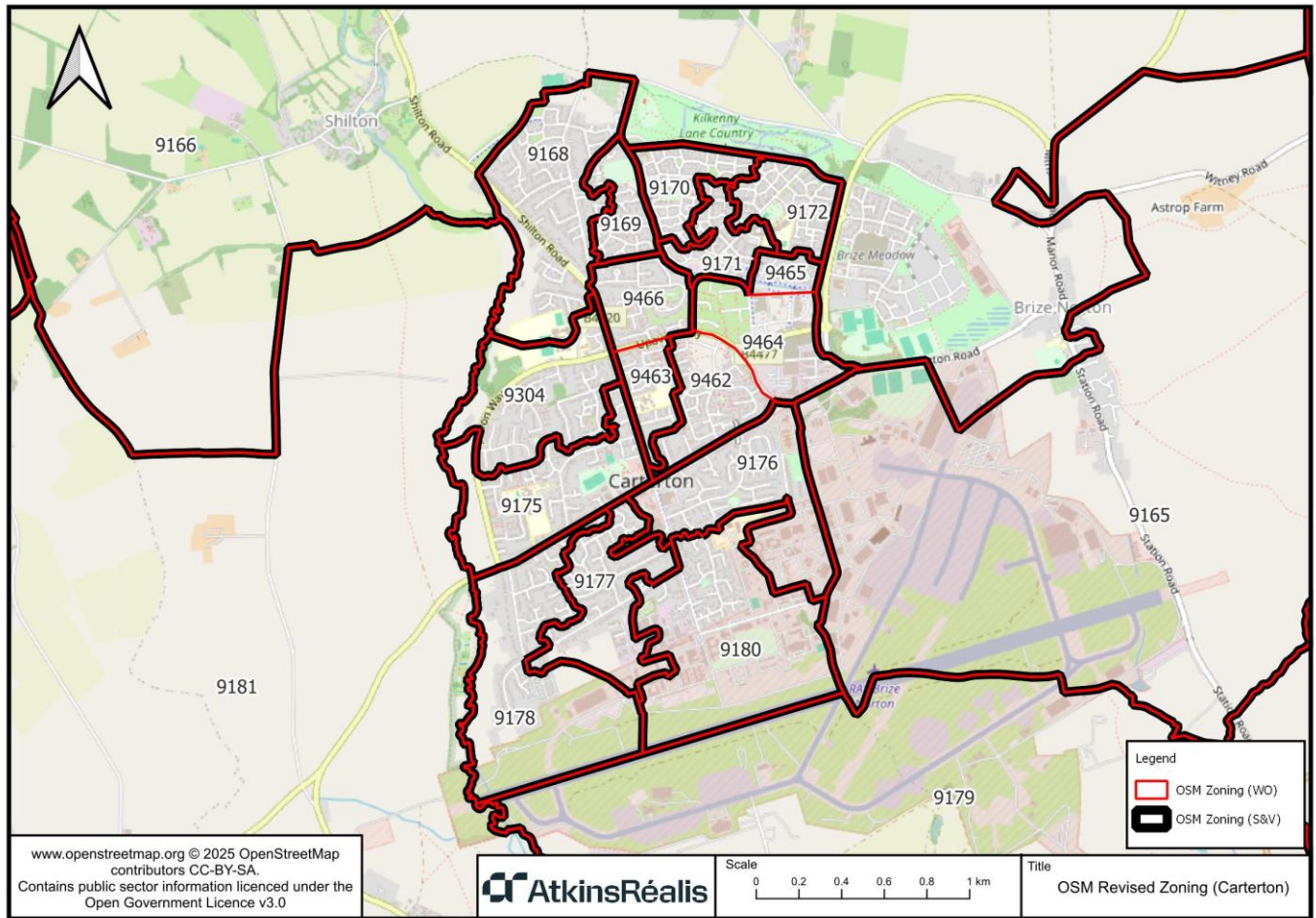


Figure 2-2 – Updated OSM zoning in West Oxfordshire – Carterton



Supply

2.2.5 Network changes were made to the highway network in the following areas:

- Network speeds were reviewed and corrected where limits or flow characteristics were inconsistent or outdated.
- Local speed changes, traffic-calming measures and within-link speed variations were checked where necessary.
- Geometry, link lengths and lane arrangements were corrected where mapping tools highlighted errors, with extra nodes added where needed to represent layout changes or improve modelling of merges and traffic-calmed sections.
- Signalised junctions were reviewed, especially where pedestrian phases or crossings were included, and signals were added at locations that have been updated recently.

2.2.6 Consistency checks were carried out to correct any mismatches in coded distances or times between opposing directions. The PT network integration and zoning formed a major part of the coding updates, ensuring that the model structure properly reflects the latest development patterns and planning assumptions. This included integrating new nodes required for known network enhancements and adding the network structure to accommodate development zones to reflect forecast year land-use expectations.

- 2.2.7 Public transport service coding was revised to account for the structural changes to the network layout, since the bus network is derived from the highway network.

Demand

- 2.2.8 The 2018 calibrated matrices from the South and Vale Joint Local Plan 2041 modelling work were taken as the starting point for this study. In areas with revised zone splits, the demand (trip) matrices were also split, taking into account the differing nature of trips to residential, commercial and mixed-use areas, so that these were represented more accurately within Witney and Carterton.
- 2.2.9 Further adjustments were made to address inconsistencies with observed count data in West Oxfordshire. A full calibration of the demand was beyond the scope of this study. Matrix estimation had been used previously for the model calibration focused on Oxford City; hence it was inappropriate to repeat the exercise. Furthermore, this would risk disrupting the areas of the model which have recently been validated, such as Oxford City. Therefore, only targeted matrix adjustment, through the use of select link analysis, could be made to the matrices to address identified deficiencies. These included:
- Increasing internal movements within Witney.
 - Rebalancing shorter trips.
 - Improving the level of traffic incoming to / outgoing from Carterton.
 - Adjusting travel patterns on the A40.

2.3 Base year (2018) results

Overview

- 2.3.1 This section provides an overview of travel in West Oxfordshire in the 2018 base year and presents comparisons between modelled metrics and observations for traffic flows and journey times to demonstrate that OSM performs adequately to provide a robust basis for assessing the impacts of the Local Plan developments.
- 2.3.2 Across the 12-hour period from 07:00 to 19:00, the modelled flows (person trips) are:
- 149,089 trips by car beginning in West Oxfordshire.
 - 148,767 trips by car ending in West Oxfordshire.
 - 85,622 trips by car both beginning and ending within West Oxfordshire.
 - 3,581 bus passenger trips beginning in West Oxfordshire.
 - 3,394 bus passenger trips ending in West Oxfordshire.
 - 1,672 bus passenger trips both beginning and ending in West Oxfordshire.
 - 1,512 rail passenger trips beginning in West Oxfordshire.
 - 1,457 rail passenger trips ending in West Oxfordshire.
 - 24 rail passenger trips both beginning and ending in West Oxfordshire.
- 2.3.3 Table 2-1 presents the key network statistics for the roads of West Oxfordshire only and the full Oxfordshire model area. These are presented for all car trips in West Oxfordshire across the 12-hour



period from 07:00 to 19:00, with the total on the roads also including LGV and HGV trips. Figure 2-3 shows the full extent of the roads considered, with those inside the West Oxfordshire border being used to provide the West Oxfordshire statistics.

Figure 2-3 – Model links included in network statistics

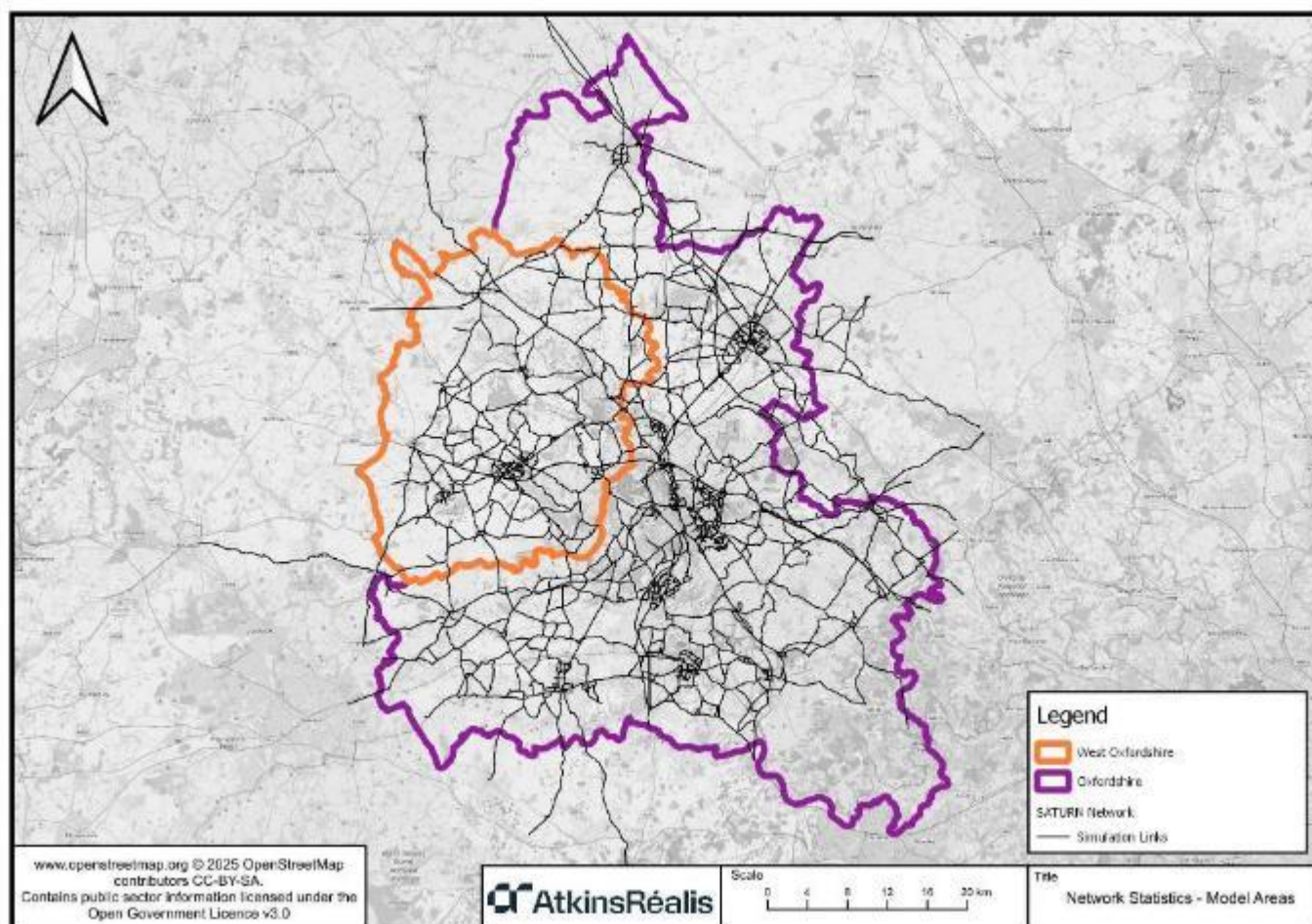


Table 2-1 – Key highway network statistics, 2018 – All of Oxfordshire and West Oxfordshire only

Metric	All of Oxfordshire		West Oxfordshire Only	
	Car	Total	Car	Total
Total Travel Time (hr)	254,600	314,300	43,800	53,900
Cruise Time (hr)	223,600	277,200	37,800	46,700
Delay (hr)	30,900	37,200	6,000	7,200
Delay (sec per km)	7.2	6.9	9.3	9.0
Total Distance (km)	15,462,900	19,429,200	2,314,800	2,873,700
Average Speed (km/h)	60.7	61.8	52.8	53.4

2.3.4 Total travel time is comprised of the cruise time spent driving and the delay accrued waiting in queues e.g. at junctions. The data shows that the average speed is just over 50km/h, or approximately 33mph in West Oxfordshire while, across the whole of Oxfordshire, the average speed is approximately 8km/h faster. There is higher delay in West Oxfordshire than across Oxfordshire as a whole, with an additional

two seconds of delay per kilometre travelled on average due to the large volumes of traffic experiencing delay on the A40 through the district.

Validation metrics

- 2.3.5 DfT's guidance (TAG) defines metrics to measure the performance of base year models, and the levels of consistency between the modelled and observed statistics desirable for scheme appraisal. The size and wide area of interest of strategic models like OSM make it difficult to fully attain the TAG criteria, without comprehensive data and detailed calibration in the area of interest. For OSM, an additional category was also defined to identify instances where the TAG criteria were close to being met (i.e. "Near Pass").
- 2.3.6 The performance metrics relate to traffic flows for groups of sites forming cordons around urban areas and screenlines picking up strategic movements across areas, and journey times along key routes. The updated base (2018) and present year (2023) models have been assessed against the TAG and more relaxed criteria where sufficient existing data was available. Allowing such relaxations is appropriate for a model which is being applied to a wide area for the purposes of a strategic level assessment of the emerging Local Plan.
- 2.3.7 The 'Pass' and 'Near' criteria and the acceptability guidelines for the study are shown in Table 2-2 for screenlines and Table 2-3 for individual links.

Table 2-2 – Screenline flow validation and acceptability guideline

Criteria	Category	Acceptability guideline
Differences between total modelled flows and counts should be less than 5% of the counts	Pass (TAG)	All or nearly all (i.e. 95%) of screenlines
Differences between modelled flows and counts should be less than 10% of the counts or GEH less than 7	Near	All or nearly all (i.e. 95%) of screenlines

- 2.3.8 GEH is the Geoffrey E. Havers statistic, a variation of the Chi-squared statistic, that incorporates both relative and absolute errors. It is defined as follows:

$$GEH = \sqrt{\frac{(M - C)^2}{\frac{1}{2}(M + C)}}$$

where:

- *GEH* is the calculated statistic
- *M* represents the modelled hourly flow
- *C* represents the observed hourly flow.



Table 2-3 – Link flow validation and acceptable guidelines

Criteria	Category	Acceptability guideline
GEH less than 5 or Individual flows within 100 veh/h of counts for flows less than 700 veh/h or Individual flows within 15% of counts for flows from 700 to 2,700 veh/h or Individual flows within 400 veh/h of counts for flows more than 2,700 veh/h	Pass (TAG)	>85% of cases
GEH less than 7 or Individual flows within 150 veh/h of counts for flows less than 700 veh/h or Individual flows within 20% of counts for flows from 700 to 2,700 veh/h or Individual flows within 500 veh/h of counts for flows more than 2,700 veh/h	Near	>70% of cases

2.3.9 For journey times, the criteria used are defined in Table 2-4.

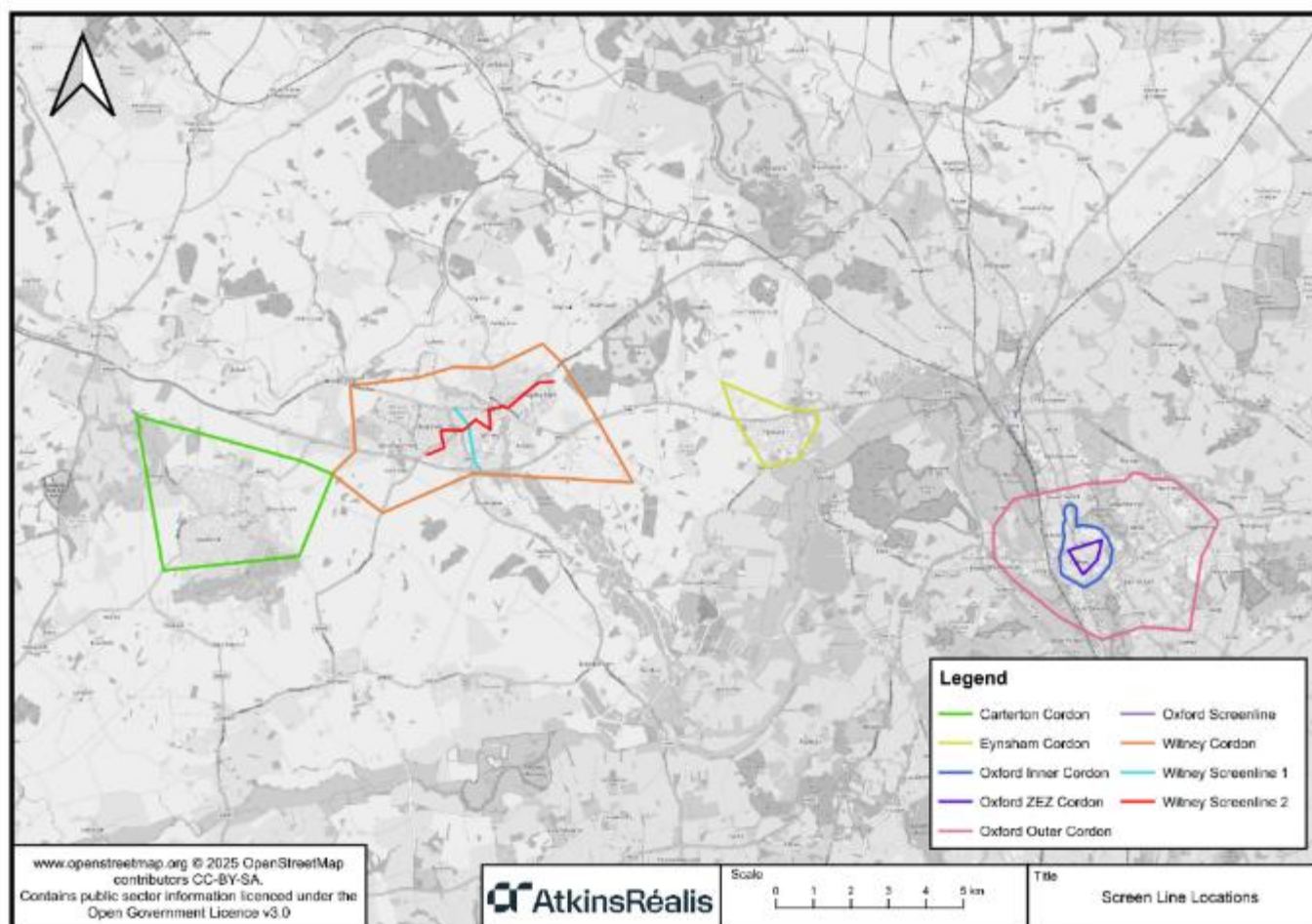
Table 2-4 – Journey time validation criteria and guideline

Criteria	Category	Guideline
Modelled times along routes should be within 15% of surveyed times (or 1 minute, if higher than 15%)	Pass (TAG)	> 85% of routes
Modelled times along routes should be within 25% of surveyed times	Near	>70% of routes

Screenlines

2.3.10 The updates to the base model made use of pre-existing counts and screenlines. Figure 2-4 shows the screenlines which were used to monitor the strategic movements in West Oxfordshire and Oxford City. The Oxford City screenlines are reported in Table 2-8 for the purposes of monitoring impacts there. The data in West Oxfordshire is focused on the A40 corridor due to the locations of the available data and the many Local Plan sites located in the vicinity of this corridor.

Figure 2-4 – Screenline and cordon locations



2.3.11 Table 2-5 shows the total number of screenlines meeting the TAG Pass and Near criteria set out in Table 2-2, when considering the car flows only and total vehicles (cars, LGVs and HGVs).

Table 2-5 – Screenlines in West Oxfordshire by validation level – car and total vehicles, 2018

Time Period	Car			Total vehicles		
	AM	IP	PM	AM	IP	PM
Pass	6	6	6	7	7	5
Near	3	2	3	1	3	3
Fail	1	2	1	2	0	2
Pass %	60%	60%	60%	70%	70%	50%
Pass/Near %	90%	80%	90%	80%	100%	80%

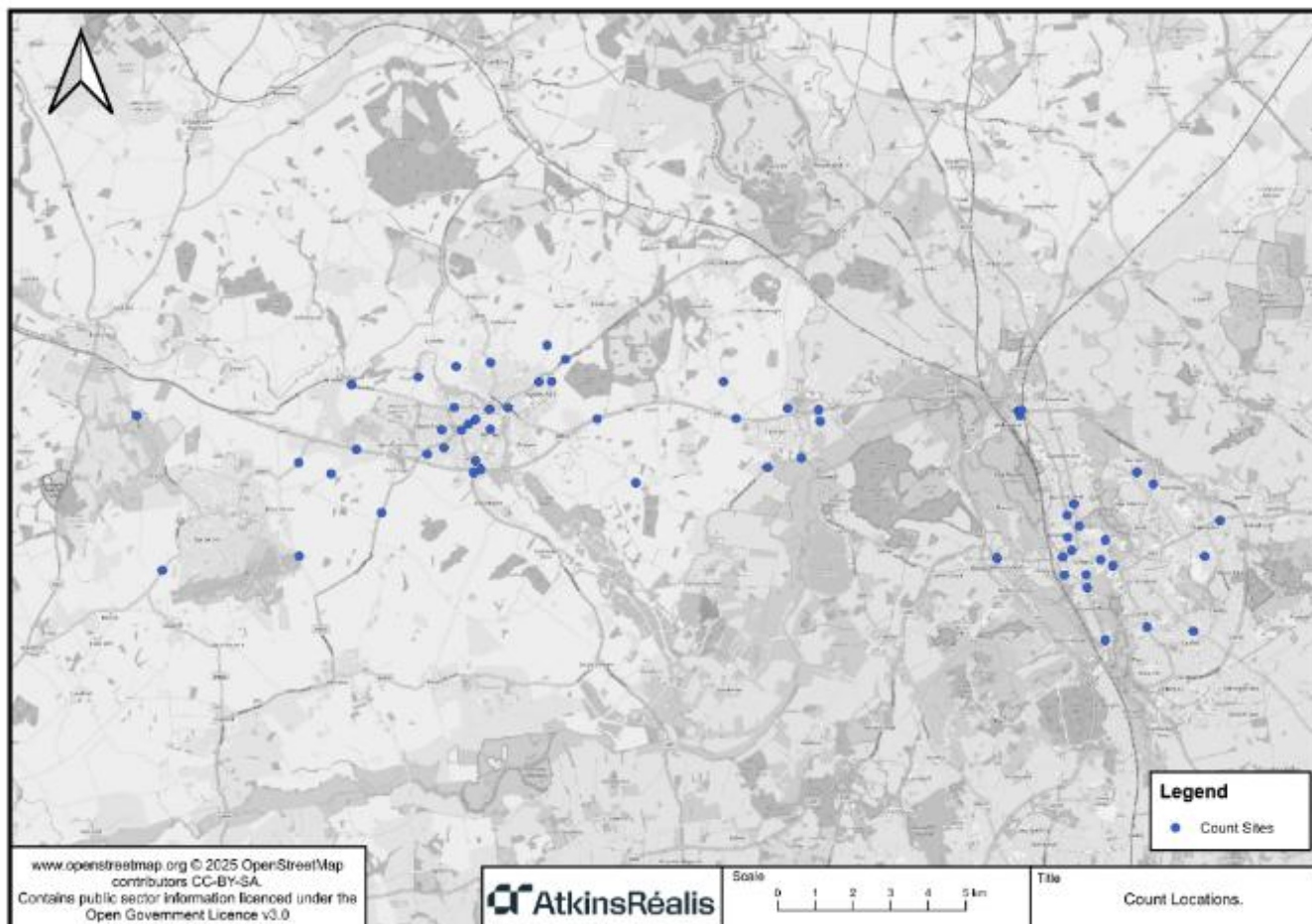
2.3.12 The full breakdown of screenline results by screenline and time period is provided in Appendix A.1. The table shows that the travel patterns to and from the towns of Witney, Carterton and Eynsham mostly either meet TAG criteria or are within slightly relaxed criteria. The exceptions are within Witney, where there have been significant changes to the model zoning. Despite this, the total movements within Witney indicate that, while there are some ongoing issues with distribution and routing within Witney itself, the volume of travel within Witney is largely consistent with the observed flows overall. Therefore,

for the purposes of assessing the strategic impacts of the Local Plan, these local effects are not expected to cause significant variation. Comparing the results for total vehicles against those for cars only shows similar results overall, with some minor variation in the time periods.

Counts

2.3.13 Figure 2-5 shows the individual count sites used to develop the screenlines shown previously.

Figure 2-5 – Count site locations



2.3.14 Table 2-6 presents the total number of counts for car only and total vehicles comprising car, LGVs and HGVs which meet the TAG Pass or Near criteria set out in Table 2-3.

Table 2-6 – Validation flows at count sites in West Oxfordshire – car and total vehicles, 2018

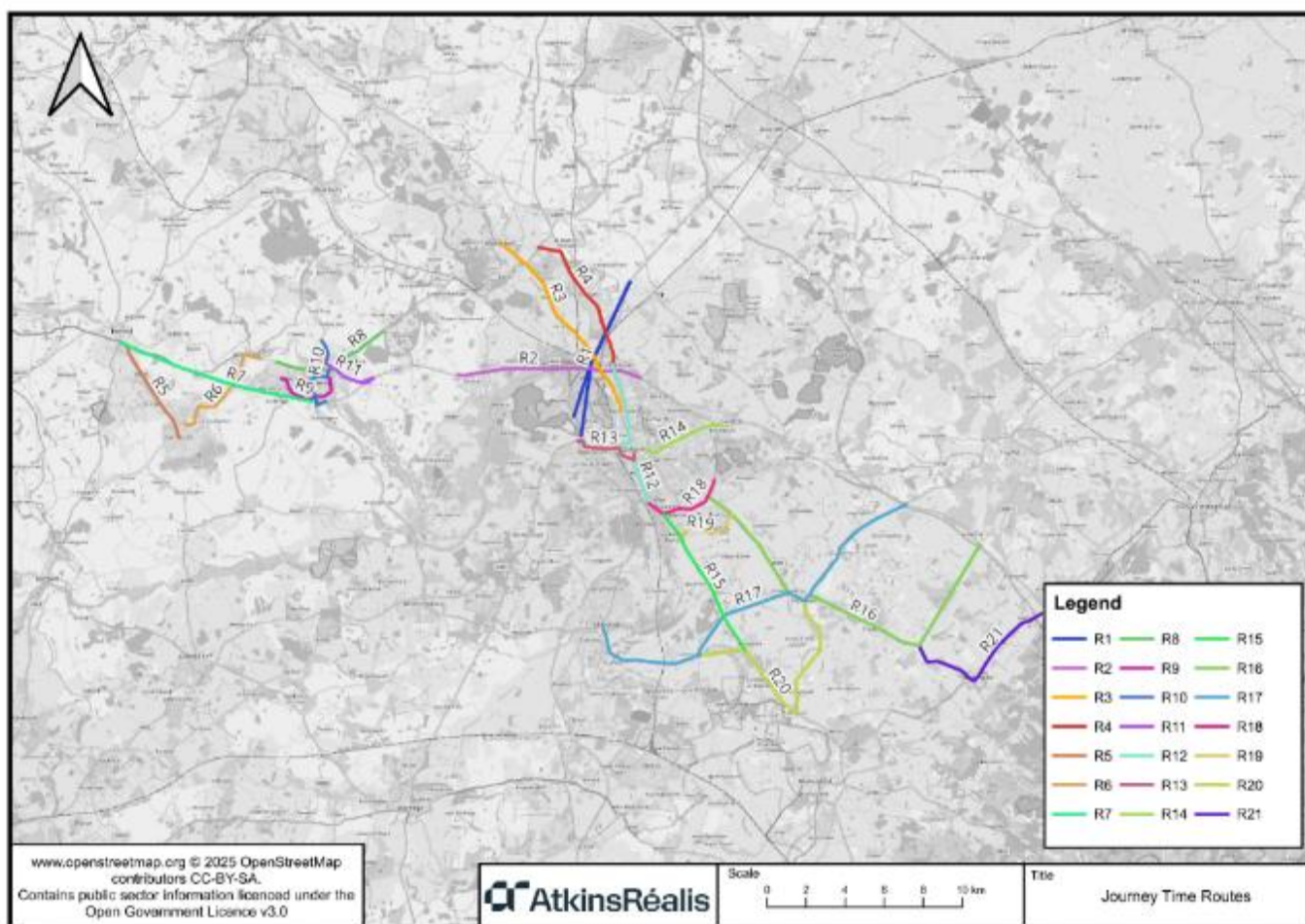
Time Period	Cars			Total vehicles		
	AM	IP	PM	AM	IP	PM
Pass	44	53	44	46	53	42
Near	13	9	7	9	8	9
Fail	15	10	21	17	11	21
Pass %	61%	74%	61%	64%	74%	58%
Pass/Near %	79%	86%	71%	76%	85%	71%

2.3.15 The count data shows slightly lower percentages meeting the pass and near criteria compared with the overall screenline performance, reflecting greater variation in the specific routing choices. The totals for car only and total vehicles are similar, showing a good balance between the different vehicle types.

Journey times

2.3.16 The routes selected to monitor journey times were taken from earlier studies where observed travel time data was available. Figure 2-6 shows the journey time routes which were monitored as part of the base year update. The reliance on existing data meant the whole of the A40 corridor was not covered. Of these, routes R2, R3 and R5 to R11 are considered as part of the calibration of West Oxfordshire. The remaining routes are presented in Table 2-9 for the purposes of monitoring the impact of calibration on Oxford City.

Figure 2-6 – Journey time routes



2.3.17 Table 2-7 presents the percentage of routes meeting the criteria for journey time routes in West Oxfordshire. Journey time data was not available for two of the routes in West Oxfordshire and two routes in Oxford City in the Interpeak.

Table 2-7 – Journey times in West Oxfordshire

Time Period	AM	IP	PM
Pass	10	11	14
Near	3	2	1
Fail	5	1	3
Pass %	56%	79%	78%
Pass/Near %	72%	93%	83%

2.3.18 The detailed breakdown of results by journey time route in each time period is provided in Appendix A.2. The morning peak modelled journey times match up less well against the observed data than the other time periods; there are significant delays on the A40 routes R2 and R11 in the morning peak in the observed data.

Impact on Oxford City

- 2.3.19 Due to proximity of Oxford City and the sensitivity of modelling it accurately, given that OSM has previously been calibrated in the district; it was necessary to monitor the validation of Oxford City using the data used previously to calibrate that area of the model. Table 2-8 shows the total number of screenlines in Oxford City passing or near passing TAG criteria, and the corresponding data for the individual count sites on those cordons and screenlines.

Table 2-8 – Screenlines in Oxford City – Total vehicles

Time Period	Cordons / screenlines			Individual link counts		
	AM	IP	PM	AM	IP	PM
Pass	3	5	5	39	43	43
Near	5	3	3	4	3	0
Fail	0	0	0	3	0	3
Pass %	38%	63%	63%	85%	93%	93%
Pass/Near %	100%	100%	100%	93%	100%	93%

- 2.3.20 Although many of the screenlines are not passing, they are all within the “Near” criteria. In addition, most of the count sites are also passing or near passing TAG criteria, showing that the flow calibration within Oxford City has not been significantly impacted by the updates in West Oxfordshire.
- 2.3.21 Table 2-9 shows the journey time routes in Oxford City continue to perform well with most routes passing the TAG or slightly relaxed criteria.

Table 2-9 – Journey time routes in Oxford City

Time Period	AM	IP	PM
Pass	20	17	21
Near	1	1	2
Fail	3	2	1
Pass%	83%	85%	88%
Pass/Near%	88%	90%	96%

2.4 Present year (2023) updates

Supply

- 2.4.1 Table 2-10 lists the schemes which were reviewed as part of the present year model updates. As in the base year, the PT service coding was adjusted to account for structural changes made in the highway network.

Table 2-10 – Present year scheme review

Scheme	Changes made?	Notes
Headington Roundabout – Phase 1	No	Layout the same in 2018 and 2023.



Scheme	Changes made?	Notes
North Oxford Scheme	Yes	Eastbound bus lane added.
West Way / Botley Road	Yes	Seacroft P&R exit and signals updated; rest unchanged.
Botley Road Bus Lane Phase 1	No	Eastbound lane already present in base; eastern section still under works.
Jeune Street (towards St Clements)	Yes	Made one-way northbound and right-turn banned.
South Parade	No	2023 retained base-year restriction.
James Street	Yes	Through-movement banned; access to Iffley Road removed.
Florence Park LTN	Yes	Bans applied on Cornwallis Rd, Rymers Lane, Littlehay Rd.
Church Cowley LTN	Yes	Bans applied on Beauchamp Ln, Littlemore Rd, Bartholomew Rd.
Temple Cowley LTN	Yes	Ban applied on Crescent Rd.
Divinity Road Area LTN	Yes	Bans applied; Union St already banned in base.
St Mary's Area LTN	Yes	Bans on Magdalen St & Howard St.
St Clement's Area LTN	No	Rectory Road not in model; no changes.
Worcester St / George St Junction	No	Junction closed in 2018 and remains closed in 2023.
Davenport Rd/Park Rd	Yes	Through-route added for bus operations.
North Way (Northern Bypass)	Yes	Oxford City scheme: included to support PYV bus routes.
Great Western Park	Yes	Oxford City scheme: included to support PYV bus routes.

Demand

- 2.4.2 The highway and PT matrices were updated to account for completed residential and non-residential sites and changes in population and economic activity between the base and present years. Outside West Oxfordshire the methodology was based on earlier work for Oxford City. Growth factors from NTEM by purpose and geographical area were used as an initial input to the OSM to create the 2023 present year forecast. However, the flows forecast with this method were significantly higher than the observed 2023 data. To reflect the impact of COVID on travel demand, the NTEM growth factors for commute and employer business trips to and from Oxford City were reduced. The resulting forecasts aligned much more closely with observed flows within the City. Outside the City, the impact of COVID was implemented by adjusting the NTEM growth based on national statistics of observed traffic growth and public transport use from 2018 to 2023. Present year traffic flows outside Oxford city were not compared with observed data.
- 2.4.3 For West Oxfordshire, the methodology previously applied for City applications has been refined for this West Oxfordshire Local Plan update, by adding an additional step to reflect the known locations of developments completed in this period. Changes in trips to and from West Oxfordshire were derived from information provided by WODC on the residential and commercial completions by site between 2018 and 2023. A total of 4,674 dwellings were added as residential growth, with 132,298 square metres



Gross Floor Area (GFA) and 1,571 bedrooms associated with hotel / holiday accommodation added as non-residential growth. Having determined the level of travel demand these completions would introduce, the demand reduction factors initially applied to reflect COVID-19 impacts were further adjusted for trips to and from West Oxfordshire. The travel associated with known completions were then added into the model at the correct locations to more accurately represent the distribution of growth while retaining the expected level of traffic growth and public transport usage from 2018 to 2023.

2.5 Present year (2023): data and results

Demand by mode

2.5.1 Across the 12-hour period from 07:00 to 19:00, the modelled flows (person trips) are:

- 161,071 trips by car beginning in West Oxfordshire.
- 160,930 trips by car ending in West Oxfordshire.
- 94,329 trips by car both beginning and ending within West Oxfordshire.
- 5,738 bus trips beginning in West Oxfordshire.
- 6,625 bus trips ending in West Oxfordshire.
- 2,674 bus trips both beginning and ending in West Oxfordshire.
- 2,558 rail trips beginning in West Oxfordshire.
- 2,642 rail trips ending in West Oxfordshire.
- 312 rail trips both beginning and ending in West Oxfordshire.

2.5.2 The modelled mode shares for the trips over the 12 hours starting in West Oxfordshire compared to those in the full model are shown in Table 2-11. The rural nature of much of Oxfordshire limits use of public transport with 90% of all trips modelled being made by car. West Oxfordshire has a higher car mode share in 2023 of 95%.

Table 2-11 – Mode share for trips starting in West Oxfordshire only and Full Model, 12 hour – 07:00-19:00, 2023

Mode	West Oxfordshire only	Full Model
Car	94.8%	90.4%
Bus P&R	0.3%	0.5%
Bus	3.4%	6.2%
Rail	1.5%	2.9%
Total	100.0%	100.0%

2.5.3 More than half the modelled car and public transport journeys starting in West Oxfordshire also end within the district. The interaction between West Oxfordshire, the other districts in Oxfordshire and the rest of the country is shown in Table 2-12. Around 14% of trips are estimated to travel to / from areas outside of Oxfordshire.



Table 2-12 – Destination for trips starting in West Oxfordshire, 12 hour – 07:00-19:00, 2023

District / area	Destination share
Oxford City	8.7%
Cherwell	8.2%
Vale of White Horse	9.6%
South Oxfordshire	2.5%
West Oxfordshire	57.3%
Rest of Great Britain	13.7%
Total	100.0%

Network impacts

Network performance

2.5.4 Table 2-13 presents the present year network statistics for all modelled roads in Oxfordshire, as shown previously in Figure 2-3. It also presents the change compared with the base year. Table 2-14 presents the corresponding statistics for West Oxfordshire only, while Table 2-15 presents only the A40 corridor from the east of Burford to the Wolvercote roundabout. These are presented for all car trips in West Oxfordshire across the 12-hour period from 07:00 to 19:00, with the total on the roads also including LGV and HGV trips. Figure 2-3 shows the full extent of the roads considered, with those inside the West Oxfordshire border being used to provide the West Oxfordshire statistics.

Table 2-13 – Key highway network statistics – All of Oxfordshire, 12 hour – 07:00-19:00, 2023

Metric	Present Year		Change from Base Year	
	Car	All vehicles	Car	All vehicles
Total Travel Time (hr)	234,100	297,100	-8.1%	-5.5%
Cruise Time (hr)	207,000	263,600	-7.4%	-4.9%
Delay (hr)	27,100	33,500	-12.3%	-9.9%
Delay (sec per km)	6.8	6.5	-5.6%	-5.8%
Total Distance (km)	14,432,600	18,655,000	-6.7%	-4.0%
Average Speed (km/h)	61.6	62.8	1.5%	1.6%



Table 2-14 – Key highway network statistics – West Oxfordshire, 12 hour – 07:00-19:00, 2023

Metric	Present Year (2023)		Change from Base Year	
	Car	All vehicles	Car	All vehicles
Total Travel Time (hr)	41,600	53,300	-5.0%	-1.1%
Cruise Time (hr)	35,800	45,900	-5.3%	-1.7%
Delay (hr)	5,800	7,400	-3.3%	2.8%
Delay (sec per km)	9.4	9.4	1.1%	4.4%
Total Distance (km)	2,217,300	2,859,600	-4.2%	-0.5%
Average Speed (km/h)	53.4	53.6	1.1%	0.4%

Table 2-15 – Key highway network statistics – A40 Corridor, 12 hour – 07:00-19:00, 2023

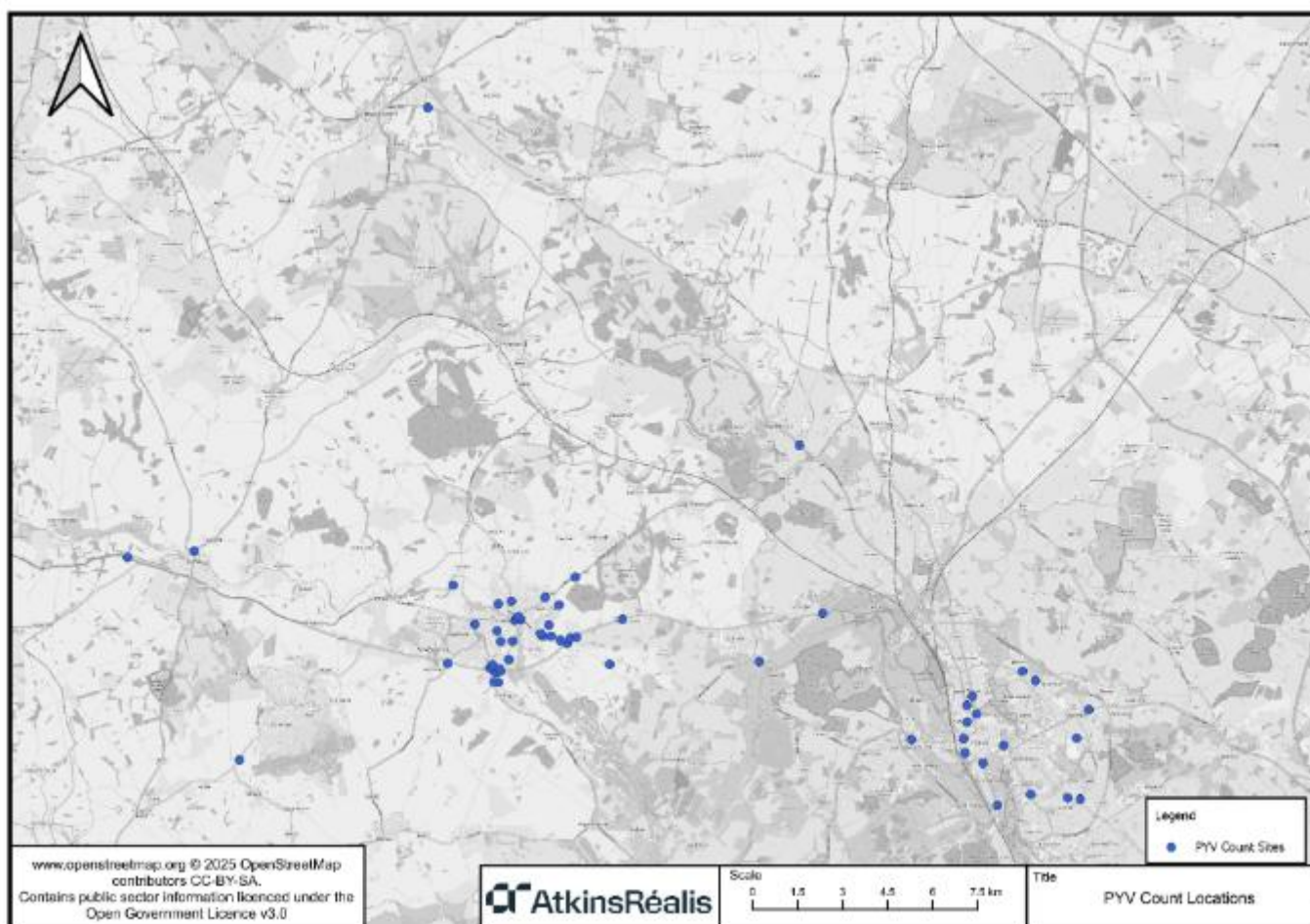
Metric	Present Year (2023)		Change from Base Year	
	Car	All vehicles	Car	All vehicles
Total Travel Time (hr)	7,700	10,500	-1.3%	0.0%
Cruise Time (hr)	6,100	8,300	-4.7%	-3.5%
Delay (hr)	1,600	2,200	14.3%	15.8%
Delay (sec per km)	12.8	13.2	8.5%	10.9%
Total Distance (km)	445,400	606,000	1.5%	3.2%
Average Speed (km/h)	57.8	57.5	3.2%	2.7%

- 2.5.5 The network statistics show a reduction in travel time and distance because of the reduction in car travel following COVID-19. Model-wide this results in a slight reduction in the percentage delay and an increase in the average speed. While the average speed increase is reflected in West Oxfordshire, there is a slight increase in percentage delay because of re-routing onto busy corridors such as the A40 leading to fewer journeys but the same level of delay.

Counts

- 2.5.6 Count data was processed using available sites within Oxfordshire's traffic monitoring database (VDA.NET) across West Oxfordshire. This was supplemented by data from a 2024 collection exercise in Witney, and data used for the 2023 present year modelling in Oxford City. Figure 2-7 shows the location of all counts used to assess the West Oxfordshire 2023 model.

Figure 2-7 – Count locations for 2023



2.5.7 Table 2-16 presents the total number of counts within West Oxfordshire where the comparison between the modelled and observed total vehicle flow meets the TAG Pass or Near criteria (as presented in Table 2-3), while Table 2-17 presents the total number of counts in the Rest of Oxfordshire where the total flow (cars, LGVs and HGVs) passing or near passing the TAG criteria.

Table 2-16 – Present year counts in West Oxfordshire – total vehicles, 2023

Time Period	AM	IP	PM
Pass	50	59	41
Near	12	8	11
Fail	13	8	23
Pass%	66.7%	78.7%	54.7%
Pass/Near%	82.7%	89.3%	69.3%

Table 2-17 – Present year counts in the Rest of Oxfordshire – total vehicles, 2023

Time Period	AM	IP	PM
Pass	23	30	26
Near	4	2	4
Fail	9	4	6
Pass%	63.9%	83.3%	72.2%
Pass/Near%	75.0%	88.9%	83.3%

- 2.5.8 The count data is heavily weighted towards Witney, where the base year data shows problems with some of the routing. As the 2023 model is developed from the base, it also carries the same issues with routing within Witney. However, the overall pass/near percentage is consistent with the base year and, in many cases, slightly better than the base year.

Highway flow and delay

- 2.5.9 All figures in this section show the West Oxfordshire district boundary as a red line for context.

Flow

- 2.5.10 Figure 2-8 to Figure 2-10 show the change in traffic flow from the base year model to the present year model. While Oxford City and the A34 experience reductions in traffic volume, within West Oxfordshire there are localised increases due to the inclusion of sites such as Windrush Place development in West Witney. There is growth in trips between Witney and Carterton, and from Witney to the east towards the airport and the surrounding area. There are also minor increases to and from Chipping Norton.
- 2.5.11 Figure 2-11 to Figure 2-13 show the absolute traffic volumes on roads across West Oxfordshire in 2023. The largest traffic volumes are found on the A34 and M40, while the A40, A44 and A4095 are the most used corridors in West Oxfordshire.

Delay

- 2.5.12 Figure 2-14 to Figure 2-16 present the modelled delay at junctions along the A40 from Witney to North Oxford. These show that, especially in the AM and PM peaks, there are significant delays along the A40 at Eynsham, Cassington and Wolvercote Roundabout. There are also hotspots of delay in central Witney, particularly at the Bridge Street double mini-roundabouts. To the north, there are also delays at some of the junctions on the A44 through Chipping Norton.
- 2.5.13 Figure 2-17 to Figure 2-19 show the corresponding delays on links which, in some cases, highlights the specific junction arm leading to delays. These instances are observed particularly at signalised junctions in and around Witney. In other cases, the delays highlight that the road link itself is close to, or exceeding, its capacity - such as at the Swinford Toll Bridge and along the A40 corridor between Witney, Eynsham and Cassington. Moderate delays are also observed around Chipping Norton, with the PM peak showing the most substantial delays there.

Plots

Figure 2-8 – AM peak – modelled change in flow 2018 to 2023

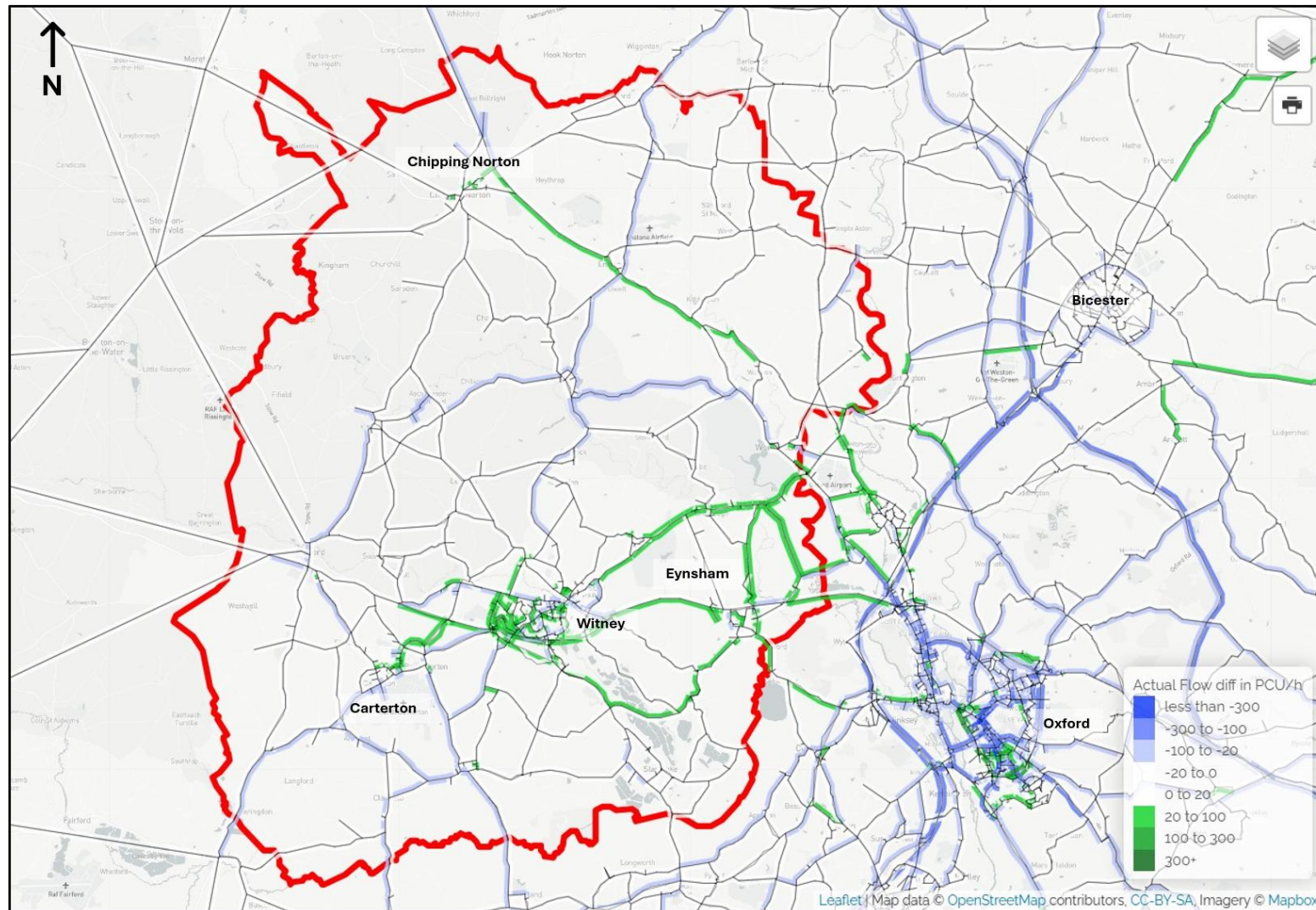


Figure 2-9 – Interpeak – modelled change in flow 2018 to 2023

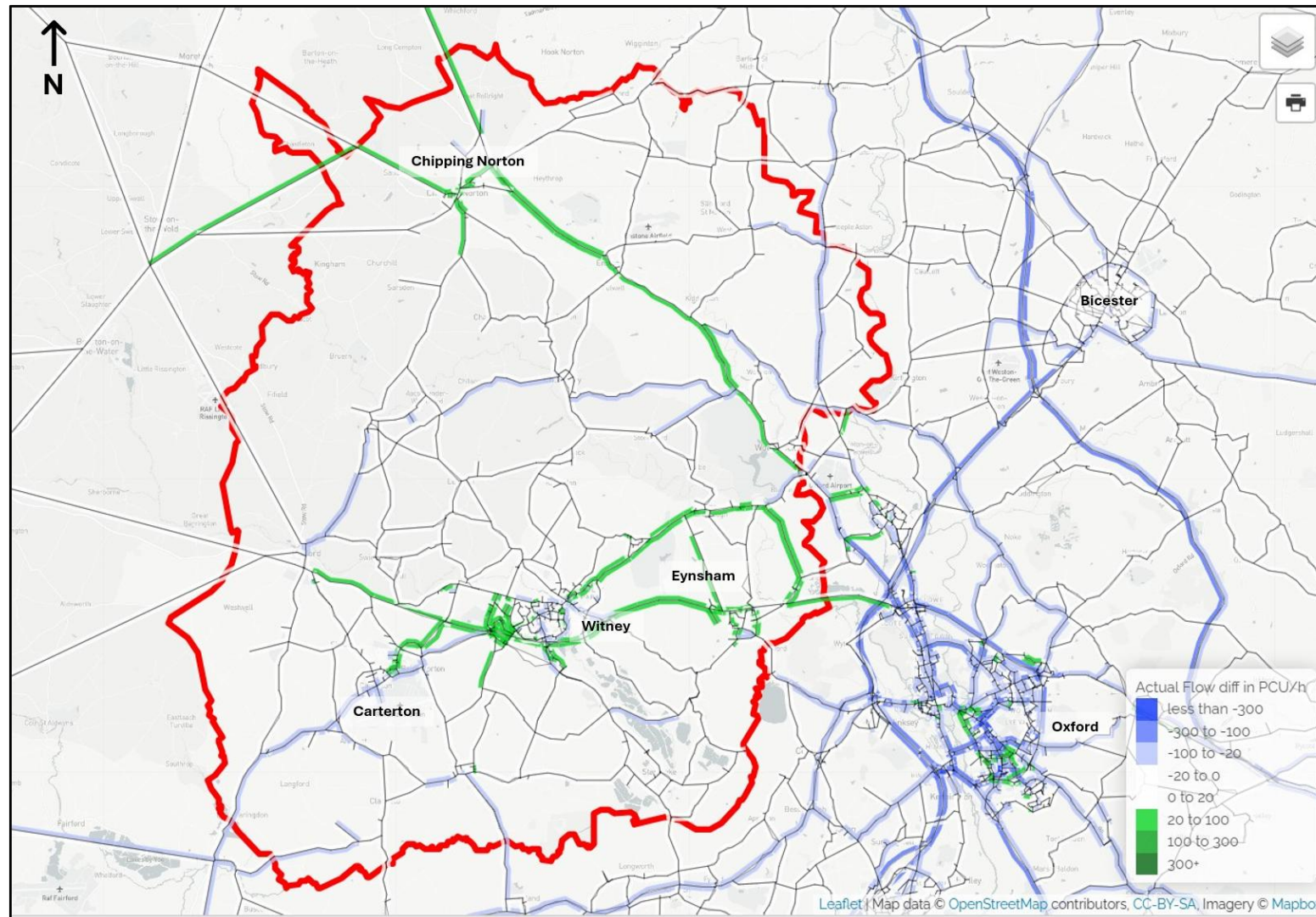


Figure 2-10 – PM peak – modelled change in flow 2018 to 2023

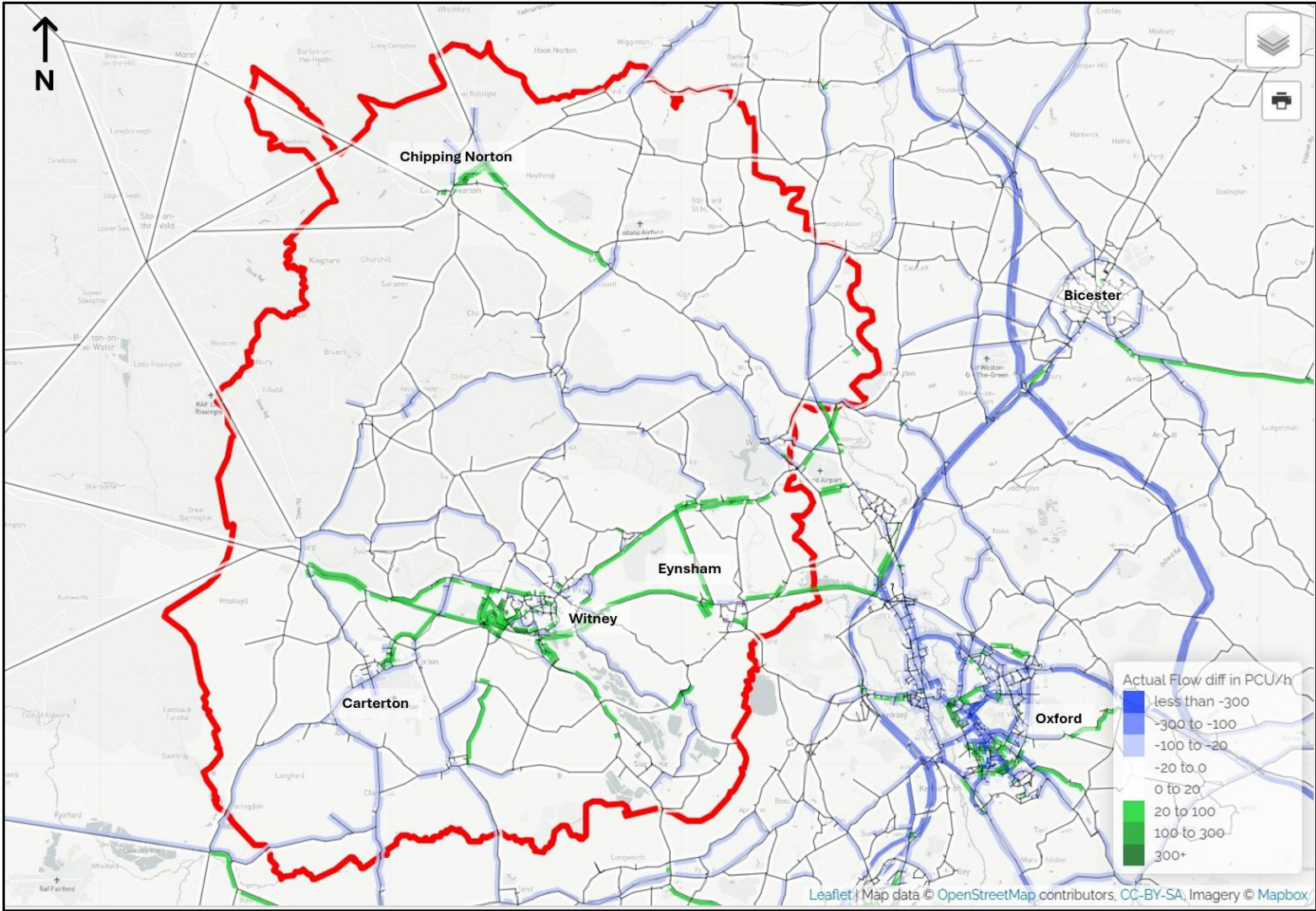


Figure 2-11 – AM peak – modelled absolute flow 2023



Figure 2-12 – Interpeak – modelled absolute flow 2023



Figure 2-13 – PM peak – modelled absolute flow 2023



Figure 2-14 – AM peak – modelled junction delay 2023

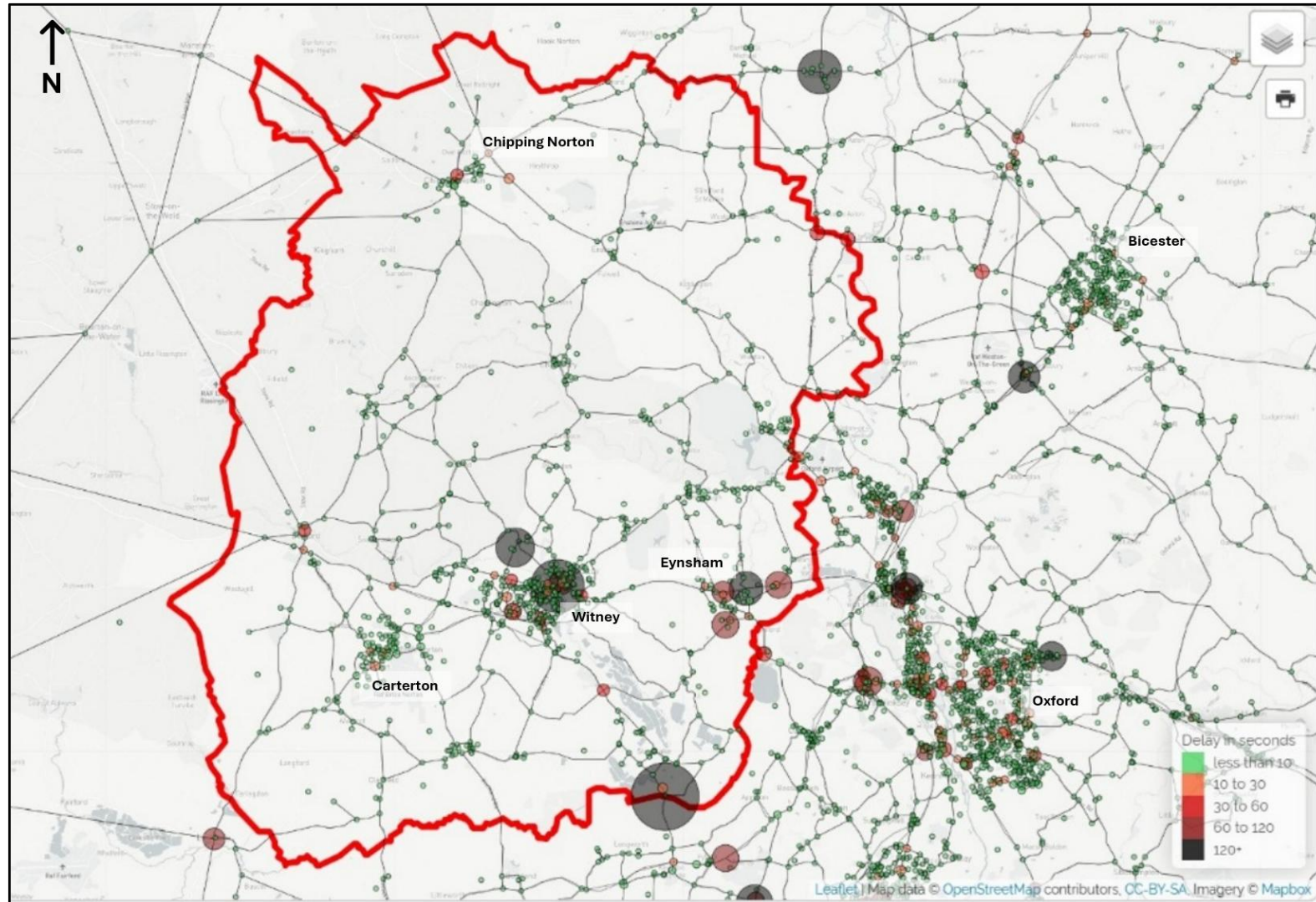


Figure 2-15 – Interpeak – modelled junction delay 2023

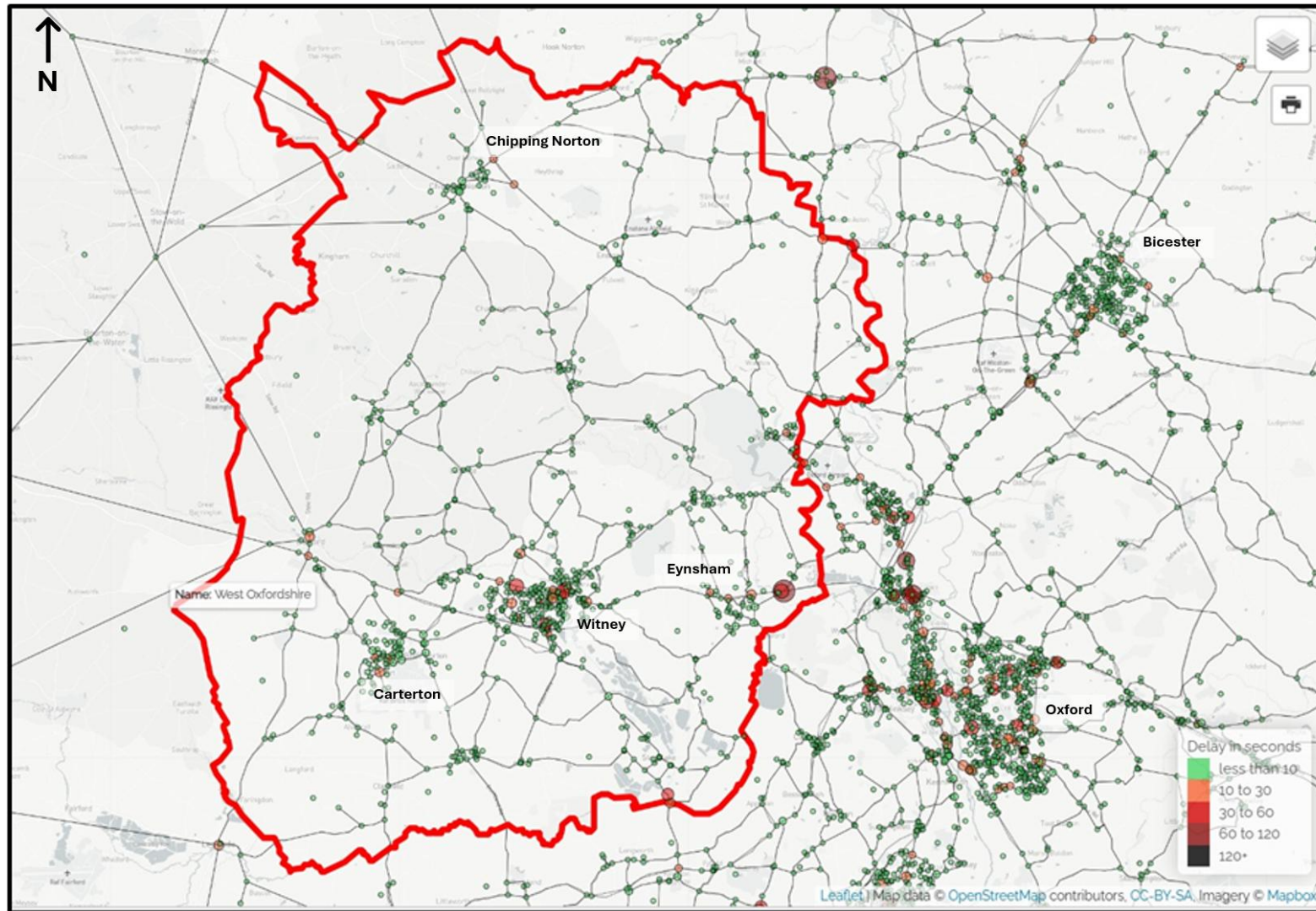


Figure 2-16 – PM peak – modelled junction delay 2023

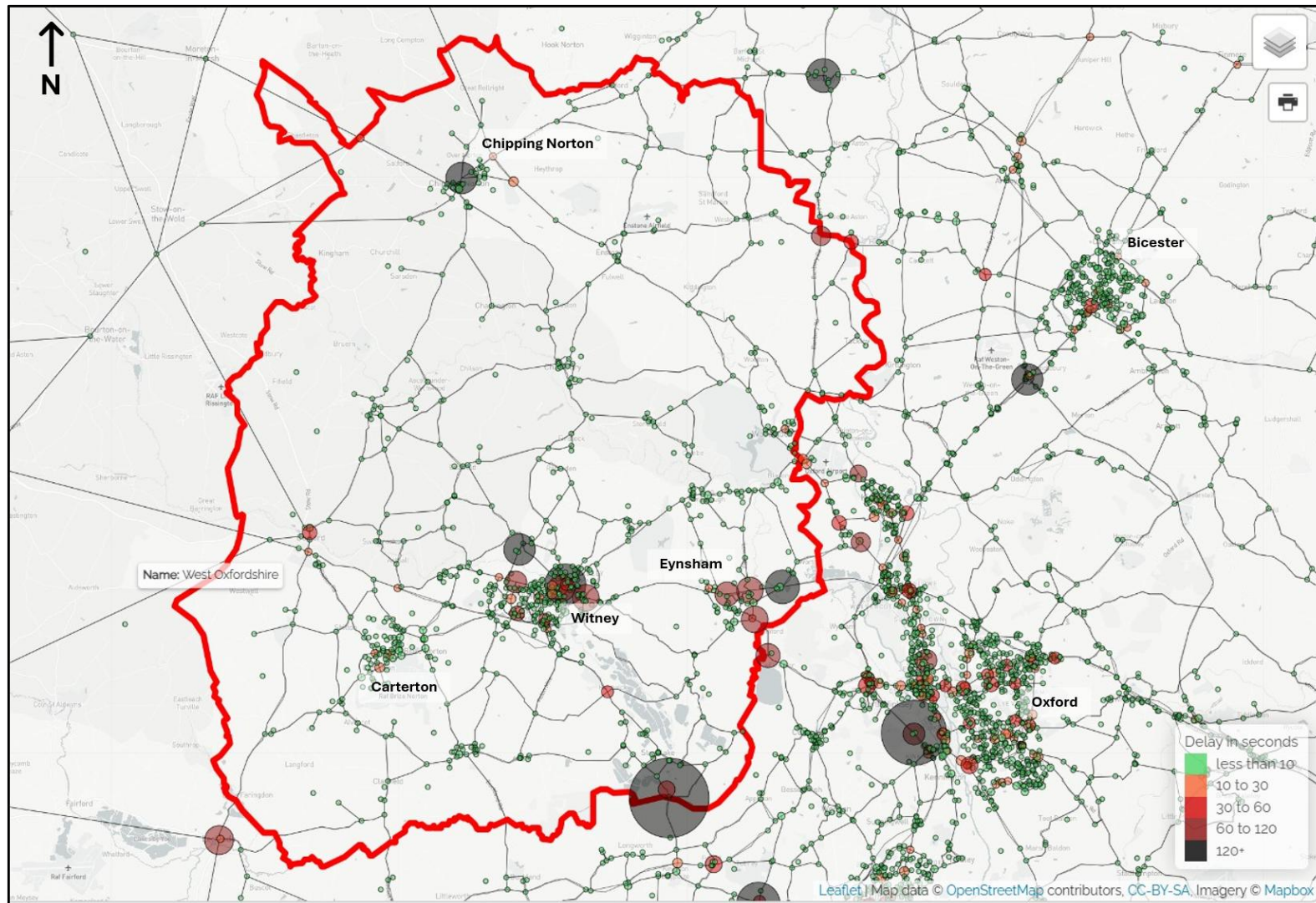


Figure 2-17 – AM peak – modelled link delay 2023



Figure 2-18 – Interpeak – modelled link delay 2023



Figure 2-19 – PM peak – modelled link delay 2023



Bus flows

Patronage

- 2.5.14 Figure 2-20 to Figure 2-22 show the modelled total bus patronage by route across West Oxfordshire. These show the key bus corridors along the A40 to Witney and Carterton, and along the A44 to Chipping Norton. There are also several routes through more rural areas, showing the level of connectivity, primarily into Oxford City. No validation was carried out on the public transport flows due to a lack of available data, but sense checks were conducted on the level of demand based on the available service to each area.
- 2.5.15 Figure 2-23 to Figure 2-25 show the comparison of present year bus patronage against the base year bus patronage. They show increases in patronage across West Oxfordshire, although there are some reductions through Eynsham.



Figure 2-20 – AM Peak – modelled bus patronage 2023

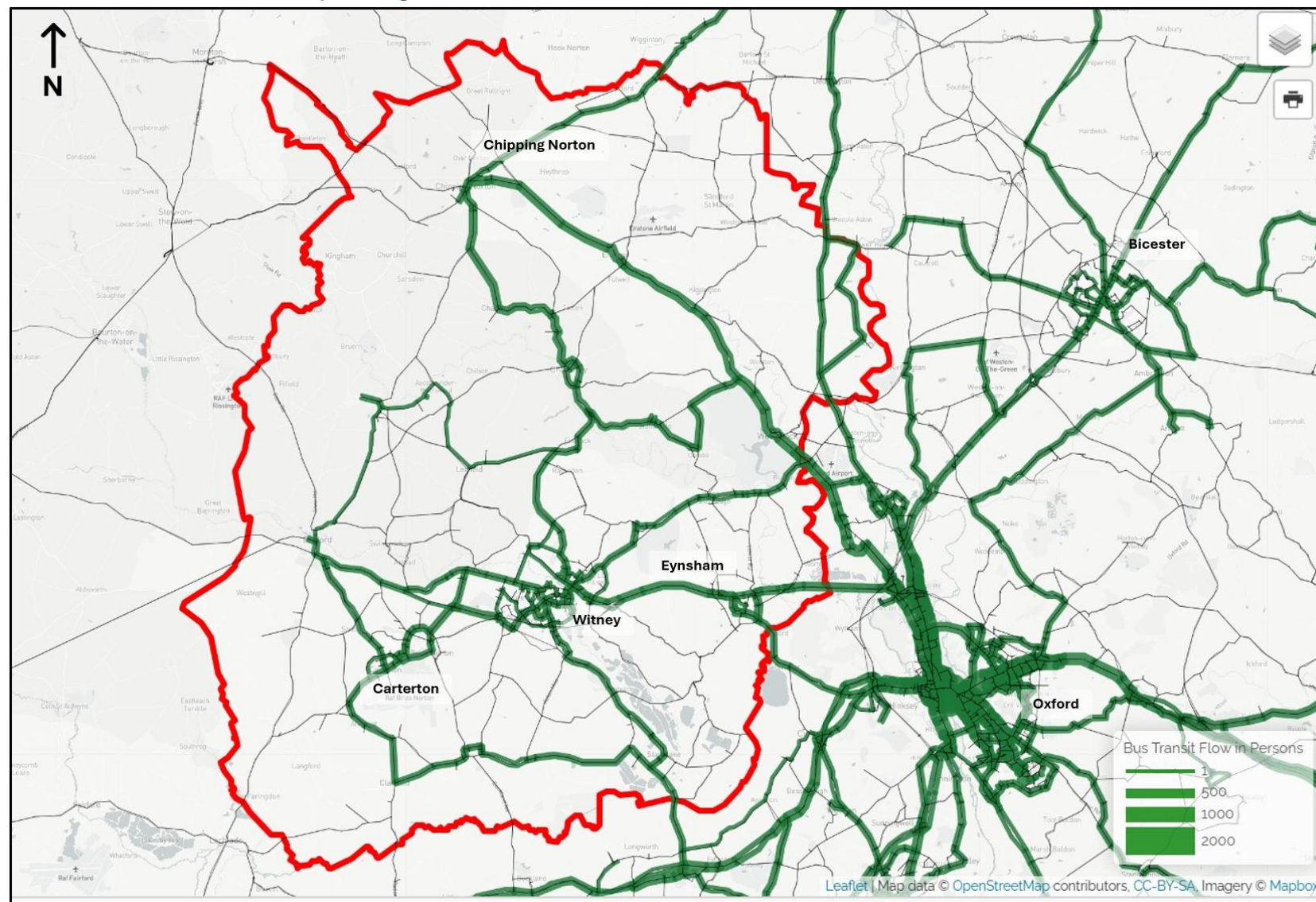


Figure 2-21 – Interpeak – modelled bus patronage 2023

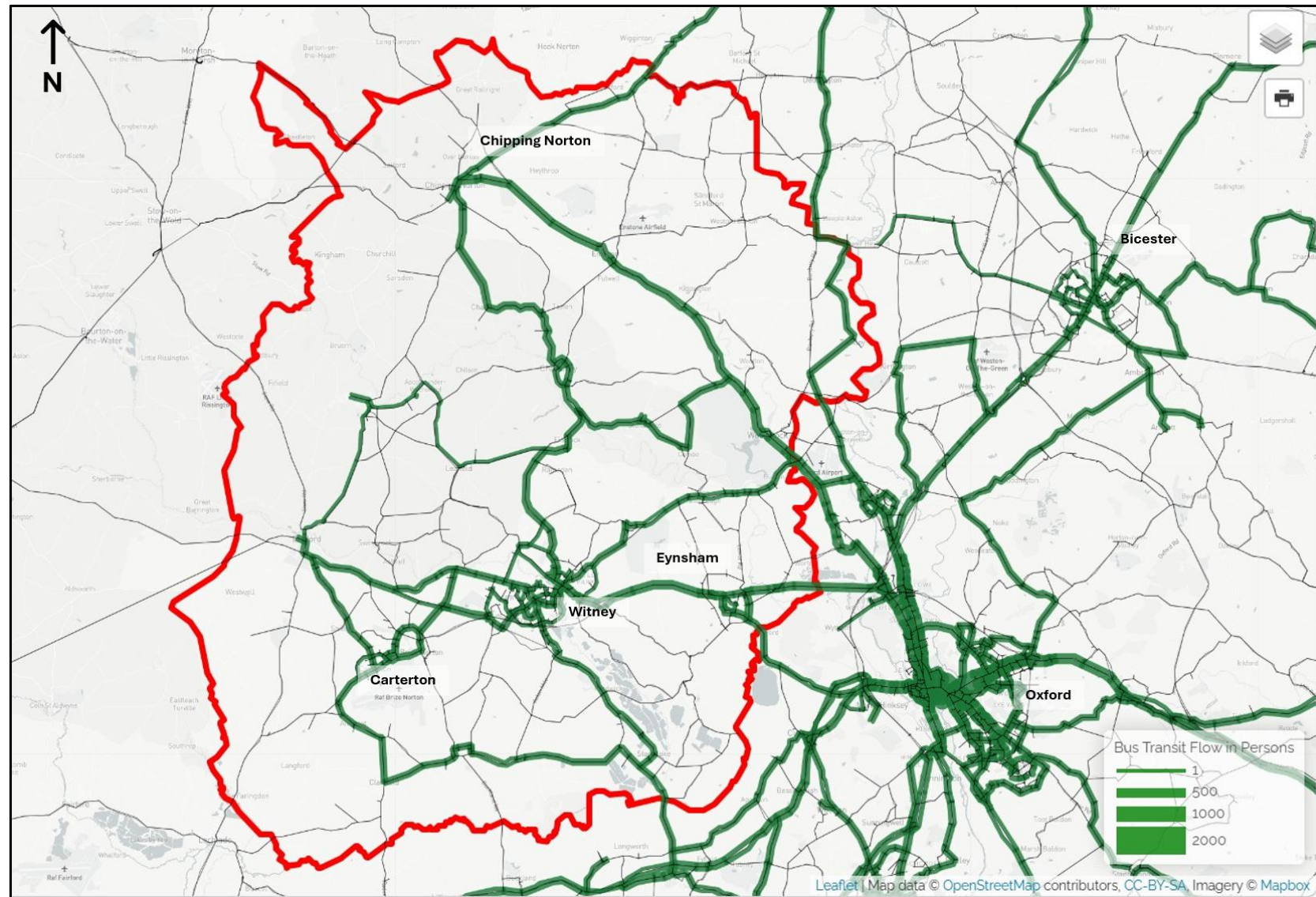


Figure 2-22 – PM peak – modelled bus patronage 2023

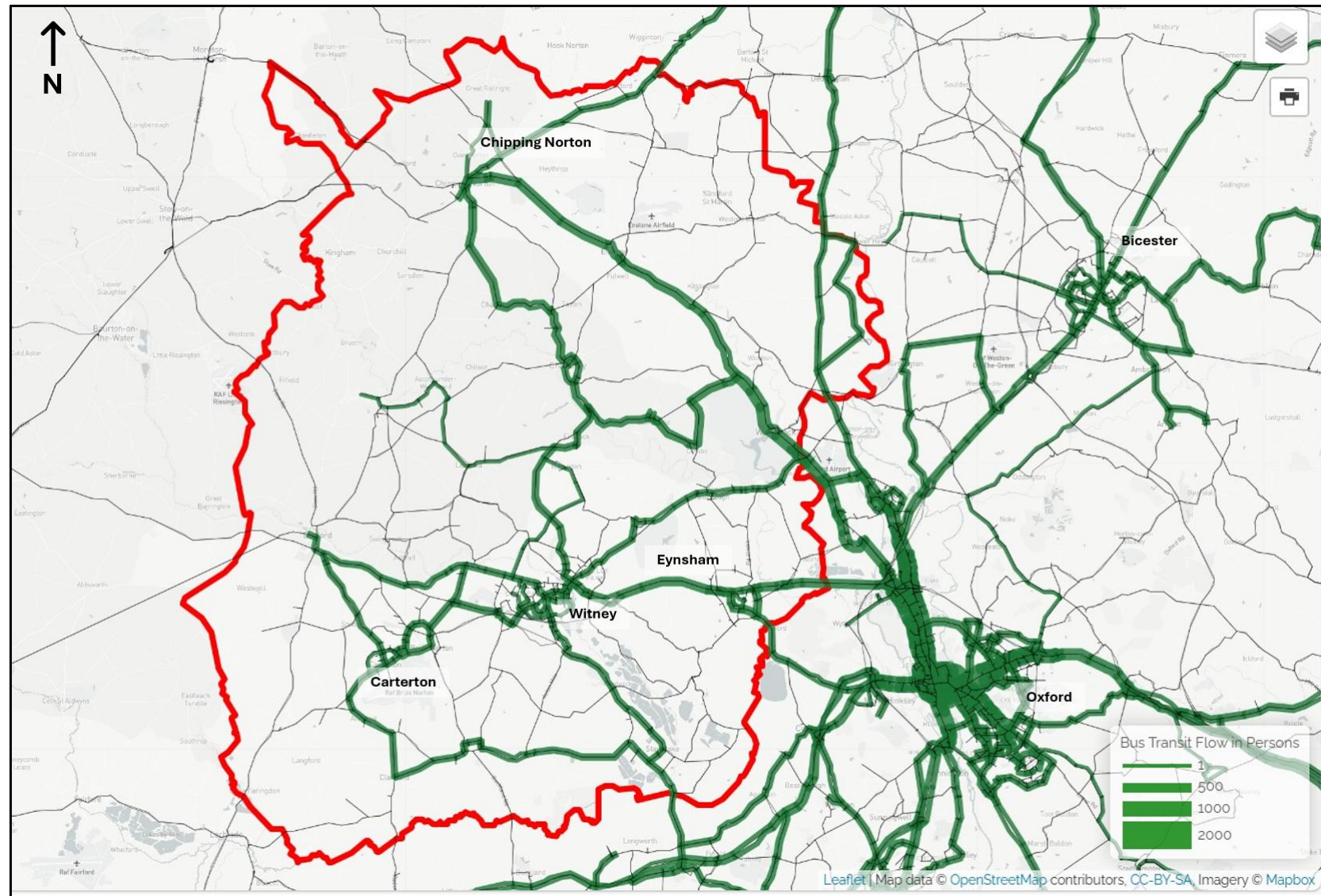


Figure 2-23 – AM peak – modelled bus patronage change from 2018 to 2023

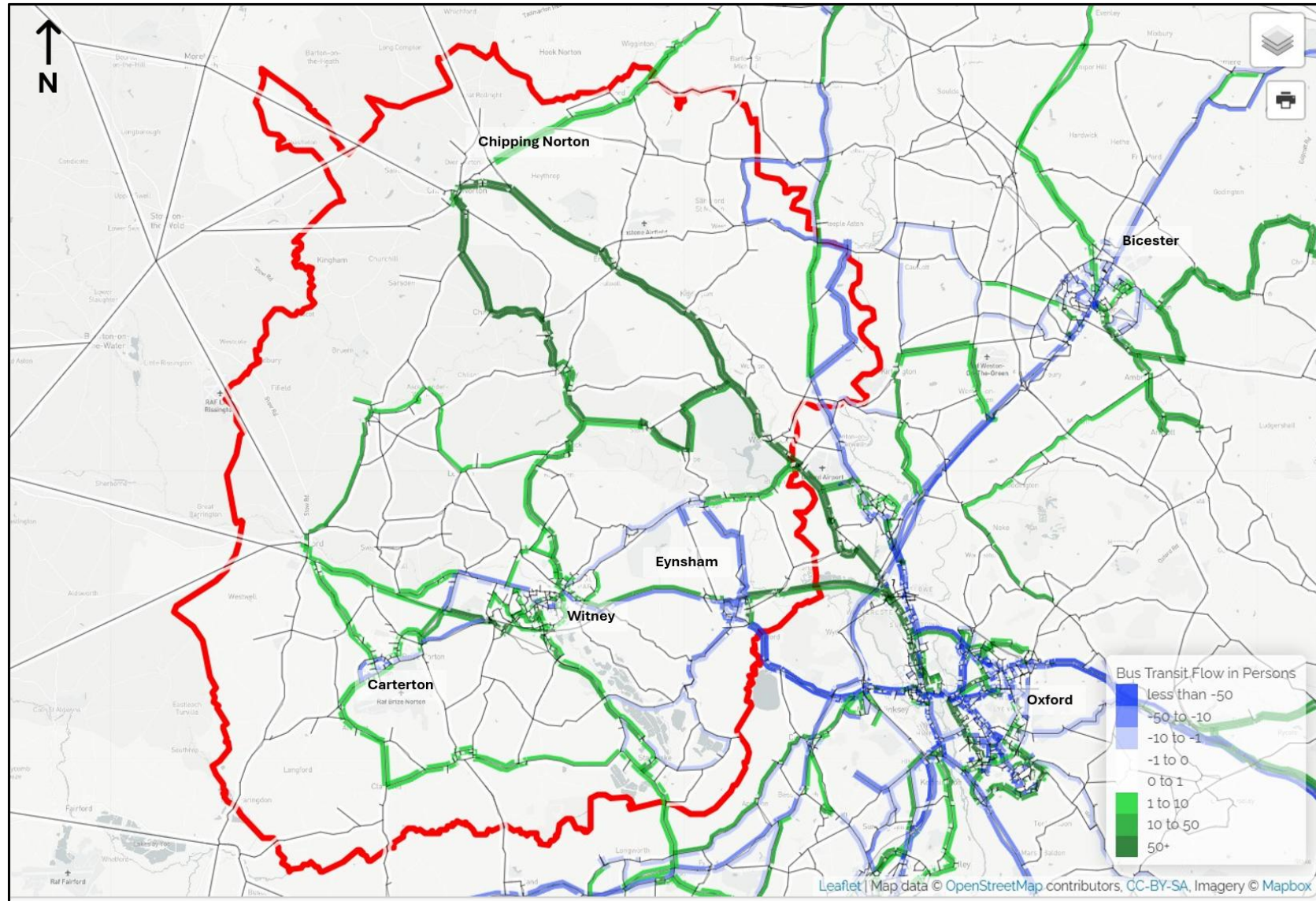


Figure 2-24 – Interpeak – modelled bus patronage change from 2018 to 2023

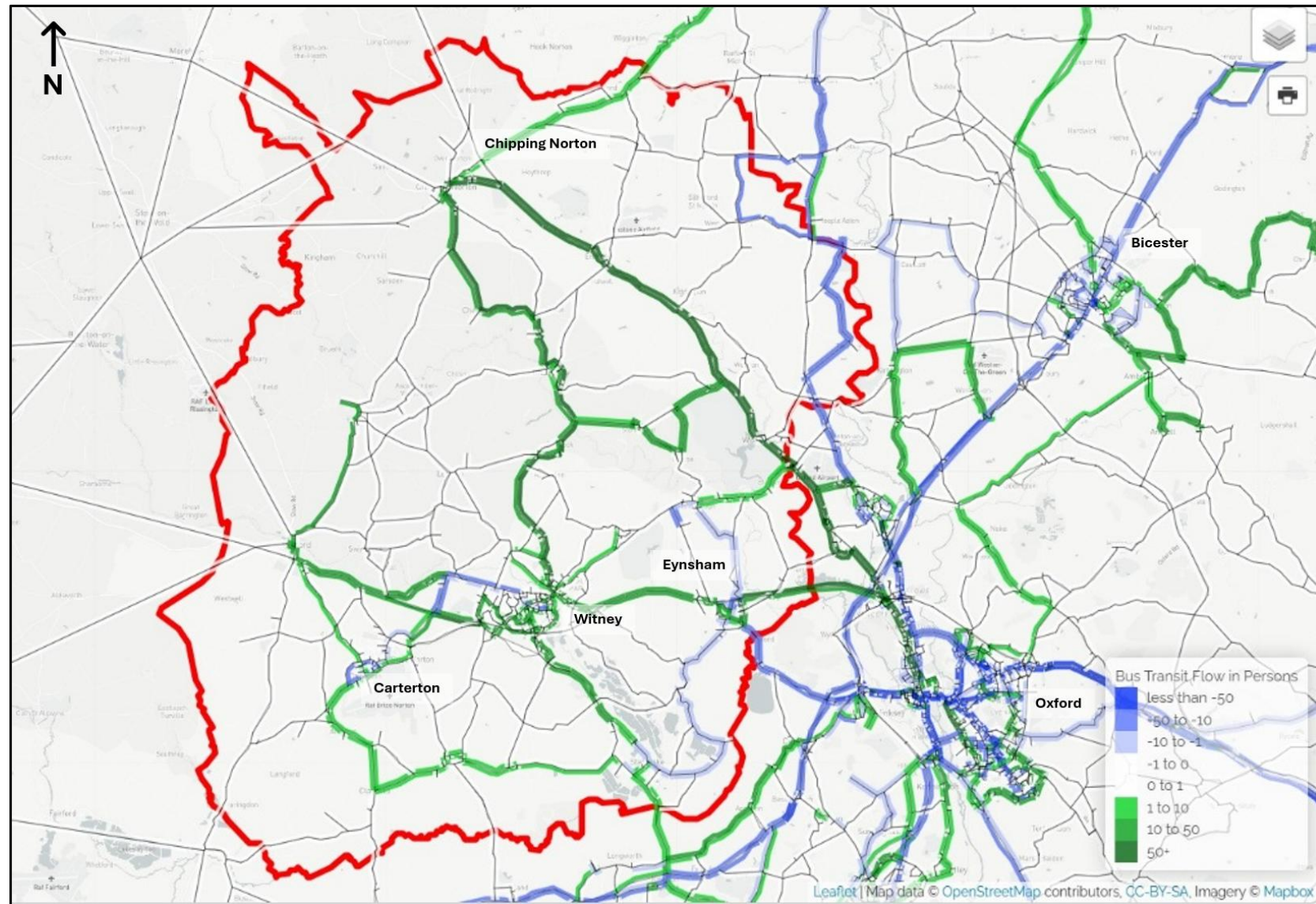
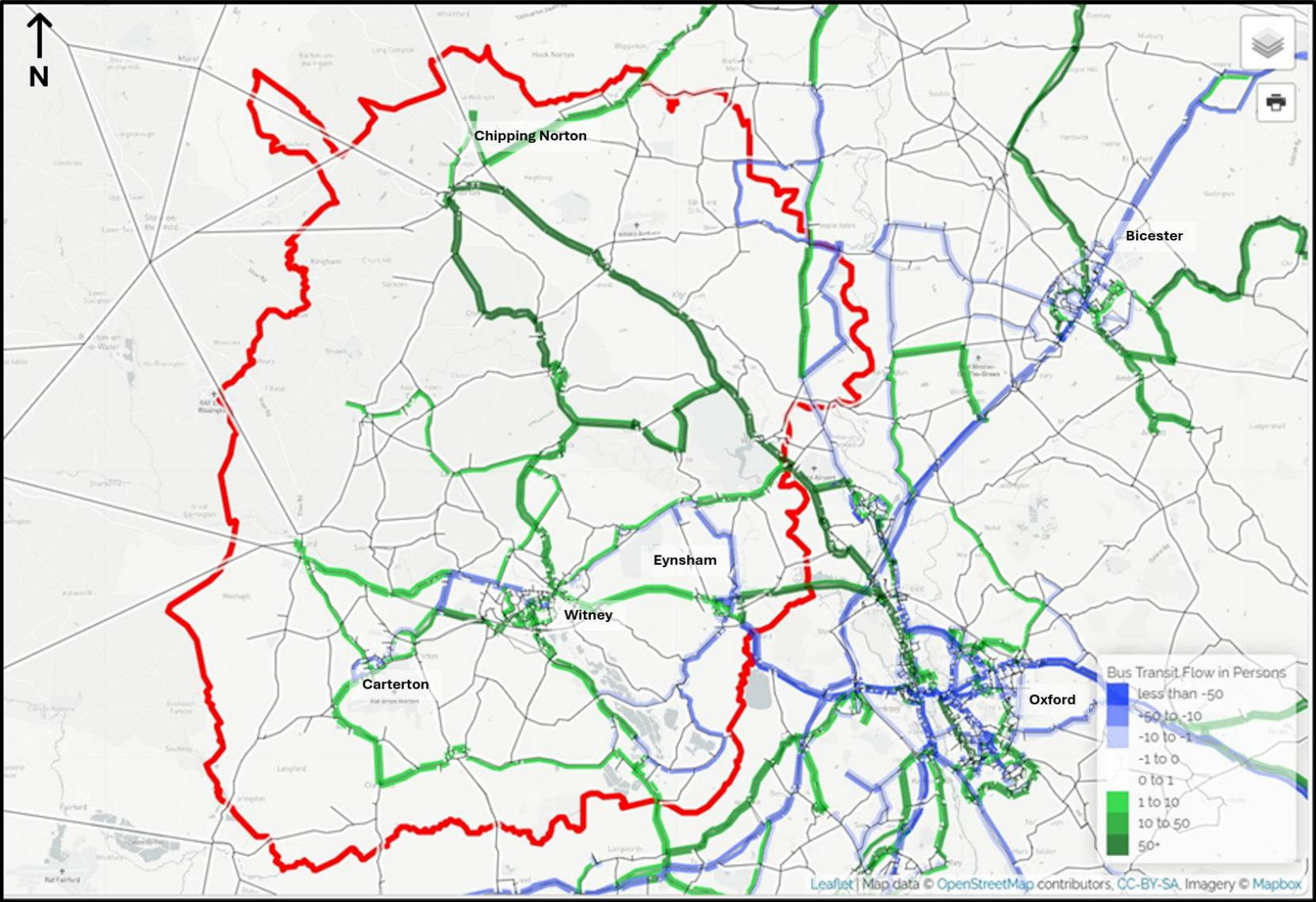


Figure 2-25 – PM peak – modelled bus patronage change from 2018 to 2023



2.6 Summary

- 2.6.1 The base year model has been developed to provide a suitable platform from which to generate the forecast year modelled scenarios, with the present year in 2023 the first of these, against which emerging Local Plan 2043 model scenarios can be compared.
- 2.6.2 The 2023 present year scenario demonstrates the model's ability to realistically forecast conditions from the base year, as measured against observed data collected post-COVID-19. Although there is room for further improvement of both the base and present year models, they are considered to represent an acceptable starting point from which to observe and assess the impacts of the emerging Local Plan 2043 and associated transport infrastructure mitigations at a strategic level. As with any strategic transport modelling tool, care should be taken when considering modelled impacts at a very local area of individual junction level, including within Witney and other towns and along local / rural roads. Providing a detailed assessment of local impacts would require further model calibration and potentially the use of more detailed local modelling tools and assessment on a scheme-by-scheme basis to reach meaningful conclusions at that scale.



3. OSM forecasting assumptions

3.1 Introduction

- 3.1.1 Developing the Local Plan 2043 model scenarios requires a set of assumptions relating to future travel demand, transport network supply and the costs of travel. This includes reviewing anticipated housing and employment growth, as well as likely new transport infrastructure schemes and public transport service changes. Assumptions regarding changes in vehicle operating costs—particularly fuel prices—alongside public transport fares and parking charges are also considered.
- 3.1.2 This chapter sets out the forecasting assumptions that are not specific to West Oxfordshire Local Plan 2043 sites and scenarios and are therefore applied consistently across all the 2043 Local Plan scenarios developed for this assessment.

3.2 Forecast year – 2041/2043 approach

- 3.2.1 As the West Oxfordshire Local Plan updates are considering growth to 2043, the preference was to model a 2043 forecast year using OSM. Although the OSM has been previously applied for a variety of forecast years, a 2043 version of the model does not exist. The latest available implementation year was 2041. To create a new forecast year and update the model consistently across all districts to incorporate growth assumptions and infrastructure to 2043 required more time than available for the allotted programme of work.
- 3.2.2 In discussion with WODC and OCC it was agreed that a pragmatic solution was to use the existing 2041 forecast year model, with the current growth assumptions for the other four Oxfordshire districts (Cherwell, City, South Oxfordshire and the Vale of the White Horse) and to test the emerging West Oxfordshire Local Plan growth options to 2043 as completed in a 2041 forecast model scenario. This is equivalent to assuming the 2043 growth in the DS scenarios is completed two years early. The economic growth assumptions impacting on travel costs over time are consistently for a 2041 forecast year.

3.3 Demand growth

Oxfordshire

- 3.3.1 The land use assumptions for West Oxfordshire district vary for the alternative scenarios tested. The high-level assumptions for the Reference Case scenario are included in this chapter 3, with changes for the Do-Something (emerging Local Plan 2043) scenarios and the site allocations covered in chapters 4 and 5.
- 3.3.2 The assumptions for the remaining Oxfordshire districts are drawn from the earlier Local Plan scenario-testing work undertaken using OSM for the emerging South and Vale Joint Local Plan in 2024. In all cases, the assumptions reflect the site allocations and growth levels set out in each district's currently adopted Local Plan. Table 3-1 presents the growth in dwellings and jobs between the model base year of 2018 the future year of 2041. It should be noted the numbers for West Oxfordshire include the assumed level of Windfalls per annum. Employment growth is estimated by applying average jobs-per-square-metre ratios to the different classes of commercial floorspace.



- 3.3.3 West Oxfordshire and South Oxfordshire both have relatively low levels of planned employment growth compared with the scale of planned residential development. In contrast, Cherwell, Oxford City and Vale of White Horse show high levels of employment growth, with job increases substantially exceeding the growth in resident population.

Table 3-1 – Oxfordshire growth in housing and jobs from 2018 model base year to 2041

District	Dwellings	Jobs
Cherwell	24,079	41,434
Oxford City	10,102	26,975
South Oxfordshire	33,232	9,939
Vale of White Horse	18,017	24,474
West Oxfordshire ²	16,089	10,304
Total (Oxfordshire)	101,519	113,126

- 3.3.4 The travel demand associated with the new development is estimated by applying trip rates to the additional land-use activities. The trip rates for car and public transport used in OSM were derived from historic information in the TRICS³ database or taken from area action plans and specific development transport assessments. The residential trip rates applied are presented in Table 3-2, with the corresponding rates for commercial activities shown in Table 3-3.

² Excluding developments specific to the emerging West Oxfordshire Local Plan.

³ TRICS is a national database of observed trip rates and traffic generation associated with a wide range of land-use types. It is widely used by transport planners to estimate the travel demand generated by new developments, based on empirical survey data collected across the UK and Ireland.



Table 3-2 – OSM residential trip rates (per dwelling)

Residential	AM period (07:00-10:00)				Interpeak period (10:00-16:00)				PM period (16:00-19:00)			
	Car		PT		Car		PT		Car		PT	
	Arrival	Depart	Arrival	Depart	Arrival	Depart	Arrival	Depart	Arrival	Depart	Arrival	Depart
Rest of OXON	0.368	0.816	0.013	0.100	1.086	1.000	0.049	0.038	0.883	0.598	0.080	0.012
Oxford City	0.295	0.694	0.080	0.322	0.862	0.791	0.258	0.236	0.699	0.457	0.250	0.030
City Unmet Needs	0.331	0.755	0.047	0.211	0.974	0.896	0.154	0.137	0.791	0.527	0.165	0.021
Valley Park	0.349	0.791	0.006	0.050	1.088	1.031	0.052	0.038	0.863	0.587	0.025	0.012
Oxford North	0.335	0.796	0.008	0.111	1.031	1.013	0.058	0.045	0.874	0.569	0.098	0.013
Salt Cross-Resi	0.171	0.726	0.031	0.130	0.750	0.780	0.100	0.129	0.808	0.400	0.138	0.069
North Witney	0.355	0.640	0.013	0.100	0.942	0.796	0.049	0.038	0.680	0.483	0.080	0.012

Sources: TRICS / Location specific Area Action Plans /transport assessments



Table 3-3 – OSM commercial trip rates

Employment		AM period (07:00-10:00)				Interpeak period (10:00-16:00)				PM period (16:00-19:00)			
(summary)		Car		PT		Car		PT		Car		PT	
Observations		Arrival	Depart	Arrival	Depart	Arrival	Depart	Arrival	Depart	Arrival	Depart	Arrival	Depart
per 100 sqm	B Oxford City	1.229	0.380	0.700	0.198	1.080	1.440	0.951	1.100	0.268	1.067	0.075	0.597
per 100 sqm	B Rest of OXON	1.784	0.551	0.127	0.024	1.670	1.790	0.116	0.164	0.379	1.511	0.025	0.119
per 100 sqm	B1	2.799	0.703	0.698	0.031	2.252	2.436	0.230	0.325	0.516	2.441	0.050	0.614
per 100 sqm	R&D ⁴	0.700	0.176	0.175	0.008	0.563	0.609	0.057	0.081	0.129	0.610	0.012	0.154
per 100 sqm	B1 Oxford North	2.640	0.571	0.970	0.026	1.686	1.706	0.274	0.485	0.455	2.451	0.056	0.783
per 100 sqm	B2	2.113	0.789	0.090	0.015	2.245	2.454	0.026	0.062	0.509	1.713	0.009	0.065
per 100 sqm	Salt Cross-Emp	2.143	0.288	0.127	0.024	1.670	1.790	0.116	0.164	0.222	1.863	0.009	0.065
per 100 sqm	B8	0.130	0.033	0.000	0.000	0.166	0.170	0.000	0.000	0.022	0.098	0.000	0.000
per bedroom	Hotel Oxford North	0.328	0.402	0.047	0.177	0.590	0.639	0.102	0.171	0.401	0.326	0.145	0.041
per 100 sqm	Retail	9.493	6.782	0.266	0.136	35.084	33.995	1.177	1.046	14.860	16.741	0.433	0.405
per ha	C	18.443	16.483	3.391	19.485	55.867	58.106	42.673	51.111	20.128	20.533	34.743	21.948
per 100 sqm	C revised	0.736	1.045	0.128	0.498	1.112	1.255	0.285	0.401	0.918	0.629	0.394	0.173
per 100 sqm	D	1.400	0.856	0.719	0.088	3.325	3.494	2.193	2.674	2.566	2.347	0.622	0.570
per 100 sqm	Hotel (area)	0.736	1.045	0.128	0.498	1.112	1.255	0.285	0.401	0.918	0.629	0.394	0.173
per bedroom	Hotel (beds)	0.271	0.385	0.047	0.184	0.411	0.464	0.105	0.148	0.339	0.233	0.145	0.064
per 100 sqm	E	1.784	0.551	0.127	0.024	1.670	1.790	0.116	0.164	0.379	1.511	0.025	0.119

Sources: TRICS / Location specific Area Action Plans /transport assessments

⁴ Research & Development facilities



External area

3.3.5 Strategic modelling for transport schemes typically forecasts growth using the DfT's National Trip End Model dataset (NTEM). NTEM provides estimates of future travel demand based on the Office for National Statistics' (ONS) sub-national population projections, local authority housing targets and economic growth data. It therefore offers a comprehensive source of growth inputs for areas outside the immediate study area, prior to the application of the Variable Demand Model (VDM), which updates travel choices in response to changing transport conditions. Growth in trips to and from the external area was derived directly from the Core scenario of NTEM version 8.0 for 19 external sectors. The resulting range of NTEM growth factors applied to external-area trips is presented in Table 3-4.

Table 3-4 – NTEM 8.0 Core scenario growth for trips to / from external areas (2018 to 2041)

Area (Sector)	Car		Bus		Rail	
	Production	Attraction	Production	Attraction	Production	Attraction
Swindon	14%	14%	0%	1%	3%	6%
Rest of Wiltshire	11%	13%	-1%	-2%	3%	4%
Gloucestershire	16%	15%	3%	1%	7%	5%
Hereford & Worcester	13%	14%	-1%	0%	5%	5%
Warwickshire	18%	19%	9%	11%	8%	11%
West Midlands County	16%	15%	-1%	-1%	4%	3%
Northamptonshire	17%	17%	4%	3%	7%	8%
Milton Keynes	9%	12%	-6%	2%	0%	6%
Buckinghamshire	7%	7%	-8%	-9%	1%	-1%
Rest of Berkshire	8%	7%	-8%	-9%	2%	-1%
Reading	8%	7%	-13%	-9%	-1%	0%
West Berkshire	1%	6%	-11%	-9%	-5%	-1%
Greater London	15%	13%	0%	-1%	6%	6%
Rest of South East	9%	10%	-7%	-5%	0%	1%
East of England	10%	11%	-7%	-3%	0%	3%
Rest of South West	14%	13%	-3%	-2%	5%	5%
Rest of West Midlands (Staffordshire & Shropshire)	13%	14%	-3%	-3%	3%	4%
East Midlands, Northern Regions and Scotland	11%	11%	-9%	-9%	-1%	-1%
Wales	7%	7%	-15%	-15%	-3%	-3%
Average for external area (Rest of Great Britain)	11%	11%	-5%	-5%	3%	3%

3.3.6 NTEM v8.0 Core Scenario indicates that, before accounting for changes in congestion or travel costs, car trips are expected to increase by approximately 11% between 2018 and 2041. For the same period, rail trips are projected to rise by around 3%, while bus trips are expected to decline by approximately 5%.

Goods vehicles and trips passing through Oxfordshire

- 3.3.7 Light and heavy goods vehicle (LGV and HGV) trips that begin or end within Oxfordshire, as well as those passing through the county on the strategic road network, are included within the OSM highway assignment model. These vehicle movements contribute to congestion on the routes they use. For OSM, the growth in goods vehicle trips is derived from the DfT's National Road Traffic Projections (NRTP 2022) for the South-East Region.
- 3.3.8 Through-car trips, those that pass-through Oxfordshire without an origin or destination within the county, are also factored for the forecast years using growth rates from the DfT's NRTP 2022 dataset for the South-East Region.
- 3.3.9 A single, non-spatially-varying growth factor is applied across all LGV, HGV and through-car trips, as summarised in Table 3-5.

Table 3-5 – Goods vehicle and through trip growth factors, 2023 to 2041

Vehicle type	Growth factor 2023 to 2041
Light goods vehicles	1.227
Heavy goods vehicles	1.111
Through trips (cars)	1.158

Source: DfT NRTP 2022 for South East Region
(<https://www.gov.uk/government/publications/national-road-traffic-projections>)

3.4 Network assumptions

- 3.4.1 The network modifications that are common to all forecast scenarios are those associated with committed transport schemes across the county. The Infrastructure Uncertainty Log was reviewed and updated for this study, and the committed schemes to be included for all forecast scenarios were agreed accordingly.

Highway network assumptions

- 3.4.2 The future-year highway network for both the Reference Case and all Do Something scenarios includes the following modifications in West Oxfordshire relative to the 2023 present-year network. A complete list of the highway network updates included in the forecast scenarios is provided in Appendix A:
- Updating speeds in all urban areas and villages where 20mph zones have been implemented.
 - Witney High Street and Market Square enhancements.
 - Traffic calming in South Leigh, Alvescot, Brighthampton and Standlake A415.
 - B4477 capacity enhancement (widening).
 - Straightening of existing road between the A40 at Minster Lovell south to the roundabout north of Brize Norton.
 - A40 Access to Witney Junction Improvement at Shores Green (new west facing slip roads) with associated speed limit reductions on A40 (50mph in vicinity of the Shores Green scheme) and B4022 (40mph through new slip road junctions and on Oxford Hill up to Oxford Hill / Jubilee Way junction).
 - A40 Eynsham Park & Ride to Wolvercote Scheme (Phase 1) including speed limit changes.

- Junction improvements at Oxford Hill / Jubilee Way / Cogges Hill and Jubilee Way / Woodstock Road.
- Salt Cross and West Eynsham development related schemes: A40 access junction and link road to Lower Road, Cuckoo Lane / A40 closure, West Eynsham SDA – link road to the B4449 accessed off Salt Cross Western Access Junction.
- Lower Road / A4095 signalised junction.
- North Witney – Northern Distributor Bypass Road between Hailey Road and Woodstock Road.
- Access to Carterton – Access only restrictions on Witney Road.
 - A sensitivity test has been undertaken, with results provided in an addendum to the report, where this access road remains open to all traffic.
- Two new Park & Ride sites one at A40 Eynsham and another at A44 Begbroke.
- Active travel routes between Eynsham and Long Hanborough Station and B4044 Eynsham to Botley.

3.4.3 A plot of the committed schemes coded within the study area is presented in Figure 3-1 below. A plot of the committed 20mph zones is presented in Figure 3-2 below. A plot of the DS schemes coded within the study area is presented in Figure 5-1. Additional transport schemes located in other districts in Oxfordshire are included as set out in Appendix A.

Figure 3-1 – Committed Infrastructure Schemes in / near West Oxfordshire

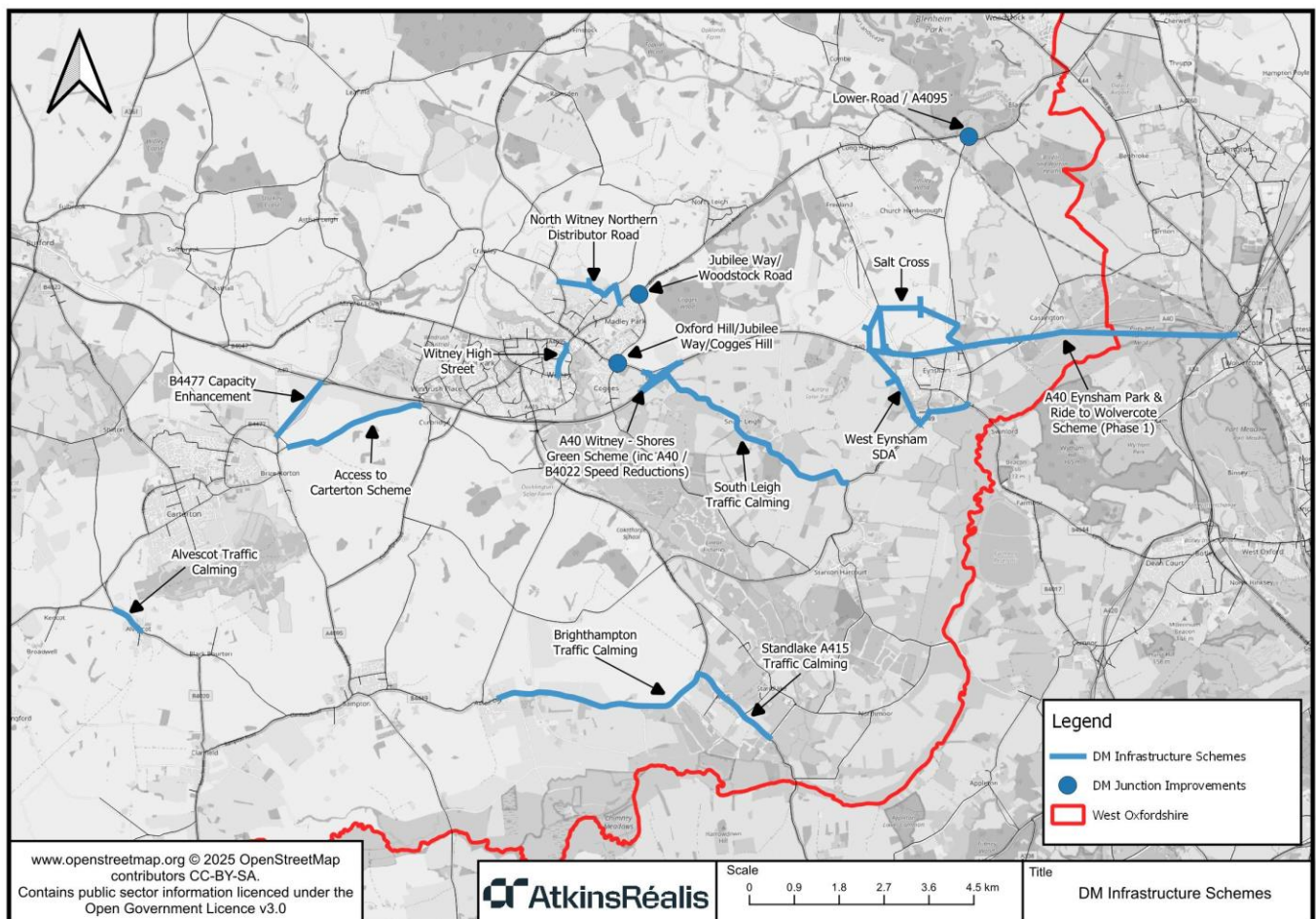
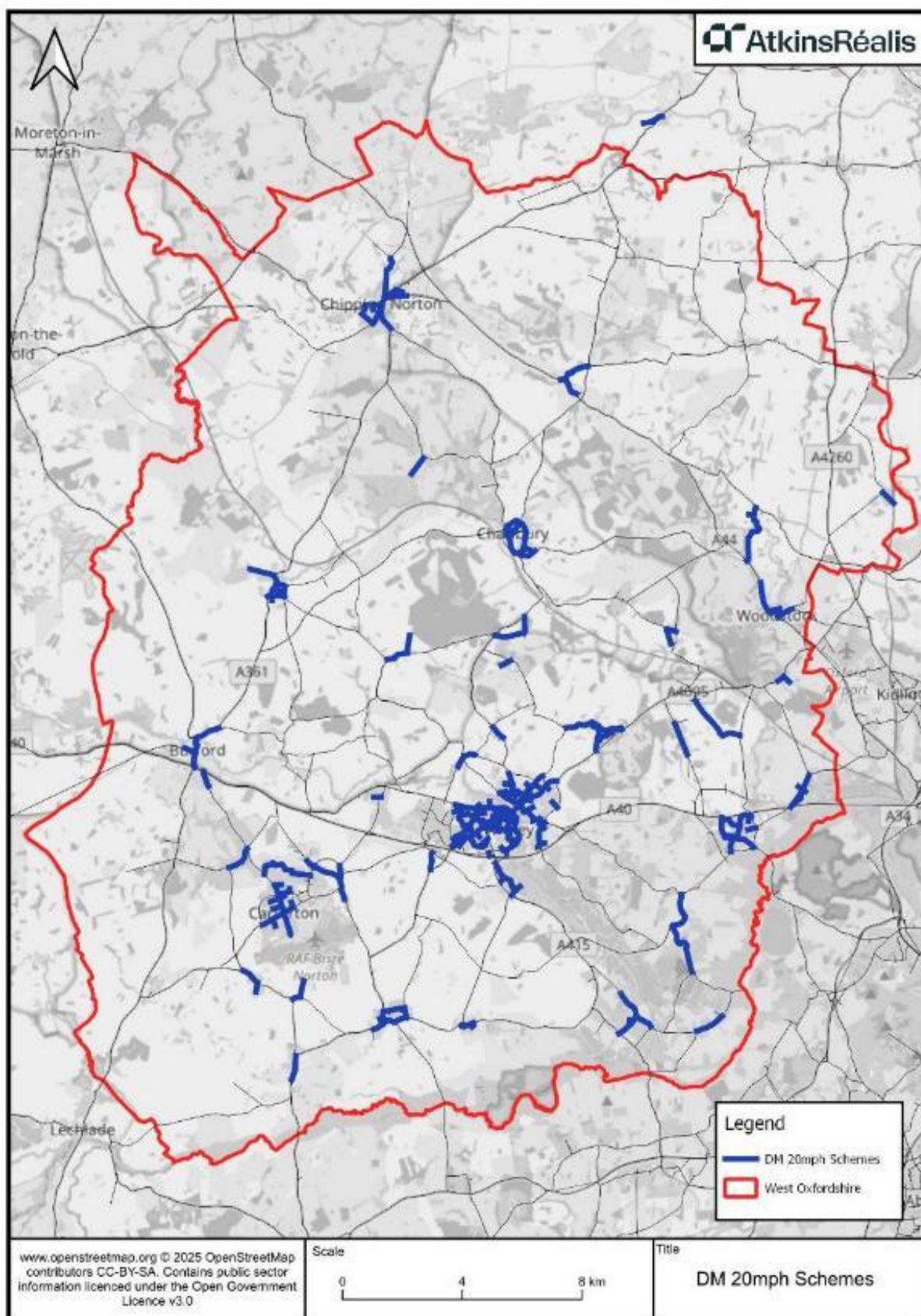


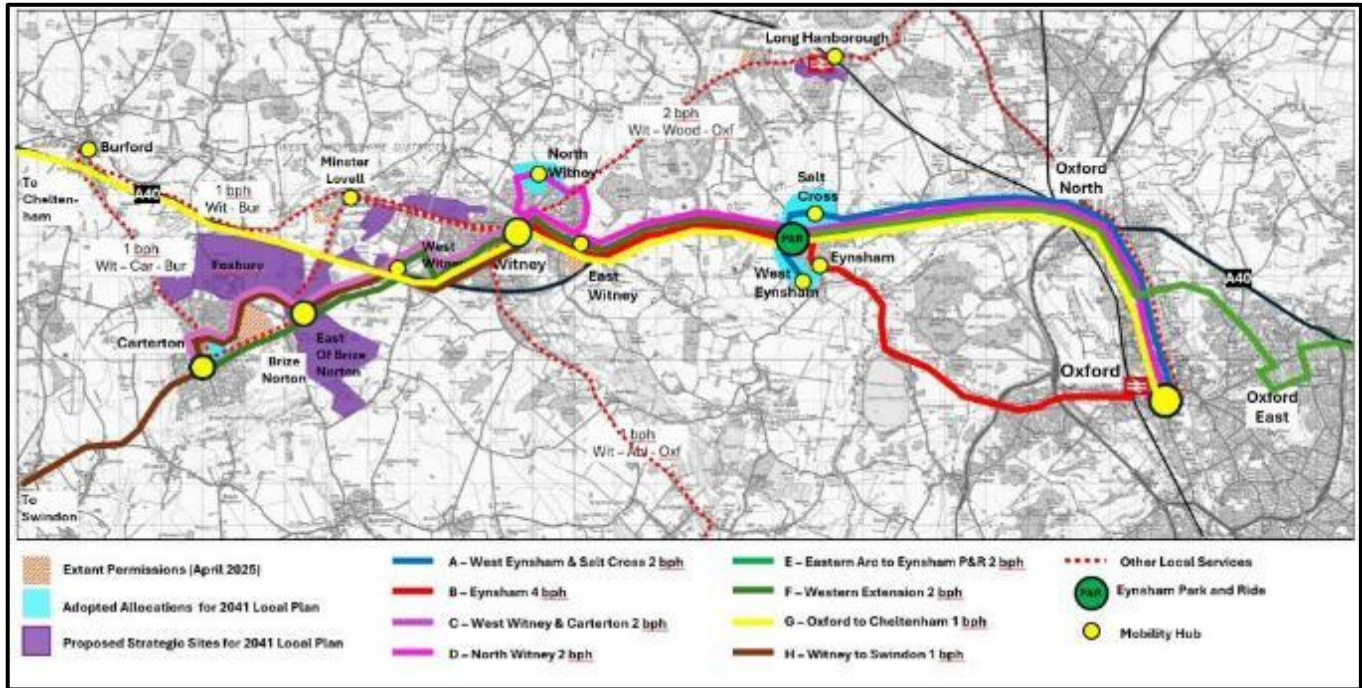
Figure 3-2 – Future Year Committed 20mph zones in / near West Oxfordshire



Public transport

3.4.4 The modifications proposed to bus services serving West Oxfordshire for the 2043 Reference Case (Ref Case) and WOLP2043 scenario 1 (DS1), without mitigation, are shown in Figure 3-3. Further changes to these services are proposed within the mitigation packages tested for the emerging Local Plan, as described in chapter 5.

Figure 3-3 – Reference Case (Ref Case) and WOLP scenario 1 (DS1) bus provision



3.4.5 Complementary bus service enhancements have been included with the introduction of the Workplace Parking Levy in central Oxford. The service enhancements outside West Oxfordshire have been included consistently in all forecast scenarios. The bus service enhancements associated with the WPL are:

- H5 – increase frequency from 1 to 2 buses per hour.
- 45 – service terminating at John Radcliffe Hospital.
- 100 – cancelled.
- 700 – extension to Woodstock to the North, and change of terminus from Thornhill Park & Ride to Blackbird Leys.
- 3 – increased frequency to 4 buses per hour.
- 5 – increased frequency to 3 buses per hour.
- X40 – reviewed alignment.
- X2 – increased frequency to 3 buses per hour.
- 500 – BMW Car Factory Gate – revised alignment.
- X32 – increased frequency to 3 buses per hour.

3.4.6 The rail network modifications are of limited relevance to West Oxfordshire. The main changes include:

- East-West Rail: new services between Oxford and Milton Keynes / Bedford.

- Cowley Branch Line: additional stations at Oxford Littlemore and Oxford Cowley with 3 services per hour.

The rail services do not change between forecast scenarios.

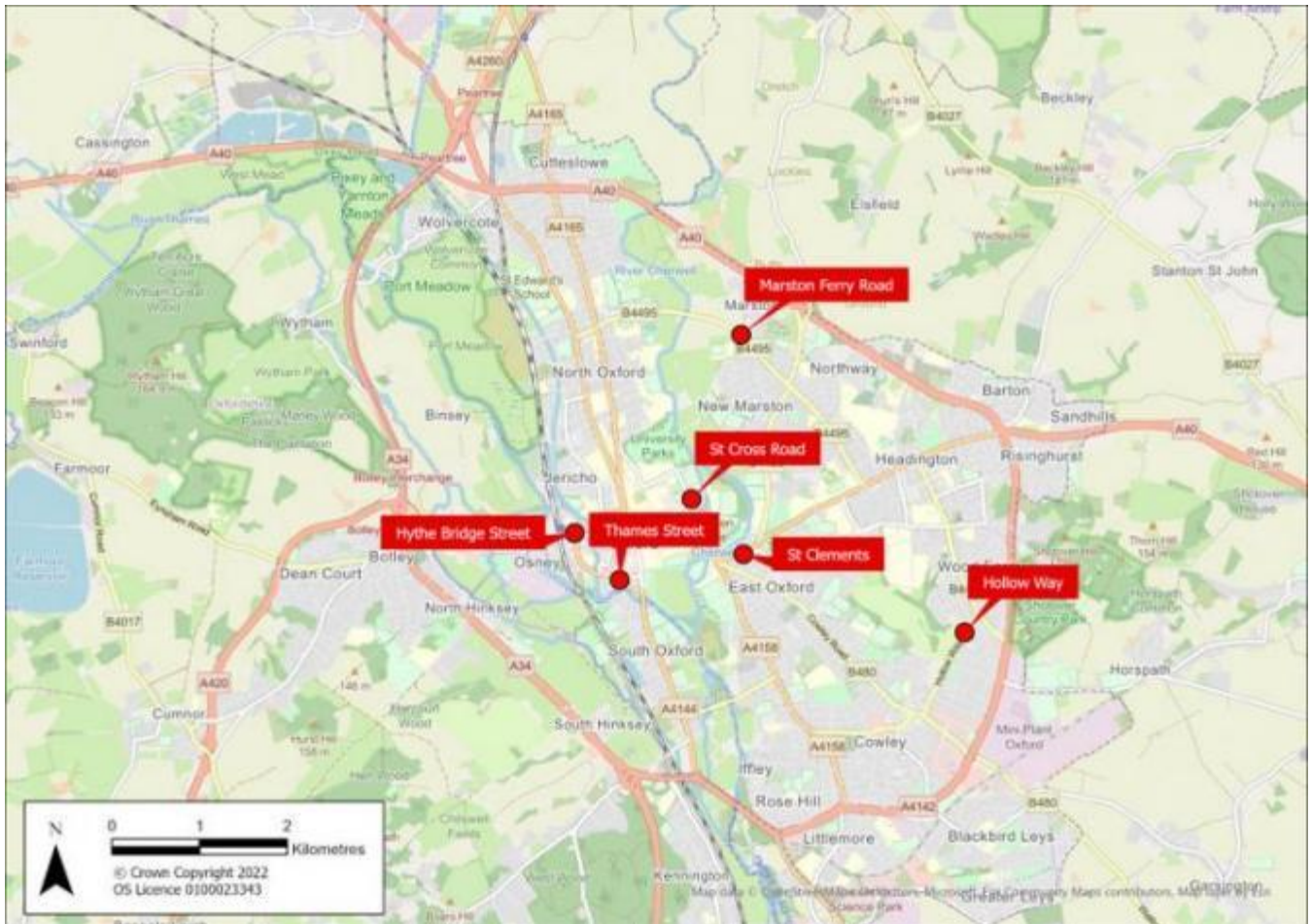
3.5 Oxford City demand management

- 3.5.1 Oxfordshire County Council and Oxford City Council are pursuing and trialling several travel demand management measures, to encourage travellers to make more use of active and public transport modes, reducing travel by car and associated congestion and environmental impacts.
- 3.5.2 Detailed modelling work has been undertaken for Oxford City using the OSM to test the impacts of the proposed traffic filters and workplace parking levy. The forecast scenarios for the West Oxfordshire have included simplified representations of these proposed demand management measures.

Traffic Filters

- 3.5.3 Six traffic filters are proposed in Oxford City at the locations shown in Figure 3-4 and operating at the times listed below:
 - Thames Street (operating between 07:00 and 19:00).
 - Hythe Bridge Street (operating between 07:00 and 19:00).
 - St Cross Road (operating between 07:00 and 19:00).
 - St Clements (operating between 07:00 and 19:00).
 - Marston Ferry Road (operating in peaks only between 07:00-10:00 and 16:00-19:00).
 - Hollow Way (operating in peaks only between 07:00-10:00 and 16:00-19:00).
- 3.5.4 Trials associated with the implementation of the traffic filters are already underway and hence it was considered reasonable to include them in all 2043 forecast year scenarios tested. The traffic filters effectively close the roads to car traffic at the locations shown. Discount passes are available for residents which enable them to use the roads for a limited number of trips per year.
- 3.5.5 Modelling the ability for local city residents to travel through the traffic filters would be very complex and less relevant for this study, which is focused on the impacts of the West Oxfordshire Local Plan, than previous modelling work for Oxford City centre. A review of the impacts from the Oxford City work showed that closing the roads entirely would slightly overestimate the impacts in Oxford City but have a very limited impact on forecast traffic levels outside the city centre. It was therefore agreed that the pragmatic approach to including the traffic filters for the West Oxfordshire Local Plan modelling, was to close the roads to cars entirely during the periods they operate. Goods vehicles and buses are not affected by the traffic filters and able to pass along the routes in the OSM.

Figure 3-4 – Location of Traffic Filters proposed in Oxford City



Source: Oxfordshire County Council, 2025

Workplace Parking Levy (WPL)

3.5.6 The proposed workplace parking levy would see an annual charge applied per parking place provided by employers for their staff. In practice annual charges per parking space would be applied to employers where provision of spaces is above a threshold. The employers can then choose whether to pass some or all of these additional charges on to their staff or not. The methodology currently included in OSM only allows for a generalised application of the WPL in a uniform manner across the area affected, though there may be discounts for particular areas or employers. A number of assumptions were required for the modelling to estimate the additional charges for commuting trips by car to workplaces in the affected area.

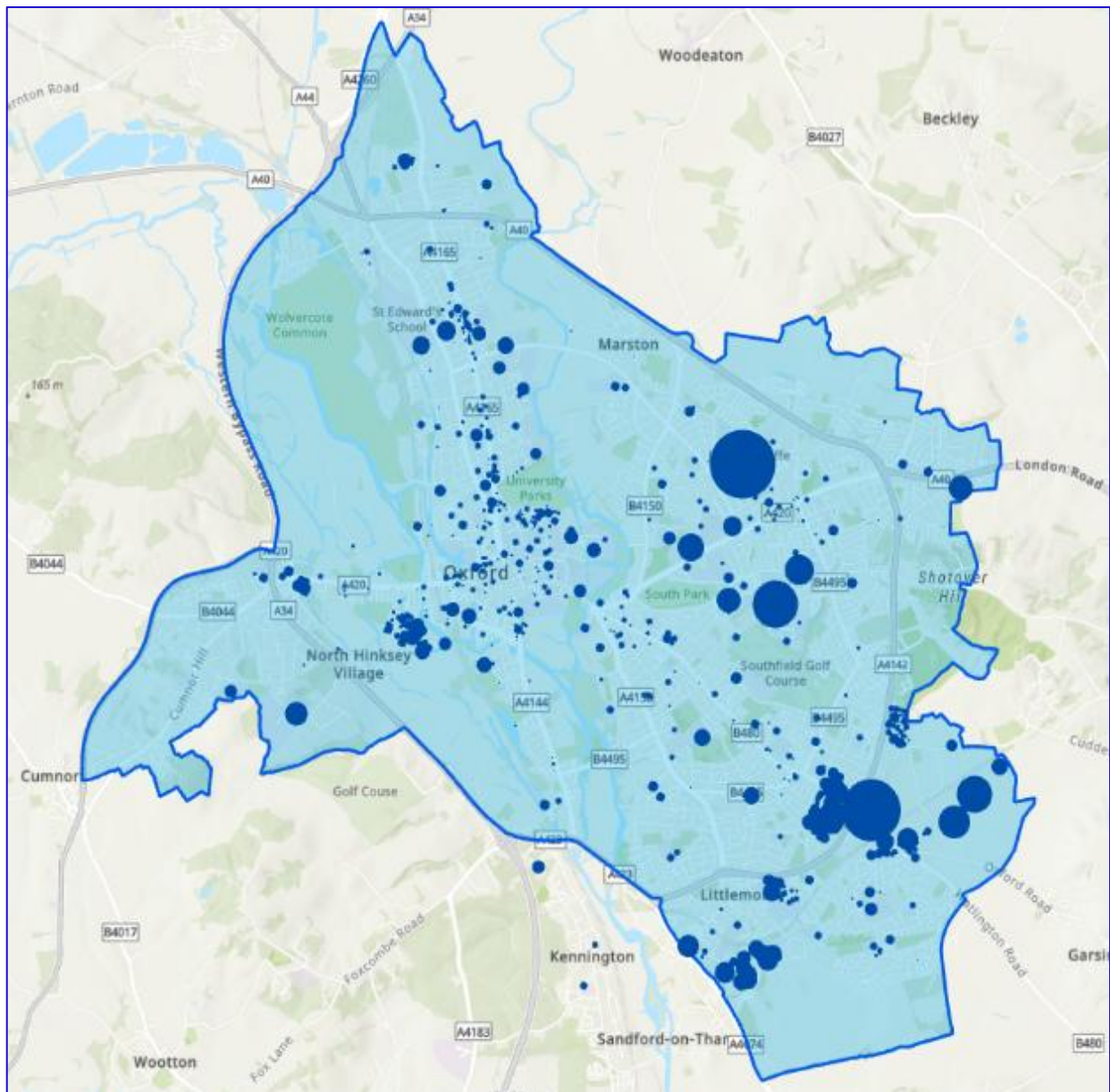
3.5.7 The assumptions made for the West Oxfordshire Local Plan modelling were the same as those applied in the preliminary testing of the package for Oxfordshire as follows:

- 76% of workplace parking spaces are assumed to be chargeable for the modelling. This is the ratio of chargeable spaces to utilised staff spaces in area of scope for WPL) based on a 10 space threshold, above which the WPL would apply plus other exemptions such as blue badge holders.
- Annual WPL charge is divided by 180, the assumed average number of working days taking into account holidays, sickness and reductions in commuter trips post Covid, to give the charge per commuter trip.

- Charge is applied per person trip in the OSM, hence the commuting car occupancy factor was applied to convert the charge per space to a charge per occupant.
- 75% of employers would pass the charges on to their staff.
- On this basis 57% of commuting trips by car are required to pay (76% chargeable space x 75% pass on rate).

3.5.8 Figure 3-5 shows the current proposed WPL boundary, where employers within this boundary are in scope to pay the levy.

Figure 3-5 – Proposed boundary of the WPL



Source: Oxfordshire County Council, 2025

3.5.9 The level of charge is not yet certain. Modelling to date has considered a WPL opening charge of £750 in 2025 prices for 2028. A charge escalator increases the charge to £850 in year 2, and to £950 in year 3, both in 2025 prices. From then onwards, the charge is assumed constant in 2025 prices (indexed to RPI). Applying the growth indicators and adjusting for the model price base gives a charge of £4.67 per commuter trip in 2010 prices.

- 3.5.10 The proposals indicate that money raised by the WPL would be used to improve transport in the city, thus a package of bus service enhancements is also proposed as set out in paragraph 3.4.5. No discounts to general public transport or Park & Ride bus fares are assumed to be introduced in association with the introduction of the WPL.

3.6 Costs of travel

- 3.6.1 The OSM operates with a constant price base (relative to GDP). All prices in the model are measured in 2010 prices. Current costs are factored to 2010 prices using the GDP deflator provided by DfT in the TAG data book.

Values of time

- 3.6.2 The value of time is used to bring the measures of money cost and time together as a single measure of generalised time in the OSM. Money costs are divided by the value of time to convert them into generalised minutes. Values of time are forecast to grow in line with GDP per person and taken from the TAG data book version 1.20.2, released in January 2023.
- 3.6.3 The growth in values of time in OSM from 2023 to 2041 is 34% (36% from 2018) meaning the impact of monetary costs relative to time on traveller choices reduces by 2041.

Vehicle operating costs

- 3.6.4 Vehicle operating costs per kilometre for car can be derived from the function of travel speed and parameters provided in DfT's TAG data book. Consistent with National Highways practice, OSM assumes an average speed of 54 km/h to calculate the average operating cost per vehicle kilometre for cars and goods vehicles. The coefficients for the individual components of the vehicle operating cost were calculated using TAG data book version 1.20.2, released in January 2023. The resulting pence per kilometre by vehicle type and for cars on business or other (including commuting) travel are shown in Table 3-6, for 2023 and 2041.

Table 3-6 – Cost per kilometre (PPK) by vehicle type and purpose (pence, 2010 prices)

Parameter	2023	2041	% change
Car – Business travel	13.57	9.10	-33%
Car – Other (incl. commuting)	7.58	4.58	-40%
LGV	14.93	11.30	-24%
HGV	41.70	35.36	-15%

- 3.6.5 Based on the information set out in the TAG data base, the monetary cost of car travel is forecast to reduce over time due to improvements in vehicle efficiency and the transition to electric vehicles. At an average speed of 54 km/h the cost per kilometre for car travel is expected to reduce (in real terms) by 33% to 40% between 2023 and 2041. The cost changes for goods vehicles are smaller, but they are also expected to become cheaper to run per kilometre travelled.

Parking charges and tolls

- 3.6.6 For forecast scenarios, the OSM includes the increase in cost to park in the centre of Oxford City and at the city Park & Ride sites. The change in car parking charges through time are taken from the A40 business case work.
- 3.6.7 The increases in city centre parking charge from 2018 to the 2043 forecast scenarios are assumed to be:
- £3.64 (2010 prices) for commute trips (with the assumption that they are parked for a whole day).
 - £1.30 (2010 prices) for all other trip purposes.
- 3.6.8 The existing Park & Ride sites have an increase in parking charge of £0.21 from £1.74 to £1.95 (2010 prices) regardless of trip purpose. Parking at the new Park & Ride sites at Eynsham and Begbroke is assumed to be free (no parking charge).

Public transport fares

- 3.6.9 OSM2 estimates both the bus and rail fares as a function of travel distance which was calibrated from observed data for the 2018 base year and updated through time.
- 3.6.10 Rail fares are assumed to increase by 0.76% per annum in real terms from 2020 onwards. This equates to an increase of 14.6% in real terms from 2023 to 2041.
- 3.6.11 Bus fares, including the fares for using the Park & Ride bus services, are assumed to increase by 1% per annum in real terms from 2020 onwards. This equates to an increase of 19.6% in real terms from 2023 to 2041.

3.7 Summary

- 3.7.1 This section has summarised the core assumptions used to forecast future travel demand and network performance for the West Oxfordshire Local Plan. These assumptions cover growth, transport infrastructure, policy measures, and travel costs, and apply across all modelled forecast scenarios.
- 3.7.2 Housing and job growth are based on adopted Local Plans across Oxfordshire, with over 100,000 new homes and over 110,000 new jobs expected countywide by 2041. Cherwell, Oxford City and Vale of White Horse are expected to see stronger job growth relative to population; whereas South Oxfordshire and West Oxfordshire have higher residential growth relative to job creation. Trip generation applies trip rates from TRICS for residential and commercial development within Oxfordshire. External travel growth is drawn from the NTEM dataset.
- 3.7.3 All scenarios include a set of committed highway schemes across West Oxfordshire. Bus services are adjusted to reflect assumed 2041 frequencies and enhancements, including those linked to the Workplace Parking Levy (WPL). Traffic filters and the Workplace Parking Levy in Oxford City are incorporated in a simplified form.
- 3.7.4 Values of time rise over time in line with GDP, reducing the weight of monetary costs in travel decisions. Vehicle operating costs are expected to fall significantly due to improved efficiency and electrification. Parking charges in Oxford city centre and Park & Ride sites increase in real terms, while public transport fares increase modestly to 2041.

- 3.7.5 Because a 2043 version of the model does not exist, the 2041 OSM model year is used, with 2043 West Oxfordshire growth levels applied, representing a two-year acceleration of development.

4. 2043 Reference Case Scenario

4.1 Introduction - Adopted LP

- 4.1.1 The Reference Case scenario represents a future year (2043) baseline scenario assuming no additional development or transport scheme delivery, beyond what has already been committed or proposed in the adopted Local Plan 2031 and is reasonably expected to be in place 2043. It also includes background growth in the neighbouring districts and across the wider model, to represent reasonably the level of demand external to West Oxfordshire which may travel either to, or through, the district.
- 4.1.2 The Reference Case scenario provides a future year (2043) baseline against which the impacts of the emerging Local Plan 2043, and all the development and associated infrastructure and other transport mitigations, can be assessed, by allowing the specific effects of each of these elements to be isolated and quantified at a strategic level.

4.2 Reference Case assumptions

Infrastructure

- 4.2.1 Section 3.4 sets out the transport schemes included in the Reference Case scenario for both highway and public transport. The Reference Case scenario also includes all schemes from the 2023 present year model, wherever these have not been superseded by the committed infrastructure schemes.
- 4.2.2 Figure 3-1 shows the locations of transport infrastructure schemes expected to be developed between the present year and the Reference Case scenario – this includes all currently committed schemes and additional aspirational schemes yet to be brought forward under the adopted Local Plan.
- 4.2.3 Figure 3-2 shows the locations of the 20mph zones which have been adopted in West Oxfordshire. A significant number of schemes have been brought forward around the time of the present year model – for simplicity, these have all been modelled in the Reference Case so that their cumulative impact is seen more easily, rather than splitting them across the scenarios.

Demand

- 4.2.4 Section 3.2 details the high-level increase in demand in West Oxfordshire and across the whole county. The Reference Case model includes all completions included in the present year model, and further completions from 2023 to 2025 (based on available planning data at the time of the preparation of the uncertainty log). The Reference Case model further includes all committed development which has been granted planning permission, and anything which is still considered a reasonable aspiration under the adopted Local Plan 2031, including the likely windfall housing.
- 4.2.5 Sites yet to be built out which are expected to develop over 300 dwellings or 40,000 sq m Gross Floor Area (GFA) are considered Strategic sites. A total of five housing sites and one mixed use site meeting this definition are shown in Table 4-1.

Table 4-1 – Strategic development sites

Site	No. of dwellings	GFA (sq m)
Salt Cross Garden Village SLG	2,125	57,000
North Witney SDA	1,250	-
West Eynsham SDA	763	-
East Chipping Norton SDA	750	-
Land South East of Oxford Hill Witney Oxfordshire	450	-
Burford Road, Brize Norton	350	-

4.3 Growth impacts

Demand by mode

4.3.1 Across the 12-hour period from 07:00 to 19:00, the modelled flows (person trips) are:

- 178,370 trips by car beginning in West Oxfordshire.
- 177,514 trips by car ending in West Oxfordshire.
- 89,522 trips by car both beginning and ending within West Oxfordshire.
- 7,397 bus trips beginning in West Oxfordshire.
- 9,046 bus trips ending in West Oxfordshire.
- 3,513 bus trips both beginning and ending in West Oxfordshire.
- 3,206 rail trips beginning in West Oxfordshire.
- 3,508 rail trips ending in West Oxfordshire.
- 298 rail trips both beginning and ending in West Oxfordshire.

4.3.2 Compared against the 2023 present year, the 2043 Reference Case model scenario shows an increase in trips to and from West Oxfordshire. Trips by car to and from the area increase by approximately 11%, while trips by car wholly within West Oxfordshire are forecast to decrease by approximately 5%. Public transport trips continue to show stronger growth, with bus trips increasing by approximately 33% and rail trips by approximately 29% for movements to and from West Oxfordshire. However, trips wholly within West Oxfordshire show a slight decline for rail (approximately 4%), while bus trips within the area still increase by just over 30%. The model indicates overall growth in trips to and from West Oxfordshire, with stronger increases in public transport than car, while internal travel shows a modest decline in car and rail use, with a strong increase in bus trips.

4.3.3 This growth in trips to and from West Oxfordshire sits alongside a notable increase in through movements (i.e. trips with both origins and destinations outside the district). These are forecast to increase by approximately 17-21% across the day, with significantly higher growth on the A40 corridor during peak periods (up to 34% in the AM peak and 32% in the PM peak). The scale of this increase exceeds that of car trips associated with West Oxfordshire itself, indicating that future traffic growth on the network is strongly influenced by non-local, through traffic. This is particularly important on strategic routes such as the A40, where demand is driven not only by travel to and from the district, but also by longer-distance movements passing through it.



- 4.3.4 The modelled mode shares for the trips over the 12 hours starting in West Oxfordshire and model-wide are shown in Table 4-2. The percentage mode share is presented with changes relative to the 2023 PYV given as the percentage point difference. There is a small forecast shift in the mode share within West Oxfordshire, which also contributes to the same pattern model-wide. There is growth seen in Bus Park & Ride usage as a result of the introduction of the Eynsham Park & Ride site and some public transport focused improvements which encourage additional wider bus usage.

Table 4-2 – Mode share for trips starting in West Oxfordshire only and Full model, 12 hour – 07:00-19:00, 2043 Ref Case

Mode	West Oxfordshire		Full Model	
	Ref Case (%)	Change from 2023 (pp)	Ref Case (%)	Change from 2023 (pp)
Car	93.2%	-1.6%	89.0%	-1.5%
Bus P&R	1.2%	0.9%	1.0%	0.5%
Bus	3.9%	0.5%	7.0%	0.9%
Rail	1.7%	0.2%	3.0%	0.1%
Total	100.0%	-	100.0%	-

- 4.3.5 Overall, the car mode share for trips between West Oxfordshire and Oxford City is materially lower than the average car mode share for trips between West Oxfordshire and other parts of Oxfordshire or the rest of the model. This is consistent with the validated base year travel demand patterns and the assumed development trip rates.
- 4.3.6 In the Reference Case scenario, the car mode share for trips between West Oxfordshire and Oxford City typically falls in the 70%–80% range, varying by time period. By contrast, for trips between West Oxfordshire and the other districts, the car mode share is generally above 95%. For trips within West Oxfordshire, the average car mode share is approximately 90%.
- 4.3.7 However, the interpretation of these mode shares should take account of the model calibration approach. Car demand was re-calibrated in West Oxfordshire for both the 2018 base year and the 2023 present year, resulting in a substantial increase in modelled car trips, particularly along the A40 corridor and within Witney. Equivalent calibration was not undertaken for public transport demand due to the lack of sufficiently disaggregated data. As a result, the change in public transport patronage is the preferred metric rather than the absolute patronage numbers; due to the structure of the model the proportionate change is still representative of the impact that is likely to occur.
- 4.3.8 The interaction between West Oxfordshire, the other districts in Oxfordshire and the rest of the country is shown in Table 4-3. There is a reduction of 8.5 percentage points for modelled car and public transport journeys starting in West Oxfordshire which also end within the district compared against the present year. This reduction is a result of an increase in the proportion of travel to other districts and the rest of Great Britain, with Cherwell being the most significant. As a result of housing growth in West Oxfordshire, there is an increase in demand to travel from home in West Oxfordshire to the various trip attractors in Cherwell, where there is a significant growth in employment planned. There are also increases to Oxford City, Vale of White Horse and the Rest of Great Britain, but to a lesser extent.

Table 4-3 – Destination for trips starting in West Oxfordshire, 12 hour – 07:00-19:00

District / area	Destination share	
	Reference Case	Change from Present Year (pp)
Oxford City	10.3%	1.5%
Cherwell	12.8%	4.6%
Vale of White Horse	9.9%	0.3%
South Oxfordshire	3.2%	0.7%
West Oxfordshire	48.8%	-8.5%
Rest of Great Britain	15.1%	1.3%
Total	100.0%	-

- 4.3.9 Table 4-4 shows the modelled total car arrivals by Park & Ride (P&R) site in the three-hour AM peak period. The P&R sites are not constrained in OSM by the capacity, so this table shows the aspirational P&R use, regardless of the site capacity, which is also presented.

Table 4-4 – Car arrivals by P&R site, AM period – 07:00-10:00

P&R Site	AM arrivals	Car park capacity
Redbridge	2,282	1,412
Seacourt	786	1,389
Peartree	405	1,035
Water Eaton	389	758
Thornhill	716	1,335
Eynsham	1,364	850
Airport	320	1,250

- 4.3.10 There are two sites where the AM period arrivals are greater than the capacity of the P&R site. These sites would therefore be expected to be highly utilised; notably this includes the new Eynsham P&R site located northwest of Eynsham on the A40. This indicates substantial forecast willingness to utilise the public transport options along the A40 rather than travelling the full journey by car as a result of the significant congestion on the corridor that bus lanes help to reduce, and the city centre parking charges.

Network impacts

Network performance

- 4.3.11 Table 4-5 presents the network statistics for all modelled roads across Oxfordshire, as shown in Figure 2-3, and the change compared with the 2023 present year. Table 4-6 presents the corresponding statistics for all modelled roads in West Oxfordshire, while Table 4-7 presents the same for the A40 corridor from Burford to the Wolvercote Roundabout. These are presented for all car trips in West Oxfordshire across the 12-hour period from 07:00 to 19:00, with the total on the roads also including LGV and HGV trips. Figure 2-3 shows the full extent of the roads considered, with those inside the West Oxfordshire border being used to provide the West Oxfordshire statistics.

Table 4-5 – Key highway network statistics – All of Oxfordshire

Metric	Reference Case		% Change from Present Year	
	Car	All vehicles	Car	All vehicles
Total Travel Time (hr)	355,400	434,400	52%	46%
Cruise Time (hr)	300,200	368,500	45%	40%
Delay (hr)	55,100	65,800	103%	96%
Delay (sec per km)	9.9	9.6	46%	73%
Total Distance (km)	19,986,200	24,813,500	38%	33%
Average Speed (km/h)	56.2	57.1	-9%	-9%

Table 4-6 – Key highway network statistics – West Oxfordshire

Metric	Reference Case		% Change from Present Year	
	Car	All vehicles	Car	All vehicles
Total Travel Time (hr)	56,000	70,500	35%	32%
Cruise Time (hr)	49,300	61,800	38%	35%
Delay (hr)	6,700	8,700	16%	18%
Delay (sec per km)	8.6	8.9	-9%	-5%
Total Distance (km)	2,808,100	3,513,200	27%	23%
Average Speed (km/h)	50.1	49.9	-6%	-7%

Table 4-7 – Key highway network statistics – A40 corridor

Metric	Reference Case		% Change from Present Year	
	Car	All vehicles	Car	All vehicles
Total Travel Time (hr)	11,900	15,500	55%	48%
Cruise Time (hr)	10,100	13,200	66%	59%
Delay (hr)	1,800	2,300	13%	5%
Delay (sec per km)	10.1	10.1	-21%	-23%
Total Distance (km)	631,400	818,900	42%	35%
Average Speed (km/h)	53.1	52.9	-8%	-8%

- 4.3.12 The statistics show that the general pattern of increasing travel and the corresponding increase in delay and decrease in speed across the whole of Oxfordshire does not hold in West Oxfordshire to the same extent. As many of the major highway corridors in West Oxfordshire are already close to capacity on some sections, much of the modelled growth in traffic is forecast on other parts of the highway network, specifically along the M40 and A34, or across more rural areas. Notably, the delay per kilometre shows a significant reduction on average along the A40, because there is significant growth on sections which are currently less used, which leads to an increase in overall delay, but a reduction in the average delay per unit distance travelled.

A40 travel times by section

- 4.3.13 Table 4-8 sets out the average journey time along the A40 in the eastbound direction. Table 4-9 sets out the corresponding data for the westbound direction, with the sections listed in reverse. The journey time data shows significant increases in the vicinity of Witney, particularly eastbound in the morning peak. There are significant increases in flow in this area, leading to increased journey times since higher flows reduce the travel speed, and also due to speed limit reductions introduced on the A40 as part of the A40 Witney to Shores Green scheme. There are reductions in journey time on the segments approaching Cassington, because of planned infrastructure scheme improvements at the Cassington junction of the A40. Overall, the journey time increases in both directions in the interpeak, as there is more spare capacity on the A40 generally in the interpeak, while the AM and PM peaks are busier, with changes largely driven by links reaching capacity and beginning to queue in new places, or reducing due to infrastructure schemes.

Table 4-8 – A40 Eastbound journey time change from 2023 to 2043 Ref Case (minutes)

Journey time route section	Reference Case			%Change from Present Year		
	AM	IP	PM	AM	IP	PM
Section 1 - Burford to Witney (Ducklington Lane)	10.5	7.5	7.7	30%	6%	8%
Section 2 - Witney to Eynsham P&R	9.2	7.6	8.0	40%	15%	17%
Section 3 - Eynsham P&R to Cassington	5.4	4.8	5.5	5%	52%	0%
Section 4 - Cassington to Wolvercote Rdbt	6.6	6.6	7.7	-23%	-9%	-16%
Full Route	31.7	26.6	28.9	12%	10%	1%

Table 4-9 – A40 Westbound journey time change from 2023 to 2043 Ref Case (minutes)

Journey time route section	Reference Case			%Change from Present Year		
	AM	IP	PM	AM	IP	PM
Section 4 - Wolvercote Rdbt to Cassington	5.5	5.2	5.3	30%	20%	32%
Section 3 - Cassington to Eynsham P&R	5.8	4.7	5.1	-40%	6%	-39%
Section 2 - Eynsham P&R to Witney	8.4	7.4	8.6	16%	18%	23%
Section 1 - Witney (Ducklington Lane) to Burford	7.2	7.4	7.7	8%	8%	9%
Full Route	27.0	24.7	26.7	-3%	13%	1%

Highway flow and delay

- 4.3.14 All figures in this section show the West Oxfordshire district boundary as a red line for context.

Flow

- 4.3.15 Figure 4-1 to Figure 4-3 show the change in flow from the present year (2023) model scenario to the reference case (2043) scenario. While West Oxfordshire does not see increases in traffic flow as substantial as those on the major strategic corridors of the A34 and the M40, there are large increases forecast on the A40 to the south of Witney, due to the new infrastructure, namely the new slip roads at Shores Green and the Northern Distribution Road, routing additional traffic to this section. Increases are also expected on the A40 between Eynsham and the Wolvercote Roundabout, driven by A40 junction

upgrades as part of Phase 1 of the A40 Eynsham Park & Ride to Wolvercote Scheme. The increase in flows on Jubilee Way and Oxford Hill, Witney are forecast to arise due to the inclusion of North Witney local plan development and new infrastructure schemes in this scenario, such as the A40 Witney Shores Green new slip road scheme and proposed North Witney, Northern Distribution Road which makes the area more accessible by car. These schemes are forecast to route more traffic via Jubilee Way and Oxford Hill to use the A40 to the south of Witney and as a result reduce car trips through Witney town centre.

- 4.3.16 Additional trips are forecast on the A40 due to the adopted local plan development sites (East Witney, Salt Cross, West Eynsham and North Witney). Salt Cross and West Eynsham developments put additional demand on the A40 at Eynsham both towards Oxford and Witney.
- 4.3.17 As a result of the committed infrastructure and demand management schemes, there is some change in travel patterns reducing highway traffic – notably a reduction in car trips in Oxford city centre and the nearby town centres, and a change of routing to access Carterton and Brize Norton due to restrictions on vehicles (not bus) using Witney Road.
- 4.3.18 There are increases forecast across many of the more rural routes in West Oxfordshire. This likely arises due to increased demand for more out commuting and other trips from West Oxfordshire, including increased demand for travel to employment opportunities, particularly in Cherwell, Oxford City, Value of White Horse and elsewhere in the UK. Although this trend holds in general, due to the coarser zoning in the rural areas of the model, some roads see disproportionate growth due to the connections between these zones and the network. Further investigation would be required to assess these local impacts in more detail in areas of specific concern. The patterns are generally consistent across time periods, with some tidal patterns observed to reverse between the morning and evening because of commuting trips.

Delay

- 4.3.19 Figure 4-4 to Figure 4-6 show the average junction delay at each of the modelled junctions. Most of the significant hotspots occur at signalised junctions and at junctions along the A40 corridor, though there are also delays at the double mini-roundabouts in Bridge Street, Witney.
- 4.3.20 Figure 4-7 to Figure 4-9 show the delay on links, rather than at the junctions. This shows the specific junction arms with the greatest delay, as well as any links which are likely to experience flow breakdown as they are close to their maximum capacity. There are significant delays in the Reference Case scenario on the A40 to the west of Eynsham, particularly travelling eastbound as the road narrows from two to one lane at that point. The Swinford Toll Bridge also continues to show substantial delays in all peaks, as the primary alternative route to the A40 for many to access Oxford City. There are large delays at some of the signalised junctions to the south of West Oxfordshire, namely at the B4449 / Standlake Road junction and the New Bridge crossing in Newbridge, as well as some moderate delays further west on the A40 and on the A44 to the west of Chipping Norton. The patterns are quite consistent between the morning and evening peak periods, with less delay in the interpeak period generally.
- 4.3.21 Figure 4-10 to Figure 4-12 show the change in link delay between the present year and the Reference Case scenario. These figures highlight where the increases in delay are being observed, compared with the present year, and is generally consistent with the links showing high delay overall. This includes links along the A40 around the planned West Eynsham and Salt Cross developments and Eynsham Park & Ride site access and also the A40 between Eynsham and Witney and links in East and North-East Witney (Jubilee Way and Oxford Hill) likely arising due to significant new housing development planned in those areas. There increase in delays seen on the links in East and North-East Witney also arise as a result of the inclusion of new infrastructure schemes in this scenario, such as the new A40 slip

roads at Shores Green and proposed North Witney, Northern Distribution Road. These schemes are forecast to route existing and new development traffic via Jubilee Way and Oxford Hill to use the A40 to the south of Witney and to reduce car trips through Witney town centre.

Junction metrics

- 4.3.22 Junction performance has been assessed for locations along the A40 corridor and key areas within West Oxfordshire, including Witney, Eynsham and Carterton. Performance is evaluated in terms of delay and volume-to-capacity (V/C) ratio. Delay represents the flow-weighted average delay across all turning movements, while the V/C ratio expresses the total traffic flow arriving at a junction as a proportion of the combined capacity of its entry links. In the Reference Case, the greatest delays along the A40 are observed at the Canalside Quarter junction (AM: 49 seconds; PM: 91 seconds). Other A40 junctions experiencing delays, in excess of 30 seconds in either peak period, are at Downs Road (AM: 56 seconds) and the West Eynsham / Salt Cross access junction (AM: 33 seconds). Additional delays are observed at locations across West Oxfordshire beyond the A40 corridor. Notable delays occur at Jubilee Way / Cogges Hill / Oxford Hill (AM: 73 seconds; PM: 79 seconds) and at West End / Bridge Street (PM: 61 seconds). In Chipping Norton, significant delays are recorded at the Horsefair / London Road mini-roundabout (AM: 72 seconds; PM: 128 seconds).
- 4.3.23 In the Reference Case, three junctions along the A40 operate with volume-to-capacity (V/C) ratios exceeding 85% in at least one peak period. These are Eynsham Roundabout (PM: 91%), Shores Green westbound on-slip (AM: 88%; PM: 87%), and Downs Road (AM: 86%).
- 4.3.24 Appendix E presents a summary of delay and V/C ratio for junctions along the A40, as well as other key junctions across West Oxfordshire.

Plots

Figure 4-1 – AM peak – change in flow 2023 to 2043 Reference Case

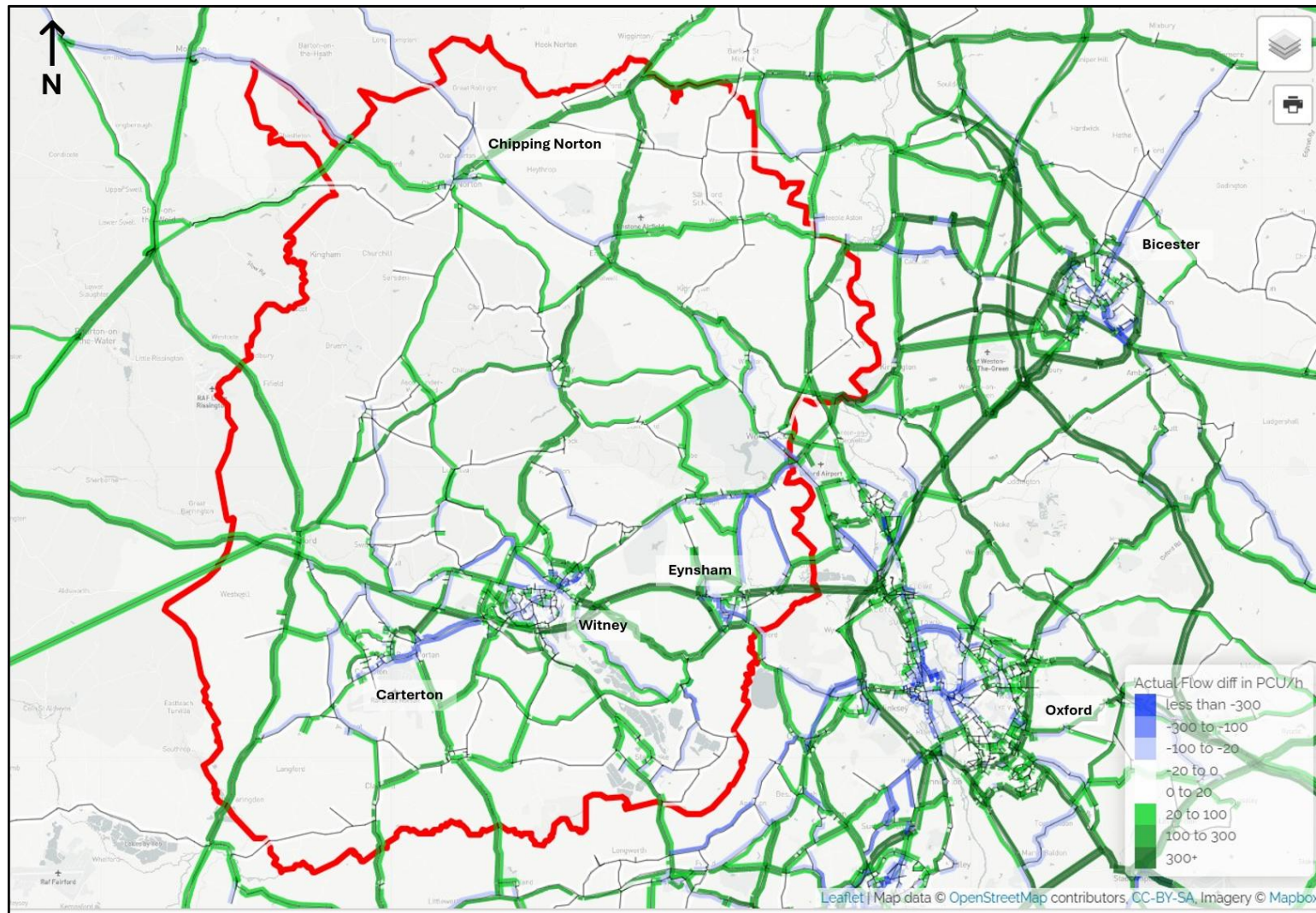


Figure 4-2 – Interpeak – change in flow 2023 to 2043 Reference Case



Figure 4-3 – PM peak – change in flow 2023 to 2024 Reference Case

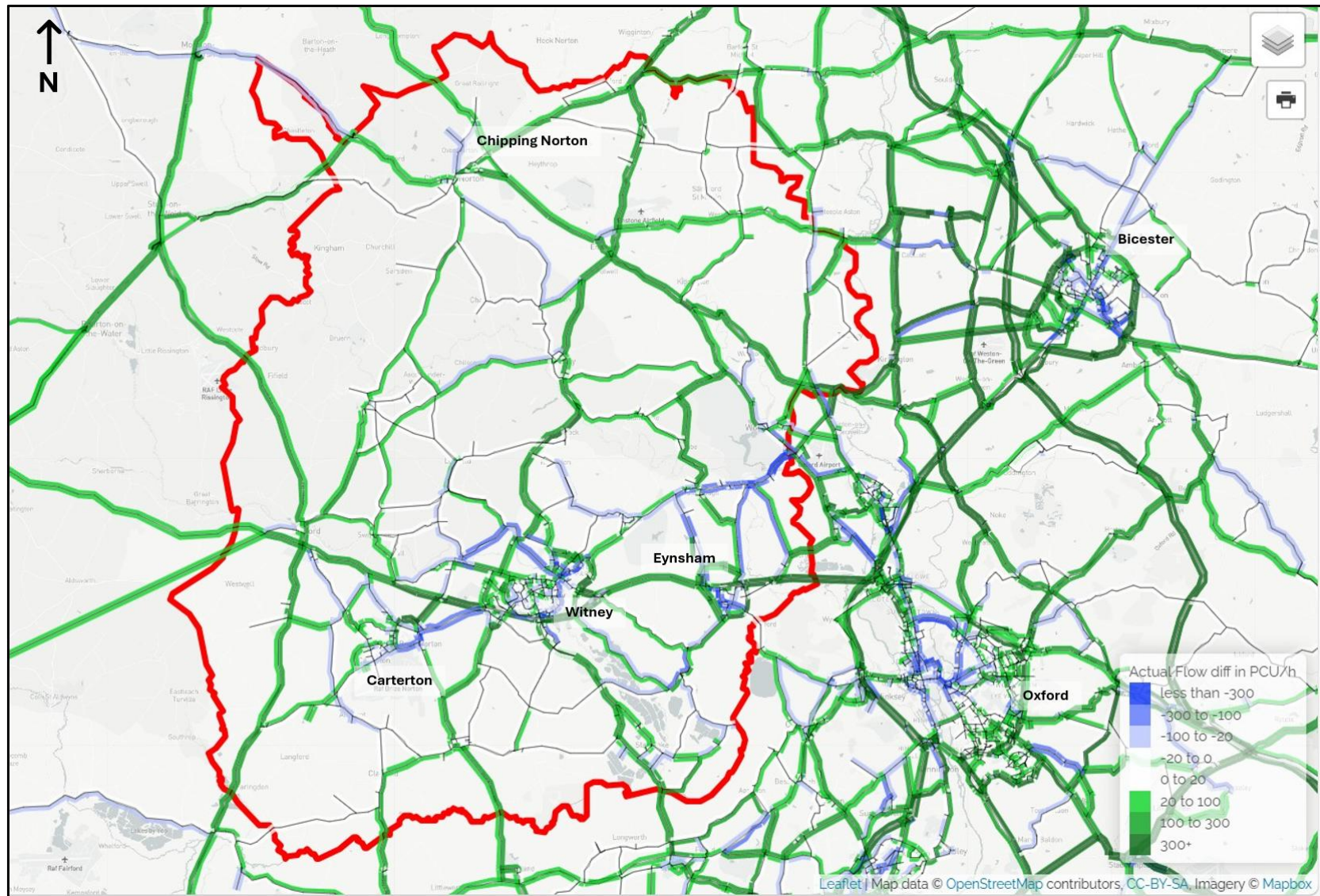


Figure 4-4 – AM peak – junction delay 2043 Reference Case

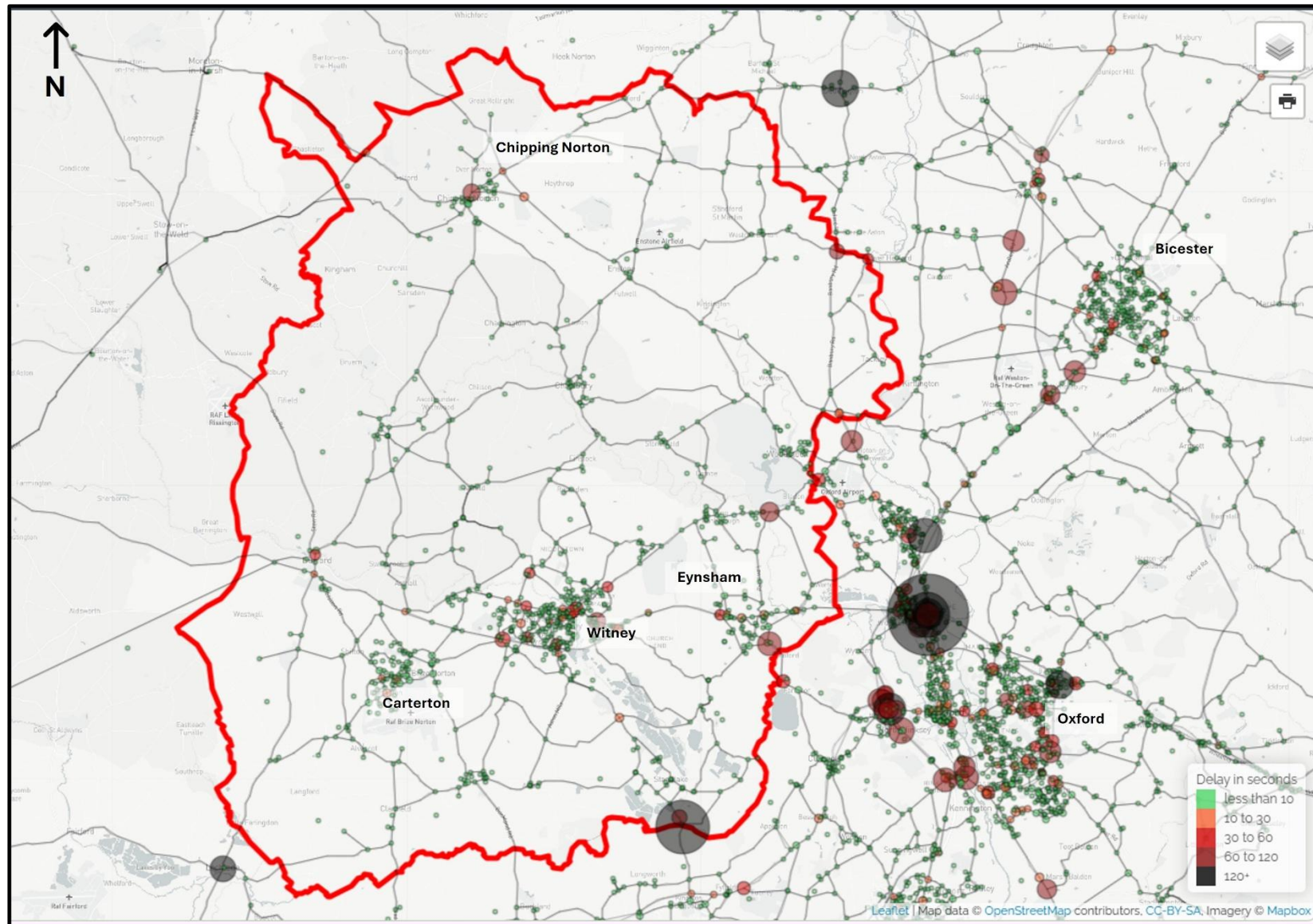


Figure 4-5 – Interpeak – junction delay 2043 Reference Case

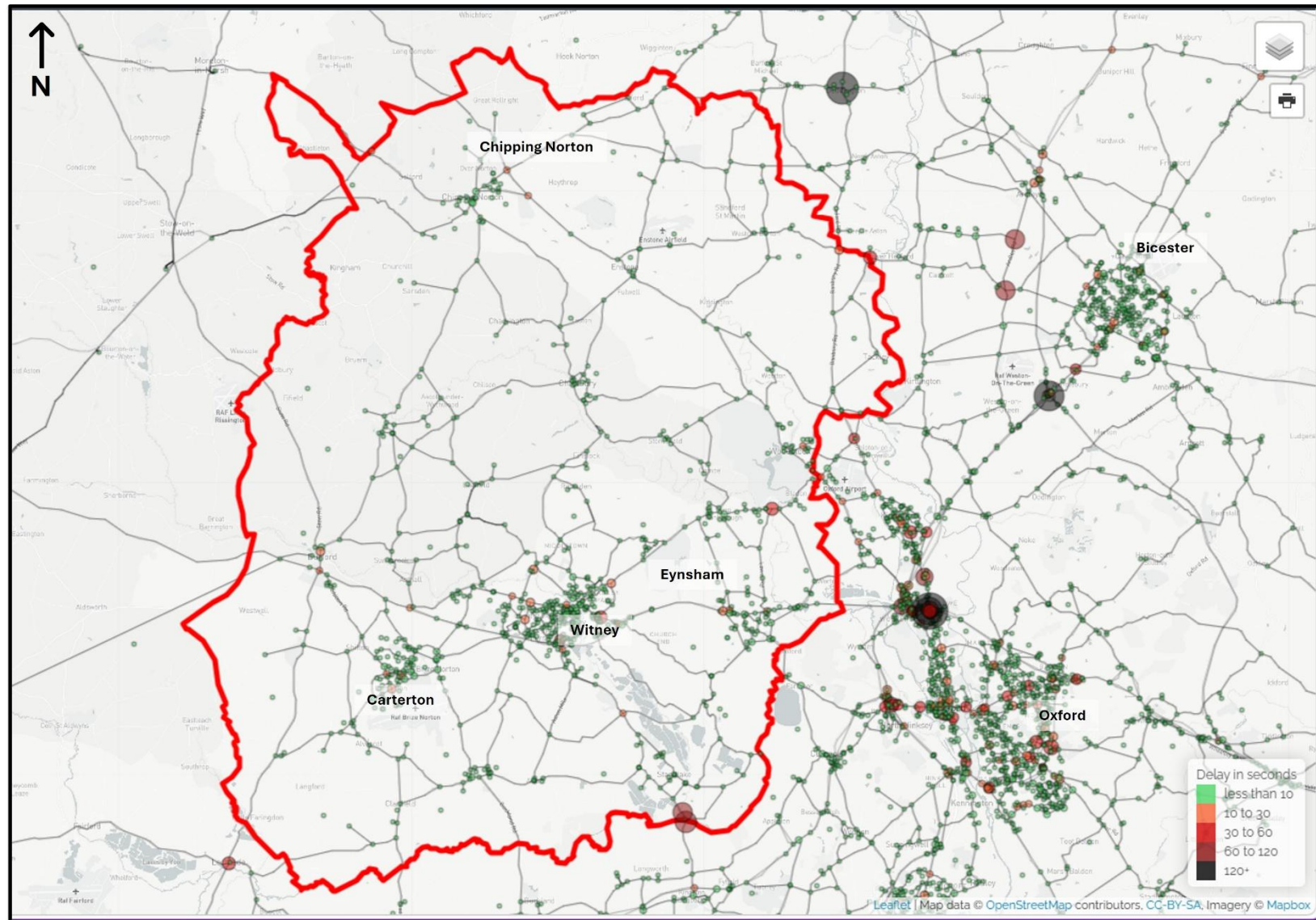


Figure 4-6 – PM peak – junction delay 2043 Reference Case

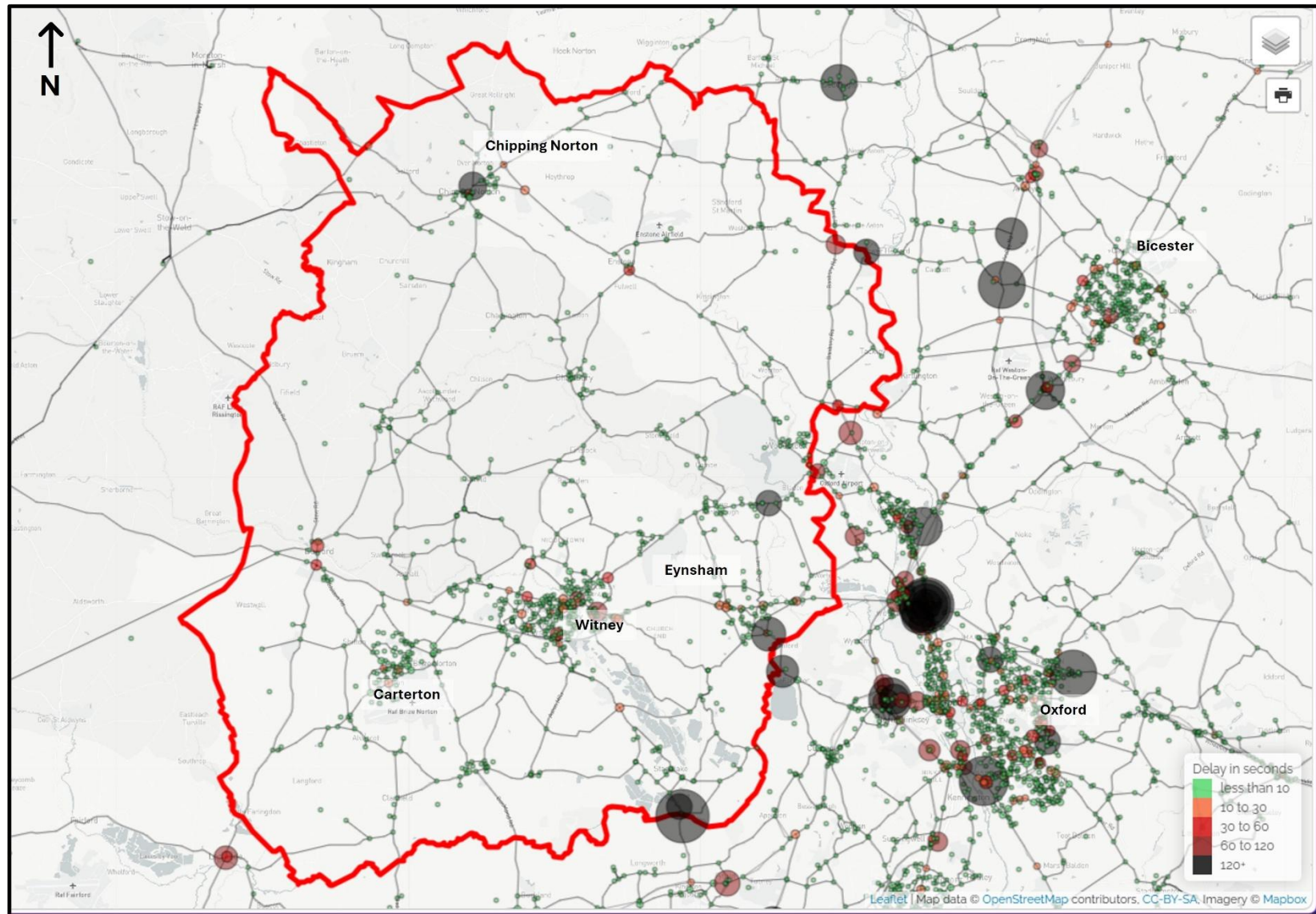


Figure 4-7 – AM peak – link delay 2043 Reference Case



Figure 4-8 – Interpeak – link delay 2043 Reference Case



Figure 4-9 – PM peak – link delay 2043 Reference Case



Figure 4-10 – AM peak – link delay change 2023 to 2024 Reference Case

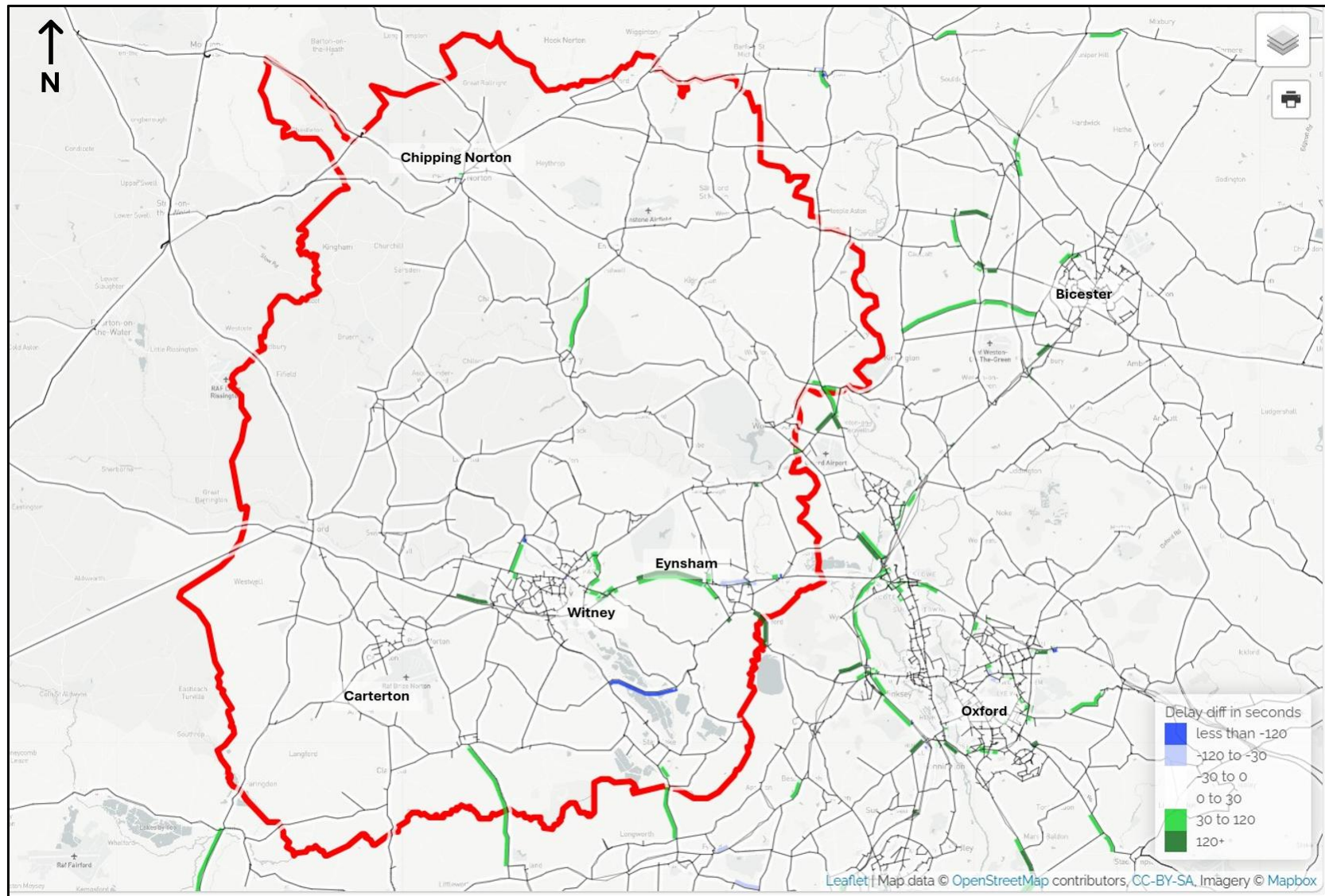


Figure 4-11 – Interpeak – link delay change 2023 to 2043 Reference Case

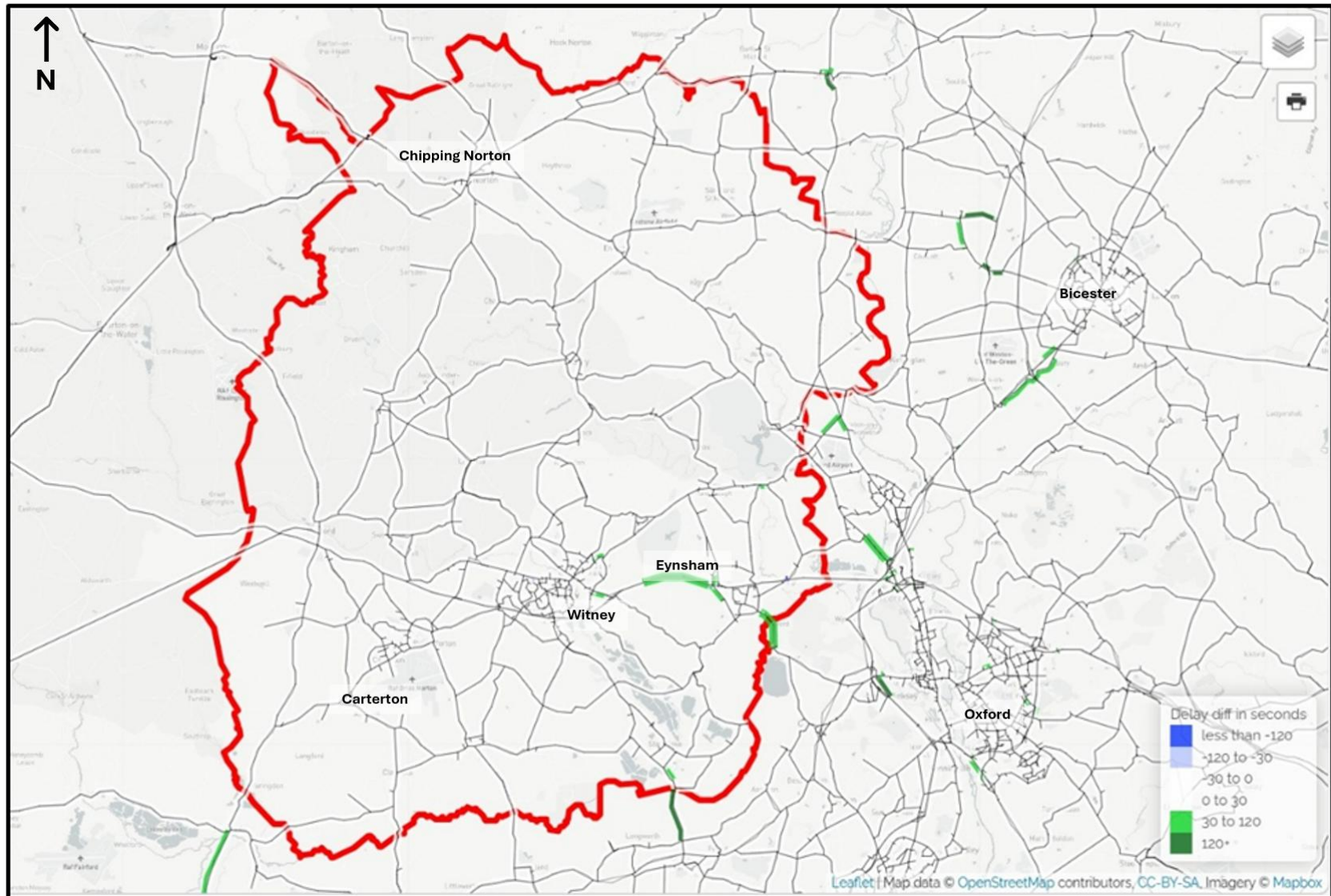
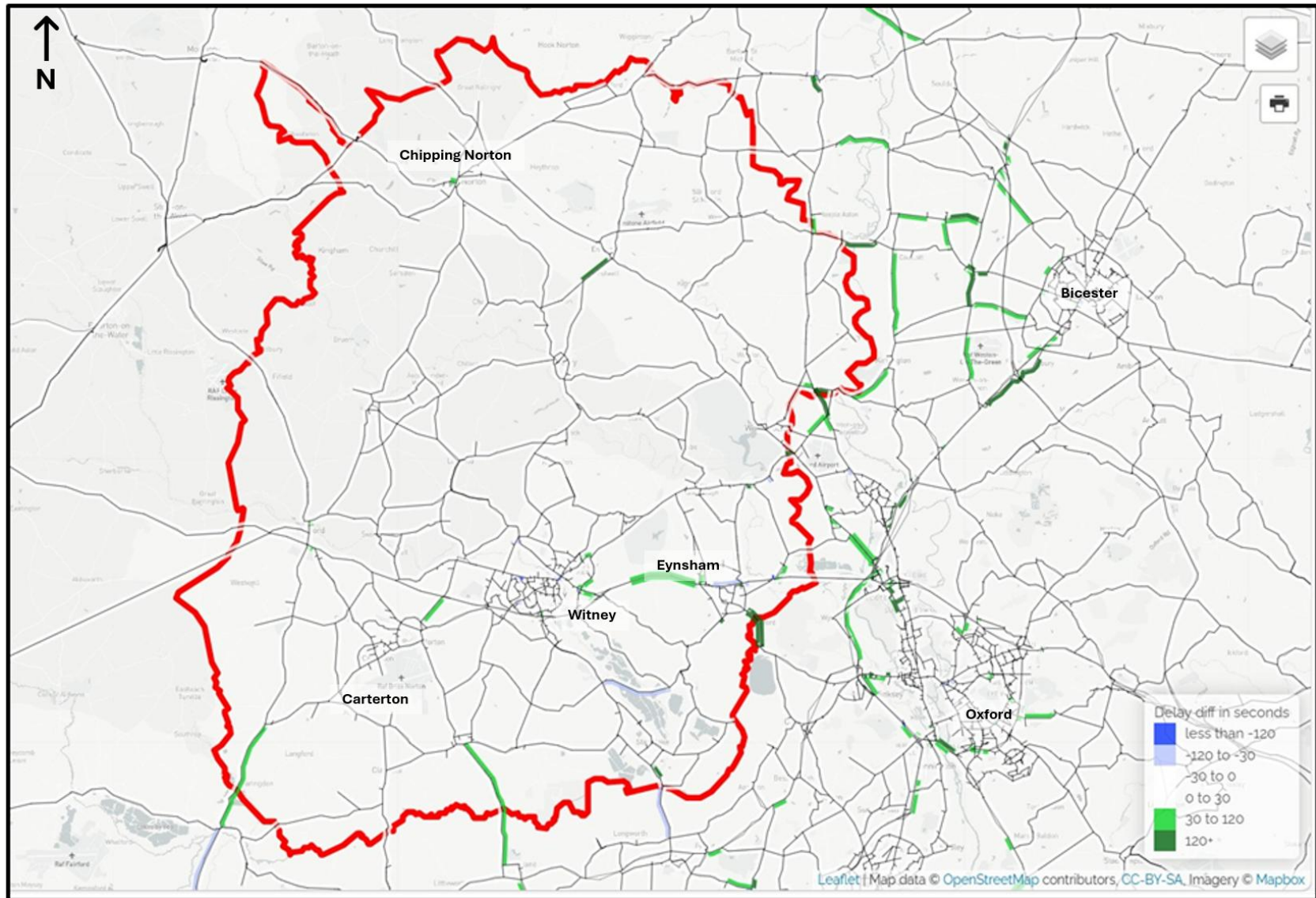


Figure 4-12 – PM peak – link delay change 2023 to 2024 Reference Case



Bus flows and journey times

Patronage

- 4.3.25 Figure 4-13 to Figure 4-15 show the levels of bus patronage across West Oxfordshire. While the levels are clearly lower than those in Oxford city, as the major regional hub, they are consistent with the levels in the surrounding districts such as Cherwell, with broad usage of bus services to access both the larger population centres of Witney, Carterton and Chipping Norton, and the more rural areas too. There is strong bus patronage along both the A40 and A44 corridors, as well as between Chipping Norton and Witney via Charlbury.

A40 Segment Detail

- 4.3.26 This analysis compares highway and bus journey times along the A40 corridor, using data extracted from the variable demand model, pre-active mode adjustment, to ensure a consistent journey time baseline across both model runs. It is expected that highway journeys will generally be faster than bus journeys in sections without dedicated bus infrastructure, due to the impacts of intermediate stops, passenger dwell times, and vehicle deceleration/acceleration affecting bus performance.
- 4.3.27 Table 4-10 shows that highway journeys are consistently faster than bus journeys across most eastbound segments and time periods, with total trips from Carterton to Wolvercote taking around 41-46 minutes by car compared to roughly 54-59 minutes by bus. The only exception is where bus lanes exist, where bus travel times are faster than highway travel times. The section for Eynsham P&R-Cassington is approximately 2minutes faster by bus, owing to a bus lane on this section and Cassington-Wolvercote is approximately 1minute faster by bus, where there is a partial bus lane.
- 4.3.28 A similar pattern is observed in the westbound direction (Table 4-11), with highway journeys generally faster than bus journeys across most segments and time periods. The presence of a bus lane between Cassington and Eynsham P&R enables bus journeys to be marginally faster than highway, although the time savings are smaller than those observed in the eastbound direction.
- 4.3.29 The model shows buses operating faster than general traffic between the A40 (Shores Green) – Witney Centre during the AM peak. This is due to bus priority factors to reflect differential bus and car travel times carried forward from the base model. As these factors are consistently applied across all modelled scenarios, they do not affect the robustness of comparisons between scenarios.

Note: Journey times throughout this report in relation to A40 segment journey times are rounded to one decimal place; therefore, totals may not equal the sum of the individual A40 segment journey times.

Table 4-10 – A40 Eastbound journey time 2043 Ref Case (minutes)

Towards Oxford (eastbound)	Reference Case					
	AM		IP		PM	
	HY	Bus	HY	Bus	HY	Bus
Carterton - A40 (Downs Road)	10.7	18.4	10.6	18.3	10.7	18.3
A40 (Downs Road) - Witney Centre	7.8	11.2	7.4	10.0	7.4	10.0
Witney Centre - A40 (Shores Green)	7.8	9.6	6.0	8.0	8.9	7.7
A40 (Shores Green) - Eynsham P&R	6.7	11.1	5.3	9.0	5.8	9.6
Eynsham P&R - Cassington*	5.0	2.9	4.4	2.4	4.8	2.6
Cassington - Wolvercote**	7.3	6.2	7.3	6.8	8.3	7.6
Total Carterton - Wolvercote	45.3	59.4	40.9	54.4	45.9	55.8

*Highlight reflects near full bus lane (not through stop line)

**Highlight reflects partial bus lane (Oxford North, approach to Wolvercote)

Table 4-11 – A40 Westbound journey time 2043 Ref Case (minutes)

Away from Oxford (westbound)	Reference Case					
	AM		IP		PM	
	HY	Bus	HY	Bus	HY	Bus
Wolvercote - Cassington	6.0	7.1	5.5	8.1	5.8	8.1
Cassington - Eynsham P&R*	5.3	4.8	4.4	5.1	4.6	5.1
Eynsham P&R - A40 (Shores Green)	5.6	9.7	4.8	9.2	5.7	10.1
A40 (Shores Green) - Witney Centre	9.8	8.7	7.3	8.8	8.4	9.7
Witney Centre - A40 (Downs Road)	7.4	10.3	7.3	10.1	8.0	11.3
A40 (Downs Road) - Carterton	10.8	14.6	10.7	14.6	10.9	15.5
Total Wolvercote - Carterton	44.8	55.1	40.0	55.9	43.5	59.7

*Highlight reflects near full bus lane (not through stop line)

Plots

Figure 4-13 – AM Peak – modelled bus patronage 2043 Reference Case

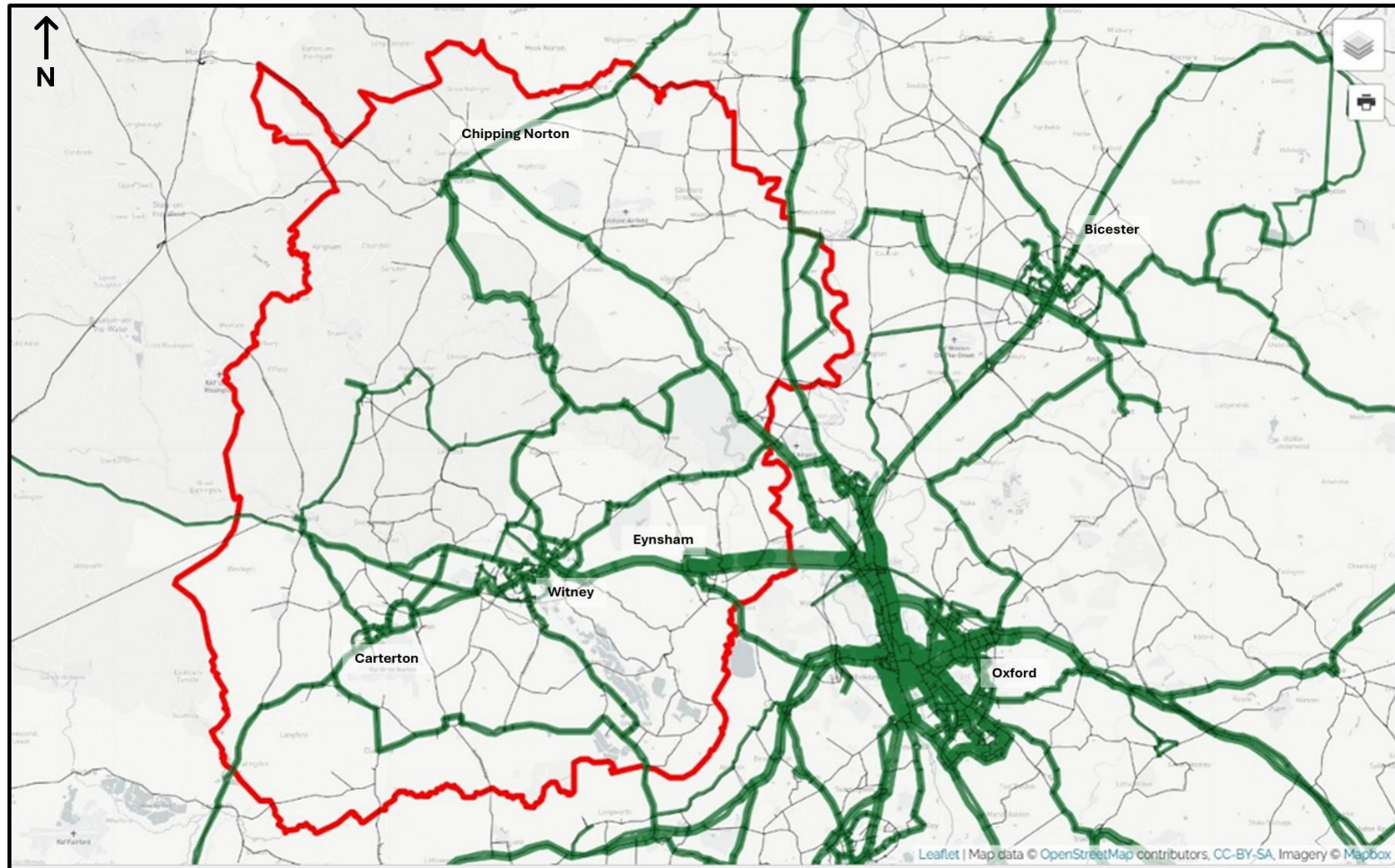


Figure 4-14 – Interpeak – modelled bus patronage 2043 Reference Case

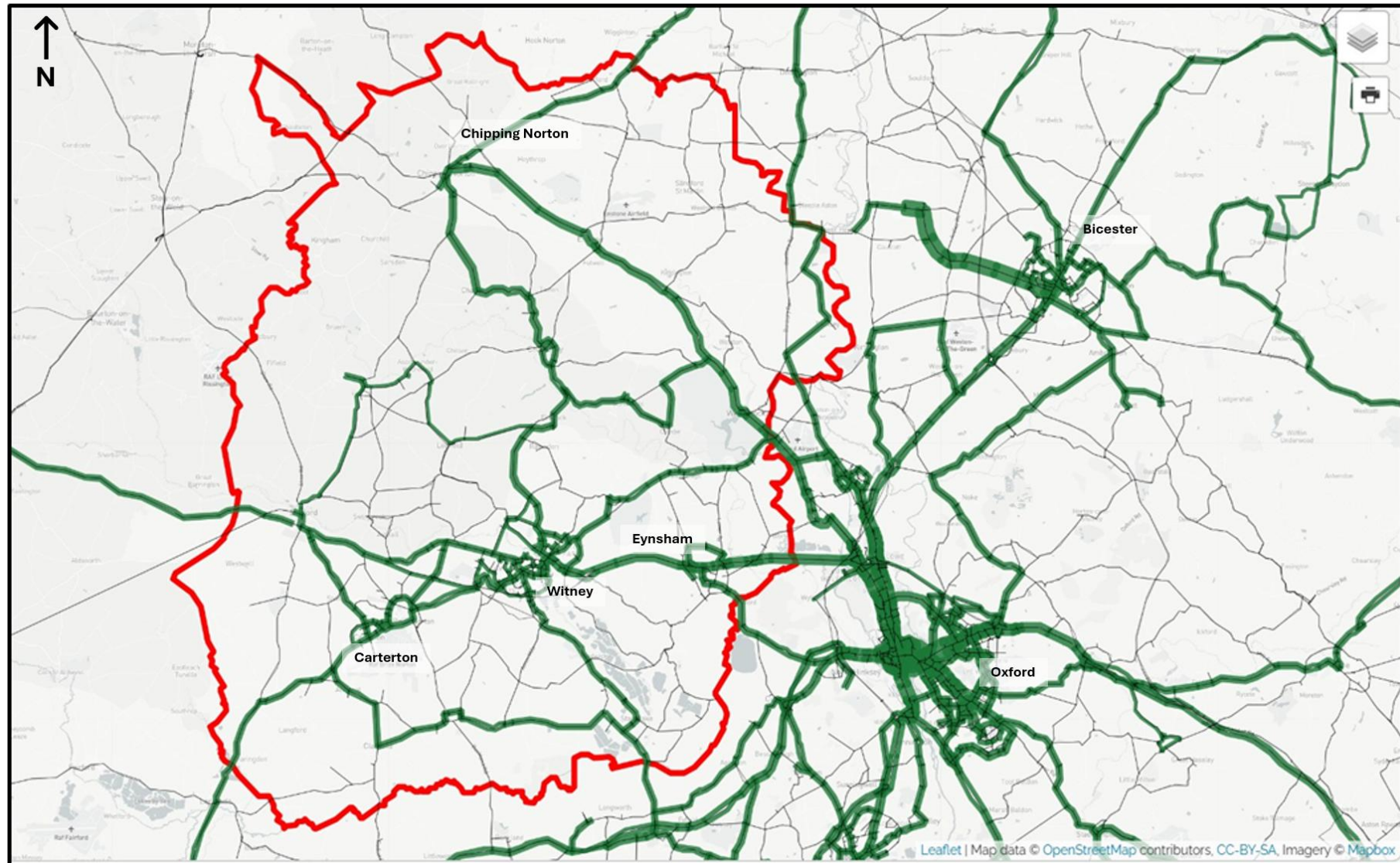
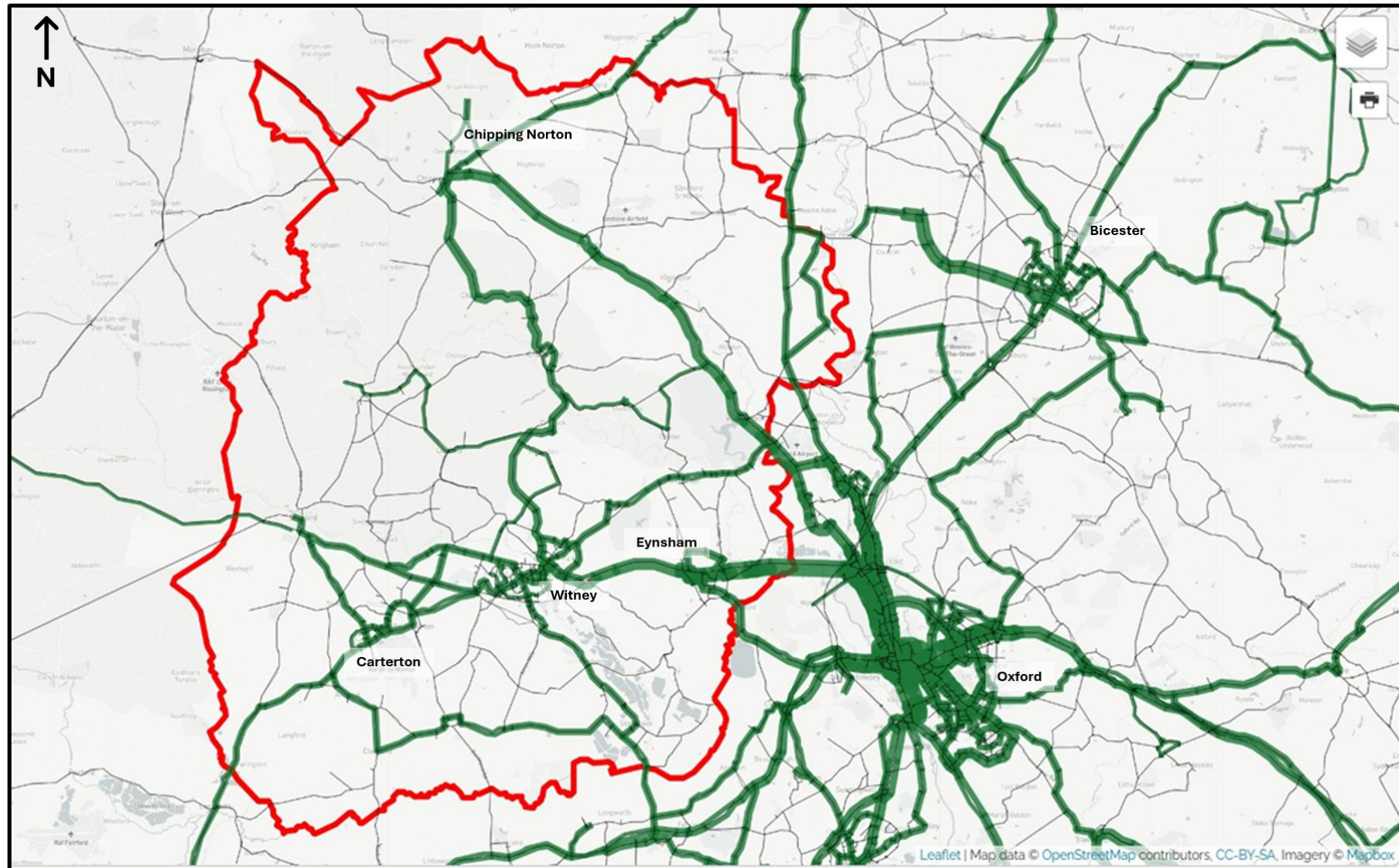


Figure 4-15 – PM Peak – modelled bus patronage 2043 Reference Case



4.4 Summary of 2043 Reference Case

- 4.4.1 The 2043 Reference Case scenario model forecasts that there is likely to be significant growth in travel demand across West Oxfordshire, regardless of any new sites proposed to be brought forward in the emerging Local Plan 2043. It should, be recognised, that a substantial proportion of this growth is expected to arise from housing and development already committed within the adopted Local Plan, particularly at Witney and Eynsham. Due to congestion on sections of the A40, this demand is, in some cases, forecast to result in traffic routing via other local roads, including through some rural areas of West Oxfordshire rather than using the main road network. This is also driven by the balance of growth between West Oxfordshire and other parts of Oxfordshire: with imbalanced growth in both housing in West Oxfordshire and in employment and other trip attractors, particularly in Cherwell, Oxford City and Vale of White Horse. This is forecast to result in an increase in external trips to destinations across Cherwell and the other districts.
- 4.4.2 Although there is significant growth in travel demand overall, there are indications that the strategic outcomes sought from committed and proposed infrastructure schemes will deliver as intended. Notably, the A40 improvements, including junction upgrades lead to reductions in the journey time on the A40 locally, even as the demand to use the corridor continues to grow. The A40 Access to Witney (Shores Green) new slip roads and proposed North Witney, Northern Distribution Road are forecast to route more traffic via Jubilee Way and Oxford Hill to use the A40 to the south of Witney and to reduce car trips through Witney town centre. The public transport improvements encourage less driving in population centres and result in small but noticeable shifts towards the use of buses and P&R.

5. West Oxfordshire Local Plan Scenarios

5.1 Introduction

- 5.1.1 The Local Plan 2043 scenarios represent the current thinking on the additional development and potential interventions to support the additional growth. The development is included on top of the Reference Case scenario demand and comparisons can be made back to the Reference Case or between scenarios to help understand and evaluate the impacts.

Overall housing and employment growth

- 5.1.2 Table 5-1 summarises the additional dwellings and jobs included in all the Local Plan scenarios to 2043. An additional 8,587 dwellings and 2,582 jobs are considered within West Oxfordshire on top of the development within the Reference Case scenario. Growth assumptions for other districts are unchanged.

Table 5-1 – Local Plan growth

Entity	Reference Case (Adopted Local Plan)	New Local Plan (DS) scenarios	Difference: Local Plan Development
Dwellings	16,089	24,676	8,587
Jobs	10,304	12,886	2,582

Spatial strategy and sites

- 5.1.3 Most of the additional dwellings proposed are concentrated within eight strategic development sites, as shown in Table 5-2, with the remaining dwellings located at various locations across the district with smaller quantum. Note that West Eynsham has additional dwellings as part of the New Local Plan above those that are in the adopted Local Plan. Additional jobs are located at two sites: Carterton and Enstone.

Table 5-2 – Local Plan development sites

Local Plan site	Type	Dwellings	GFA (sq m)
Witney Site A	Strategic	700	
Witney Site B	Strategic		40,000
Witney Site C	Strategic	700	
Witney Site D	Strategic	700	
Carterton Site E	Strategic	400	
Carterton Site F	Strategic	2,000	
Carterton Site G	Strategic		40,000
Carterton Site H	Strategic	2,000	
Carterton Site I	Strategic	800	
Hanborough Site K	Strategic	300	



Local Plan site	Type	Dwellings	GFA (sq m)
Bampton and Aston L	Non-Strategic	150	
Bampton and Aston M	Non-Strategic	40	
Burford Site N	Non-Strategic	70	
Charlbury Site O	Non-Strategic	40	
Charlbury Site P	Non-Strategic	40	
Ducklington Site Q	Non-Strategic	40	
Kingham Site R	Non-Strategic	70	
Middle Barton Site S	Non-Strategic	80	
Standlake Site T	Non-Strategic	200	
Tackley Site U	Non-Strategic	70	
Enstone Site V	Strategic		40,000
West Eynsham (additional)	Non-Strategic	187	
Total		8,587	120,000

5.2 New Local Plan 2043 scenarios modelled

5.2.1 Three West Oxfordshire Local Plan (WOLP) 2043 scenarios have been considered:

- WOLP2043 Scenario 1 (DS1) – Reference Case plus emerging West Oxfordshire Local Plan 2043 allocations, with 'Do Minimum' transport mitigation measures (focused on providing site access only).
- WOLP2043 Scenario 2 (DS2) – WOLP2043 scenario 1 plus a package of active travel and bus based public transport and highway mitigation measures.
- WOLP2043 Scenario 2 (DS3) – WOLP2043 scenario 1 plus a package of active travel and transport mitigation measures including a new mass rapid transit (MRT) corridor.

5.2.2 The level of demand is consistent across all three Local Plan scenarios. Figure 5-1 shows the location of the transport infrastructure schemes that are included in the Local Plan scenarios, with further detail in Table 5-3.

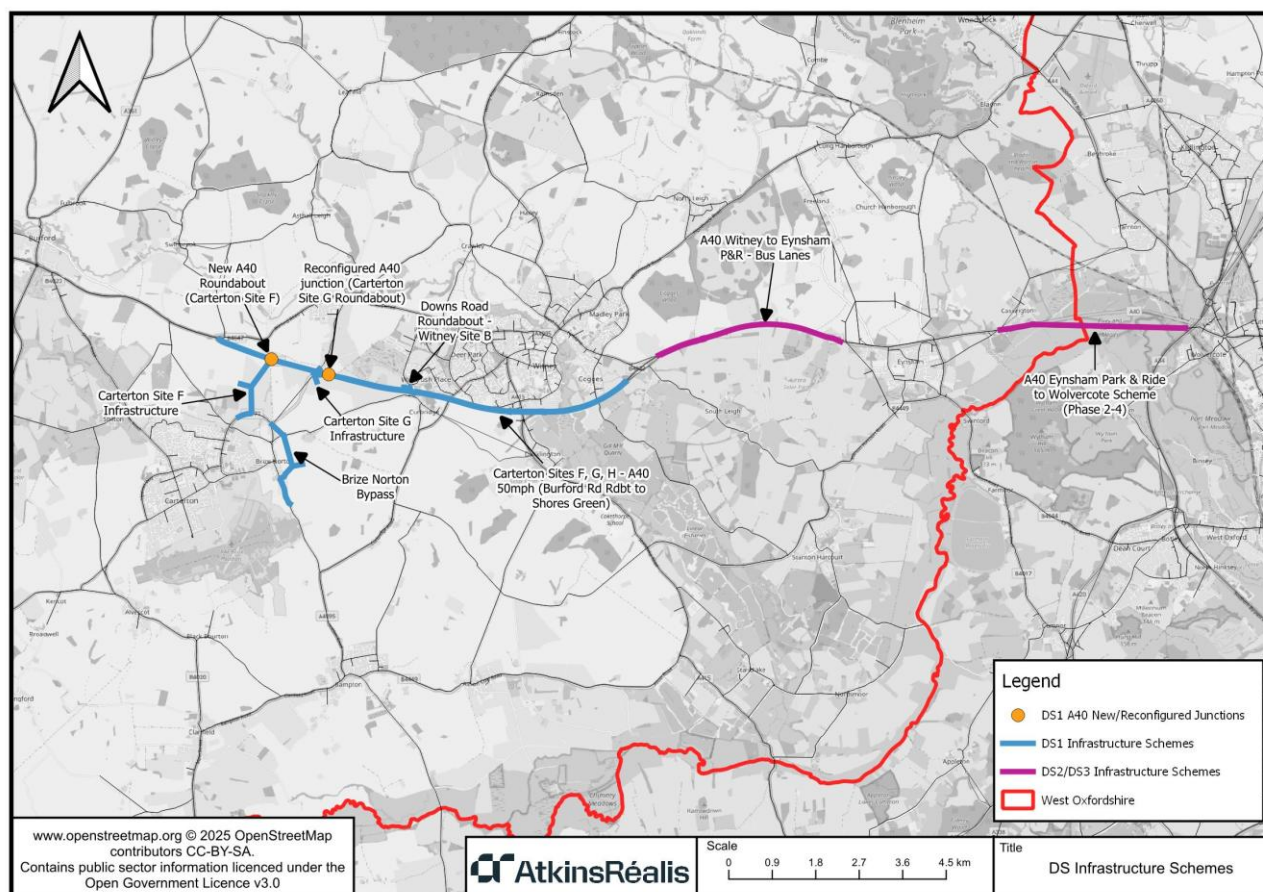
Table 5-3 – Do Something infrastructure schemes

Infrastructure Schemes & Description	DS1	DS2	DS3
A40 New Access:			
Carterton Site F: New Access Junction A40 Roundabout	✓	✓	✓
A40 New Access:			
Carterton Site G: Reconfigured A40 Junction Access	✓	✓	✓
Site Access Infrastructure:			
Carterton Site F	✓	✓	✓
Site Access Infrastructure:			
Carterton Site G	✓	✓	✓



Infrastructure Schemes & Description	DS1	DS2	DS3
Downs Road Roundabout: Modifications to provide access to proposed Witney Site B	✓	✓	✓
Brize Norton Bypass: Through proposed sites Carterton G & H	✓	✓	✓
A40 Speed Limits: Carterton Sites F, G, H - A40 50mph (Burford Road Roundabout to Shores Green)	✓	✓	✓
A40 Witney to Eynsham P&R: Eastbound and Westbound Bus Lanes between Witney Shores Green and west of Eynsham P&R (West Eynsham/Salt Cross)	x	✓	✓
A40 Eynsham P&R to Wolvercote (Phase 2-4): Eastbound Bus Lanes Between Cassington Signals and Duke's Cut Westbound Bus Lane on Approach to Cassington Signals (from Horsemere Lane) HIF2 Full Scheme Speed Limits (Extend 40mph section further east of Cassington)	x	✓	✓

Figure 5-1 – Future year DS schemes in / near West Oxfordshire



Local Plan Do Something 1 (DS1) Scenario or ‘Do Minimum’ Mitigation Scenario

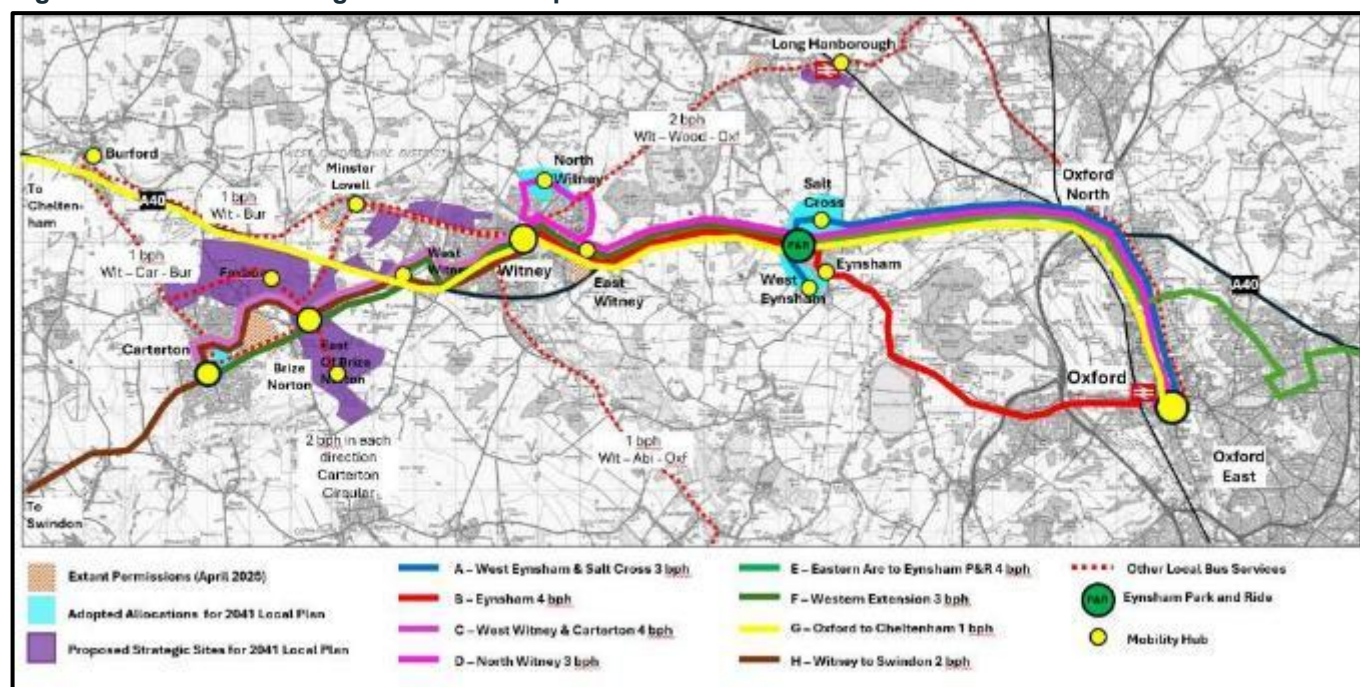
- 5.2.3 Within the Do Minimum mitigation scenario (DS1) only the highway infrastructure to access and serve the Local Plan development sites is included, in particular Brize Norton bypass is included. The

Carterton sites also introduce additional infrastructure improvements. Site F includes a new road linking the A40 and the B4477. As part of this, a new roundabout is proposed on the A40 east of Burford Road. Site G also results in the reconfiguration of the existing A40 junction at Brize Norton Road, where a new roundabout is provided. These developments also see a reduction in speed limits along the A40 between Burford Road and Shores Green, ensuring safety is maintained given the increased number of junctions along this corridor. These are shown by the blue lines in Figure 5-1. There are no changes to other bus or highway infrastructure and no changes to the bus service provision from the Reference Case (shown in Figure 3-3). This represents a worst case assessment and is not a scenario that would be acceptable to the local authorities. It does however allow the impacts of the proposed new development to be isolated and assessed.

Local Plan Do Something 2 (DS2) Scenario - With Enhanced Active Travel and Bus Mitigation

- 5.2.4 An enhanced mitigation Package is represented in Scenario 2 (DS2). It is developed from DS1 with the inclusion of active travel, additional bus lanes on the A40 and an enhanced level of bus service provision across West Oxfordshire. Active Travel mitigation is also considered as a supplementary step in the modelling process as set out below.
- 5.2.5 In addition to the bus lanes between Eynsham Park & Ride and Cassington (as part of the A40 Eynsham Park & Ride to Wolvercote scheme phase 1) additional bus lanes will be implemented between Cassington and Wolvercote and between Eynsham and Witney giving an almost continuous bus lane between A40 Shores Green to Wolvercote in an inbound direction and a near continuous bus lane in the outbound direction from Cassington to Witney.
- 5.2.6 The main change to bus provision is the increase in frequency of services. The A40 east of Eynsham would see the greatest increase in number of buses per hour due to the number of services on the corridor. There is an additional local service that connects the developments at Brize Norton and Foxbury to the main mobility hubs. The bus provision is summarised in Figure 5-2.

Figure 5-2 – Do Something 2 Scenario bus provision



Active travel

- 5.2.7 Because OSM does not represent walking and cycling, a separate methodology was developed in 2020 as part of the Connecting Oxford programme to provide an evidence-led, standalone indication of the likely shift from car to cycling with the provision of specific active travel measures. The work focused on understanding car trip lengths and identifying the shorter journeys that are most plausible to convert to cycling with additional facilities provided.
- 5.2.8 The approach first establishes how trip length varies by mode using three complementary sources: Census Journey to Work data, the National Travel Survey, and car trip patterns from the OSM. These datasets are reviewed side-by-side to check that the model's car trip-length profile is broadly consistent with independent evidence, and to highlight where short car trips are most prevalent and therefore most amenable to mode shift.
- 5.2.9 The assessment of cycling uplift follows established Department for Transport appraisal guidance for active modes, using a disaggregate mode choice (logit) method to reflect how improvements in cycling conditions increase the attractiveness of cycling relative to other options. A key principle is that not everyone will consider cycling: the analysis therefore distinguishes between current cycling levels by trip length (from Census data) and an evidence-based 'maximum potential' share of people who might be willing to cycle, informed by the DfT's Propensity to Cycle Tool scenarios. The method then estimates how far current cycling sits below this maximum potential and forecasts the additional uptake that could be achieved if cycling becomes more comfortable and safer.
- 5.2.10 To represent infrastructure improvements, three broad intervention types were tested - off-road cycle tracks, segregated on-road cycle lanes, and non-segregated on-road cycle lanes - each of which increases the perceived attractiveness of cycling even where journey times are assumed comparable. The resulting uplift in cycling by trip-length band is translated into a corresponding reduction in car trips and applied to OSM car demand (for key trip purposes and movements to, from and within Oxford), producing revised car demand inputs suitable for scenario testing. Table 5-4 summarises these factors by distance band. There is a cut-off at a distance of 10 miles.

Table 5-4 – Estimated shift from car to cycling by distance band

Distance	<1 mile	1-2 miles	2-3 miles	3-5 miles	5-10 miles	10-15 miles	15-25 miles	25-35 miles	35 miles +
Average	-12%	-17%	-11%	-8%	-1%	0%	0%	0%	0%

- 5.2.11 This is an indicative estimate rather than a route-specific forecast: it assumes a broad improvement in cycling conditions rather than corridor-by-corridor design, and it does not fully quantify additional behavioural responses that could arise from other scheme elements such as traffic restrictions and bus priority. Accordingly, the outputs should be interpreted as an order-of-magnitude guide for early appraisal and impact assessments, with more detailed modelling and scheme/development-specific assessment recommended for subsequent stages.
- 5.2.12 This methodology was applied to the DS2 and DS3 Local Plan mitigation scenarios as the expectation is that developers would be required to improve active travel connectivity between the major developments and nearby settlements delivering significant active travel infrastructure, with improvements focused on the tier 1 (principal towns) and tier 2 (service centres) settlements set out in the Preferred Spatial Options consultation plan. As limited development is proposed for the Burford and Charlbury settlements these areas were excluded from the area of active travel improvements. The following schemes included in model scenarios also include specific provision to enhance active travel:

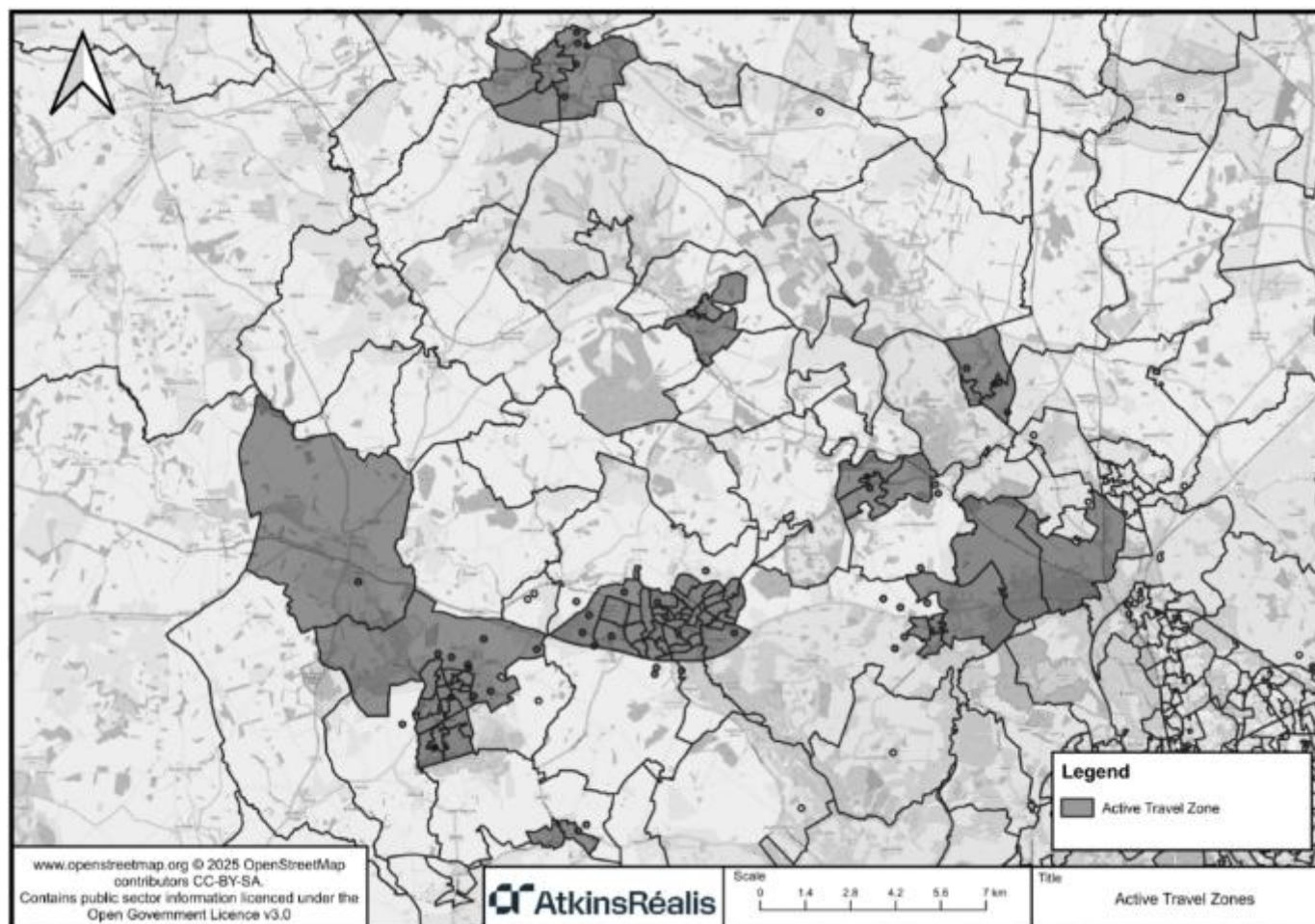
- A40 Eynsham Park & Ride to Wolvercote Scheme (Phase 1-5) – upgrade cycle paths.



- Bus lanes along the A40 between Witney and Eynsham.
- Bus-only access along Witney Road between Downs Road and Minster Road.
- Lower Road - Active travel routes between Eynsham and Long Hanborough Station.

5.2.13 The areas over which the active travel enhancements have been assumed to apply in the mitigation package is shown in Figure 5-3. Trips to, from and within these areas up to 10 miles will benefit from the provision of new infrastructure with the largest impact for the shortest trips.

Figure 5-3 – Active travel enhancement areas of impact

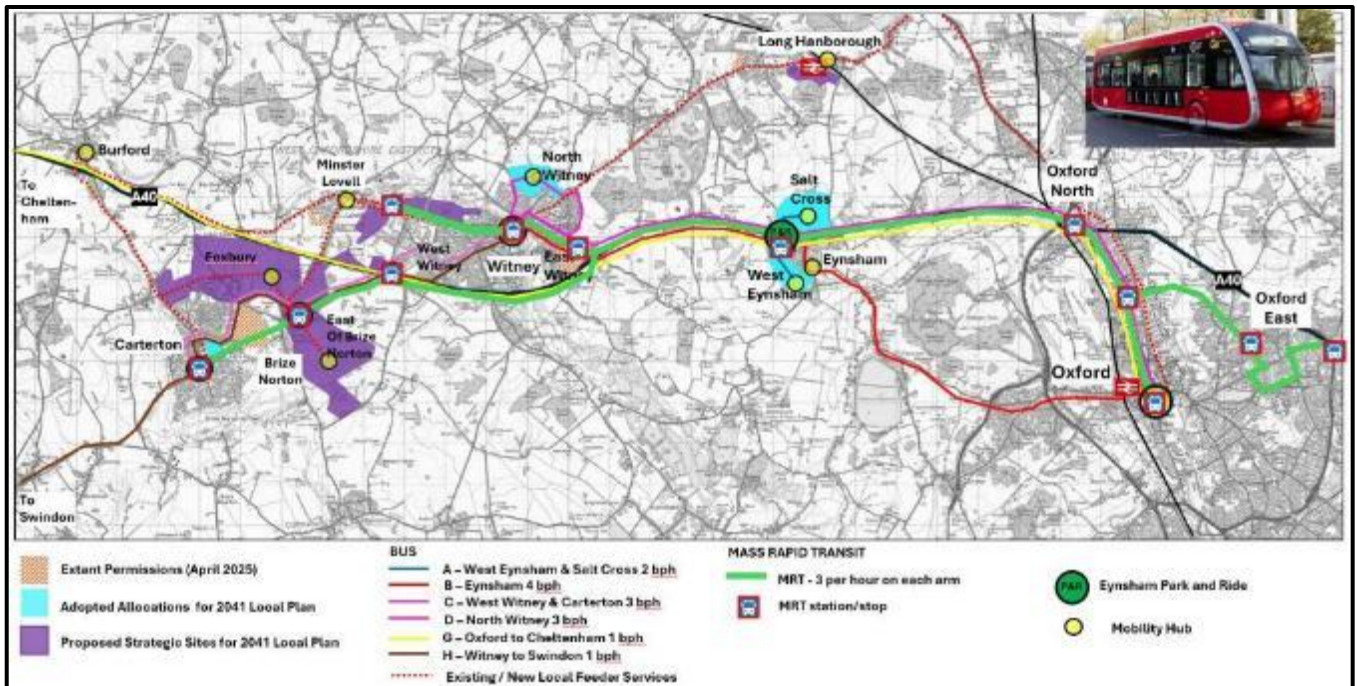


Local Plan Do Something 3 (DS3) Scenario - With Enhanced Active Travel, Bus and MRT Mitigation

- 5.2.14 A further potential mitigation Package 2 is represented in Scenario 3 (DS3). It is developed from DS2 with the replacement of bus services E and F with a potential MRT service scenario. The active travel assumptions applied in DS2 are also applied in the same way to the same settlements.
- 5.2.15 There are two branches; the Carterton branch will have one bus per hour that serves the Eastern Arc and two buses per hour to the city. Likewise, the Witney/Minster Lovell branch will have one bus per hour serving the Eastern Arc and two buses per hour to the city. The MRT service stops less frequently than the bus services it is replacing as it only stops at the mobility hubs. Within the OSM, the MRT has reduced wait times reflecting improved timetabling. Both features help to reflect improved reliability. The frequencies of some other complementary bus services are reduced. The bus lanes considered within

DS2 are also present in DS3. Figure 5-4 shows the MRT service provision and the frequency of all services.

Figure 5-4 – Scenario 3 bus provision



5.3 West Oxfordshire Local Plan 2043 Do Something 1 (DS1) Scenario: ‘Do Minimum’ Mitigation - Impact

Demand by mode

5.3.1 Across the 12-hour period from 07:00 to 19:00, the modelled flows (person trips) are:

- 212,080 trips by car beginning in West Oxfordshire.
- 209,547 trips by car ending in West Oxfordshire.
- 117,902 trips by car both beginning and ending within West Oxfordshire.
- 8,278 bus trips beginning in West Oxfordshire.
- 9,636 bus trips ending in West Oxfordshire.
- 4,118 bus trips both beginning and ending in West Oxfordshire.
- 3,843 rail trips beginning in West Oxfordshire.
- 4,072 rail trips ending in West Oxfordshire.
- 631 rail trips both beginning and ending in West Oxfordshire.

5.3.2 Compared against the Reference Case scenario, there is substantial growth in trips to, from and within West Oxfordshire, with approximately 18% more trips by car to or from West Oxfordshire, and 32% growth in car trips within West Oxfordshire. There is approximately 9% growth in public transport trips to or from West Oxfordshire, and 17% growth within West Oxfordshire, with more growth in rail trips than bus trips.

- 5.3.3 This increase in local travel demand is accompanied by a more nuanced change in through movements. Overall, through trips continue to grow by approximately 9% across all time periods, primarily driven by an increase in short-distance through movements (e.g. localised crossings), indicating that external demand remains a component of future network pressure. However, this growth is not uniform across the network. In particular, through movements along the A40 reduce substantially (by up to 25% in the AM peak), while more modest reductions are observed for wider end-to-end movements (approximately 2%). This suggests that the introduction of Local Plan growth leads to a redistribution of through traffic, with less reliance on the A40 corridor and a greater dispersal of flows across the network. As such, the overall increase in through trips reflects more localised movements, offsetting reductions in longer-distance trips and those using the A40 corridor. Overall, while overall demand increases, the pattern of movement shifts, reflecting interactions between local growth and route choice.
- 5.3.4 The modelled mode shares for the trips over the 12 hours starting in West Oxfordshire compared to those in the full model are shown in Table 5-5. Mode share is presented as a percentage with changes relative to the Reference Case presented in percentage points. The rural nature of much of Oxfordshire limited use of public transport with 89.1% of all trips modelled being made by car. West Oxfordshire has a slightly higher car mode share of 93.7%. DS1 mode share is comparable to the Reference Case: there is a slight increase in the proportion of car travel in West Oxfordshire.

Table 5-5 – Mode share for trips starting in West Oxfordshire and Full Model, 12-hour: 07:00-19:00

Mode	West Oxfordshire		Full Model	
	DS1 (%)	Change from Ref Case (pp)	DS1 (%)	Change from Ref Case (pp)
Car	93.7%	0.5%	89.1%	0.1%
Bus P&R	1.0%	-0.3%	0.9%	-0.1%
Bus	3.7%	-0.2%	7.0%	0.0%
Rail	1.7%	0.0%	3.0%	0.0%
Total	100.0%	-	100.0%	-

- 5.3.5 The additional developments included in the DS1 scenario result in mode shares that are broadly consistent with the average mode shares observed in the Reference Case scenario.
- 5.3.6 Across both scenarios, Witney and Carterton exhibit the highest car mode shares, remaining above the West Oxfordshire average, because many trips are within West Oxfordshire or to Cherwell and the Vale of the White Horse, rather than to Oxford City where there are better public transport options. Eynsham has nearly 10% bus share as a higher proportion of the trips are to and from Oxford city. This is likely because a significant proportion of trips from these areas are destined for neighbouring districts such as Cherwell and the Vale of White Horse, where public transport connections are less direct and often require interchange. As a result, these longer-distance external trips are more likely to be undertaken by car.
- 5.3.7 In the DS scenario, the additional development Enstone Site V shows a similarly high car mode share (96%).
- 5.3.8 For trips within West Oxfordshire, the car mode share is slightly higher than in Reference Case, with an average of 93%.

- 5.3.9 Table 5-6 shows the total car arrivals by Park & Ride (P&R) site in the Local Plan: DS1/Do Minimum Mitigation scenario, and the change against the Reference Case scenario. The P&R sites are not constrained in OSM to their capacity, so this table shows the aspirational P&R use.

Table 5-6 – Car Arrivals by P&R site in DS1, AM period: 07:00-10:00

P&R Site	DS1	Change from Ref Case
Redbridge	2,295	12
Seacourt	731	-55
Peartree	396	-9
Water Eaton	399	10
Thornhill	695	-21
Eynsham	1,250	-114
Airport	327	7

- 5.3.10 The P&R demand remains largely steady; the most notable decrease in car arrivals is at the Eynsham P&R site, although this values still far exceeds the proposed capacity of the site, shown in Table 4-4.

Travel patterns

- 5.3.11 The interaction between West Oxfordshire, the other districts in Oxfordshire and the rest of the country is shown in Table 5-7. Destination share is presented as a percentage with changes relative to the Reference Case presented in percentage points. Over half (54.2%) of the modelled car and public transport journeys starting in West Oxfordshire also end within the district, 5.4 percentage points higher than in the Reference Case. The higher proportion of internal trips reflects the increased supply of both homes and jobs within West Oxfordshire. In particular, the Local Plan includes three employment sites, creating additional jobs within the district and allowing more residents to meet their travel needs locally, thereby increasing the proportion of journeys that start and end within West Oxfordshire. With the Local Plan sites in place, 12.6% of trips are estimated to travel to/from areas outside of Oxfordshire, 2.5 percentage points lower than the Reference Case.

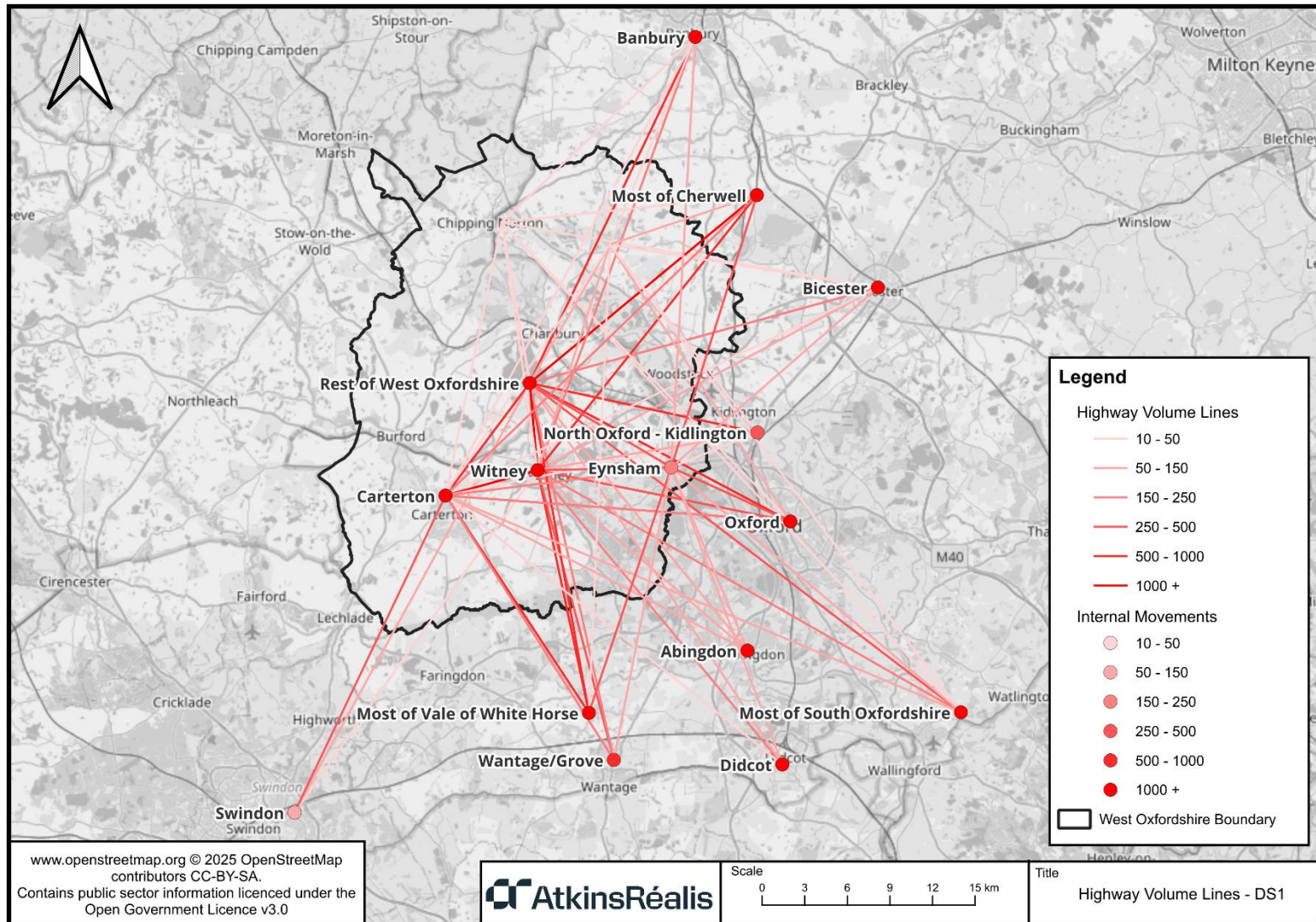
Table 5-7 – Destination share for trips starting in West Oxfordshire and Full Model, 12 hour: 07:00-19:00

District / area	Destination share	
	DS1 (%)	Change from Ref Case (pp)
Oxford City	9.2%	-1.1
Cherwell	11.6%	-1.1
Vale of White Horse	9.5%	-0.4
South Oxfordshire	3.0%	-0.2
West Oxfordshire	54.2%	5.4
Rest of Great Britain	12.6%	-2.5
Total	100.0%	-

- 5.3.12 Figure 5-5 provides a more detailed breakdown of the travel patterns and shows the volume of highway trips, that start or end within West Oxfordshire in the AM peak. The darker the colour of the line the more trips are forecast to be making the movement. Within West Oxfordshire, the figure shows large volumes between Witney, Carterton and the rest of West Oxfordshire (identifiable by the dot in the centre of the West Oxfordshire boundary). Eynsham shows a lower number of internal highway movements than the other sectors. The figure shows large volumes to zones outside of West Oxfordshire, including Cherwell, Oxford City.
- 5.3.13 Appendix D provides plots that show the volumes of highway trips for the development zones in Eynsham, Witney and Carterton. Highway volumes to/from Witney development zones are strongest between development zones within Witney, and the rest of West Oxfordshire. Highway volumes to/from Eynsham development zones are strongest to Witney, Oxford City, Cherwell, most of Vale of White Horse and the rest of West Oxfordshire. Highway volumes to/from Carterton development zones are strongest between development zones within Carterton, the rest of West Oxfordshire, Witney and Oxford City.



Figure 5-5 – AM Peak – highway volumes lines Local Plan DS1 Scenario: Do Minimum Mitigation



Network impacts

Network performance

5.3.14 Table 5-8 presents the forecast year network statistics from the Local Plan 2043: DS1 Do Minimum Mitigation scenario for all modelled roads in Oxfordshire, as shown in Figure 2-3, and the change compared with the 2043 Reference Case scenario. Table 5-9 presents the corresponding statistics for only the roads modelled in West Oxfordshire, while Table 5-10 presents the same for the A40 Corridor from Burford to the Wolvercote Roundabout. These are presented for all car trips in West Oxfordshire across the 12-hour period from 07:00 to 19:00, with the total on the roads also including LGV and HGV trips. Figure 2-3 shows the full extent of the roads considered, with those inside the West Oxfordshire border being used to provide the West Oxfordshire statistics.

Table 5-8 – Key highway network statistics – All of Oxfordshire

Metric	DS1		%Change from Ref Case	
	Car	All vehicles	Car	All vehicles
Total Travel Time (hr)	366,700	446,400	3.2%	2.8%
Cruise Time (hr)	308,500	377,100	2.8%	2.3%
Delay (hr)	58,200	69,400	5.6%	5.5%
Delay (sec per km)	10.3	9.9	4.0%	3.1%
Total Distance (km)	20,369,800	25,196,300	1.9%	1.5%
Average Speed (km/h)	55.5	56.4	-1.2%	-1.2%

Table 5-9 – Key highway network statistics – West Oxfordshire

Metric	DS1		% Change from Ref Case	
	Car	All vehicles	Car	All vehicles
Total Travel Time (hr)	63,000	77,900	12.5%	10.5%
Cruise Time (hr)	55,000	67,600	11.6%	9.4%
Delay (hr)	8,000	10,300	19.4%	18.4%
Delay (sec per km)	9.5	9.9	10.5%	11.2%
Total Distance (km)	3,048,400	3,746,500	8.6%	6.6%
Average Speed (km/h)	48.4	48.1	-3.4%	-3.6%

Table 5-10 – Key highway network statistics – A40 Corridor

Metric	DS1		% Change from Ref Case	
	Car	All vehicles	Car	All vehicles
Total Travel Time (hr)	13,300	16,900	11.8%	9.0%
Cruise Time (hr)	11,200	14,200	10.9%	7.6%
Delay (hr)	2,100	2,700	16.7%	17.4%
Delay (sec per km)	11.7	11.7	15.8%	15.8%
Total Distance (km)	648,600	821,000	2.7%	0.3%
Average Speed (km/h)	48.7	48.6	-8.3%	-8.1%

5.3.15 The statistics reflect the large increase in growth in trips within West Oxfordshire due to the addition of the 2043 Local Plan sites, with comparatively small increases in travel distance and time across the whole model, and larger increases in West Oxfordshire. These are also reflected along the A40 with increases in delay on the A40 showing it is still highly congested on many sections.

A40 travel times by section

5.3.16 Table 5-11 sets out the average journey time along the A40 in the eastbound direction. Table 5-12 sets out the corresponding data for the westbound direction, with the sections listed in reverse. Journey time data shows significant increases between Burford and Witney in each direction and in all peak periods (circa 20% increase) due to a combination of additional development traffic from the Carterton and Witney Local Plan sites and their associated infrastructure provision. The added infrastructure includes the introduction of two new roundabouts on the A40, which increase delay, as well as the implementation of a 50mph speed limit from Burford Road (north of Carterton) to Shores Green (south-east of Witney), reducing travel speeds along the corridor. A significant increase (circa 23%) is observed in the eastbound direction between Cassington and Wolvercote Roundabout in the AM peak, due to a large increase in delay at A40/Canalside Quarter Junction (Wolvercote). The V/C ratio at the junction exceeds 100% capacity in both scenarios, therefore a small increase in flow results in a significant increase in delay. A significant increase in delay is observed between Cassington and Eynsham P&R in the westbound direction in the PM peak, this is the result of capacity issues at Eynsham Roundabout, an increase in flow of circa 130 vehicles pushes the V/C ratio to over 100% capacity resulting in a large increase in delay.

Table 5-11 – A40 Eastbound journey time change from 2043 Ref Case to 2043 DS1 (minutes)

Journey time route section	Do Something 1			%Change from Ref Case		
	AM	IP	PM	AM	IP	PM
Section 1 - Burford to Witney (Ducklington Lane)	12.4	8.8	9.1	18%	18%	17%
Section 2 - Witney to Eynsham P&R	9.6	8.1	8.4	5%	6%	5%
Section 3 - Eynsham P&R to Cassington	6.0	4.9	5.5	11%	1%	0%
Section 4 - Cassington to Wolvercote Rdbt	8.2	6.7	7.2	23%	1%	-7%
Full Route	36.2	28.4	30.1	14%	7%	4%



Table 5-12 – A40 Westbound journey time change from 2043 Ref Case to 2043 DS1 (minutes)

Journey time route section	Do Something 1			%Change from Ref Case		
	AM	IP	PM	AM	IP	PM
Section 4 - Wolvercote Rdbt to Cassington	5.5	5.2	5.5	-1%	1%	4%
Section 3 - Cassington to Eynsham P&R	5.6	4.8	6.4	-3%	2%	25%
Section 2 - Eynsham P&R to Witney	9.0	8.0	9.2	6%	8%	7%
Section 1 - Witney (Ducklington Lane) to Burford	8.8	8.8	9.3	22%	19%	21%
Full Route	28.8	26.8	30.4	7%	9%	14%

Highway flow and delay

5.3.17 All figures in this section show the West Oxfordshire district boundary as a red line for context.

Flow

5.3.18 Figure 5-6 to Figure 5-8 show the change in flow from the 2043 Reference Case scenario to the Local Plan 2043: DS1 scenario. The DS1 scenario includes the proposed local plan sites, which are mainly situated in the vicinity of Witney and Carterton. For this reason, the traffic flow increases are most substantial in those areas. The associated infrastructure between Carterton and the A40, and the Brize Norton bypass are well used to serve the new local plan sites. There is growth in highway trips across the whole of West Oxfordshire, with most of the larger rural routes experiencing small to moderate increases in traffic flow. In the morning peak, the A40 corridor sees localised increases close to Witney, but there are minor decreases to the East of Eynsham, and moderate decreases to the west of the new local plan sites. This results from longer distance trips re-routing because of the increased congestion due to the demand to access the A40 from the new sites, which is shown in increases across the western border of West Oxfordshire on alternative routes. In the interpeak and PM peak, there is still the same pattern of longer distance re-routing, but there are increases in flow around Eynsham.

Delay

5.3.19 Figure 5-9 to Figure 5-11 show the change in link delay from the 2043 Reference Case scenario to the 2043 Local Plan: DS1 scenario. Despite the increases in flow on many rural routes, there are only a few roads on which this leads to an increase in delay. In the AM peak, there is an increase in delay at a junction to the south of Enstone, and on some links across the border with Cherwell and Vale of White Horse. Otherwise, most of the delay increases are around the edges of Witney or along the A40 close to the new local plan sites north of Carterton. The interpeak sees some small increases in delay in similar locations, while the PM peak shows minor increases in delay in Chipping Norton in addition to the locations from the AM peak.

Junction metrics

5.3.20 Junction performance has been assessed for DS1 and compared against the Reference Case to identify those most affected by the additional development. Along the A40, the Canalside Quarter junction experiences the greatest increase in delay in the AM peak (+46 seconds). Other notable impacts along the A40 include Downs Road, where delays increase by 15 seconds in the AM (to a total of 71 seconds), and Eynsham Roundabout, which sees a 17-second increase in the PM (to 41 seconds overall). The proposed new roundabout on the A40 serving Carterton Site F results in delays of approximately 10 seconds in all peaks. Further increases are observed within Witney, particularly at the Bridge Street / High Street / Mill Street junction (AM increase of 22 seconds, to 75 seconds total) and at West End /

Bridge Street (14-second increases in both AM and PM peaks, resulting in total delays of 59 and 75 seconds respectively).

- 5.3.21 V/C ratios along the A40 are generally consistent with those in the Reference Case. The largest increases, approximately 10 percentage points, occur at the proposed new roundabouts serving Carterton Sites F and G; however, although there is a large increase, V/C ratios remain low across all peak periods. In contrast, Witney becomes more constrained under DS1, with several junctions that already exhibited high V/C ratios in the Reference Case approaching capacity. These include West End / Bridge Street, Burford Road / Deer Park Road, and Deer Park Road / Curbridge Road / Thorney Leys.
- 5.3.22 Appendix E provides a summary of delays and V/C ratios for junctions along the A40, as well as other key junctions across West Oxfordshire.

Plots

Figure 5-6 – AM peak – change in flow 2043 Reference Case to 2043 Local Plan DS1

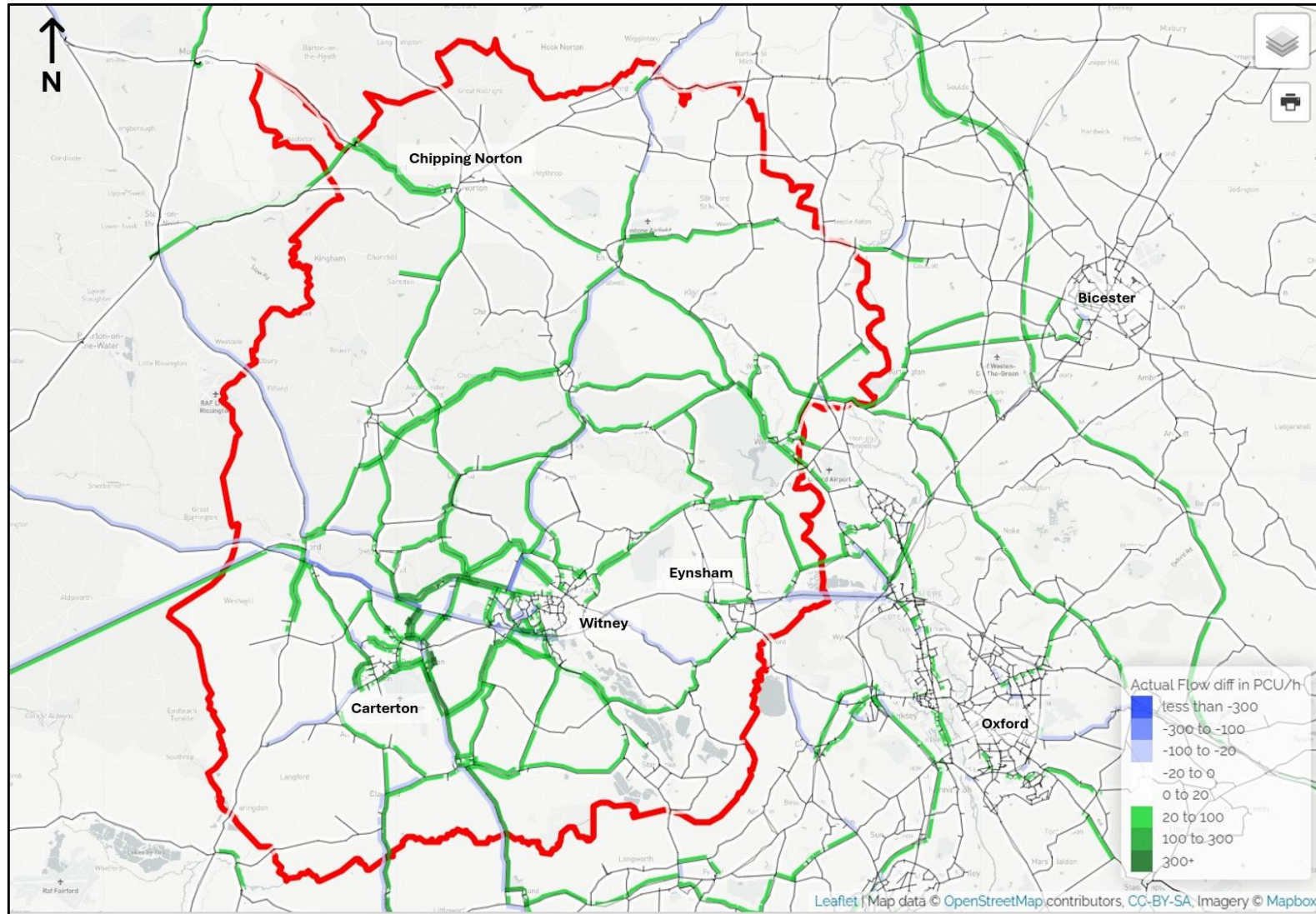


Figure 5-7 – Interpeak – change in flow 2043 Reference Case to 2043 Local Plan DS1

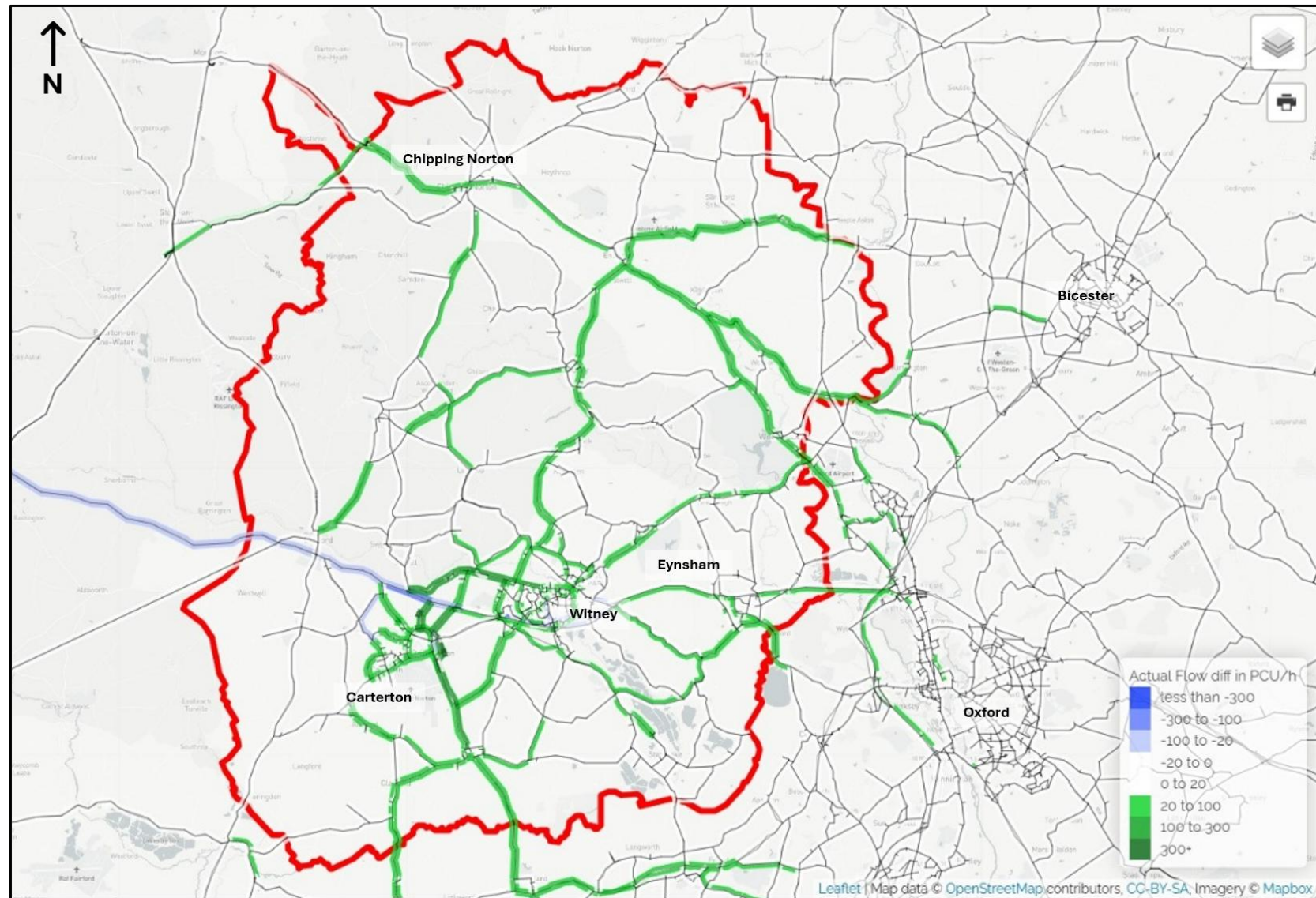


Figure 5-8 – PM peak – change in flow 2043 Reference Case to 2043 Local Plan DS1

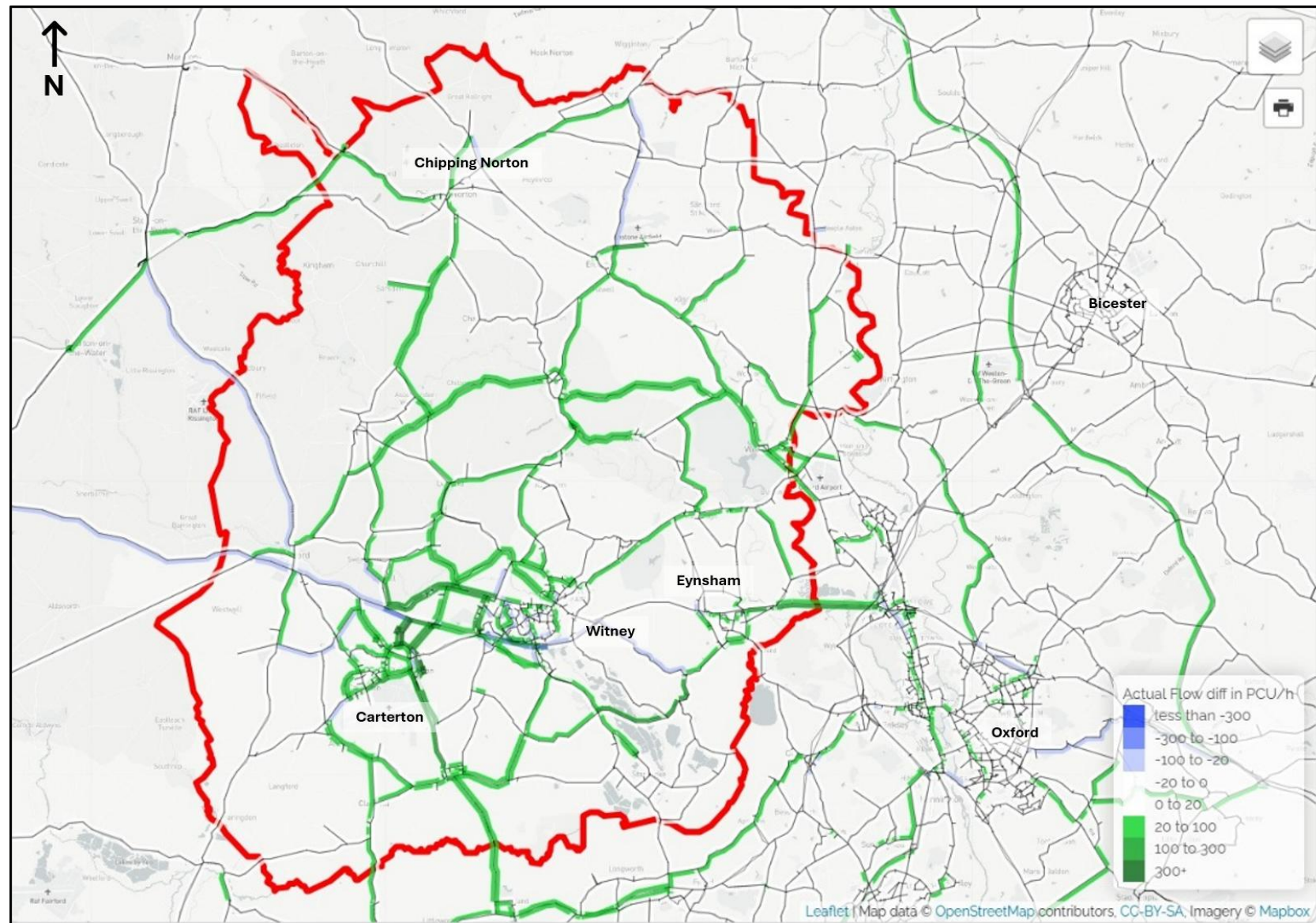


Figure 5-9– AM peak – link delay change 2043 Reference Case to 2043 Local Plan: DS1

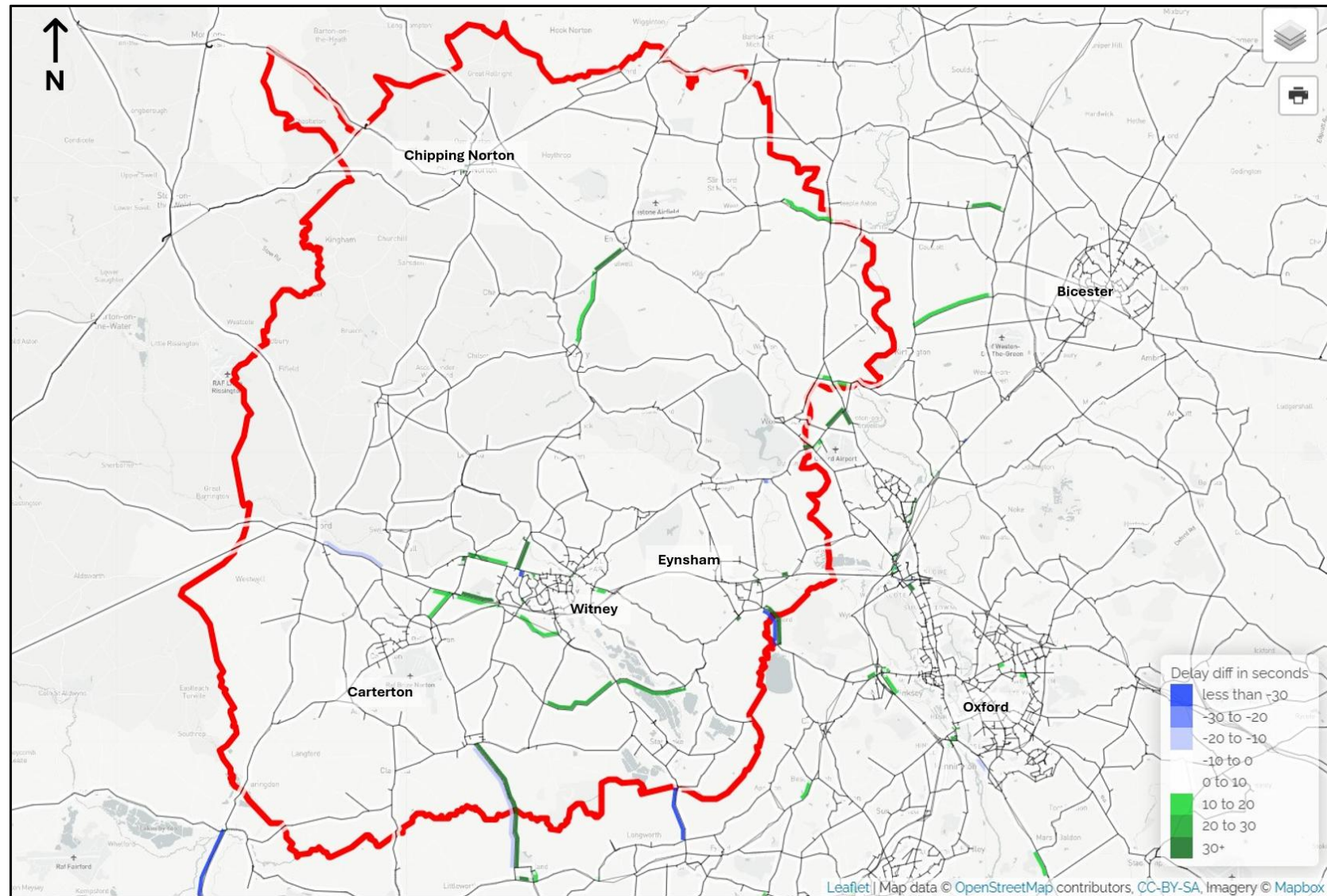


Figure 5-10– Interpeak – link delay change 2043 Reference Case to 2043 Local Plan: DS1

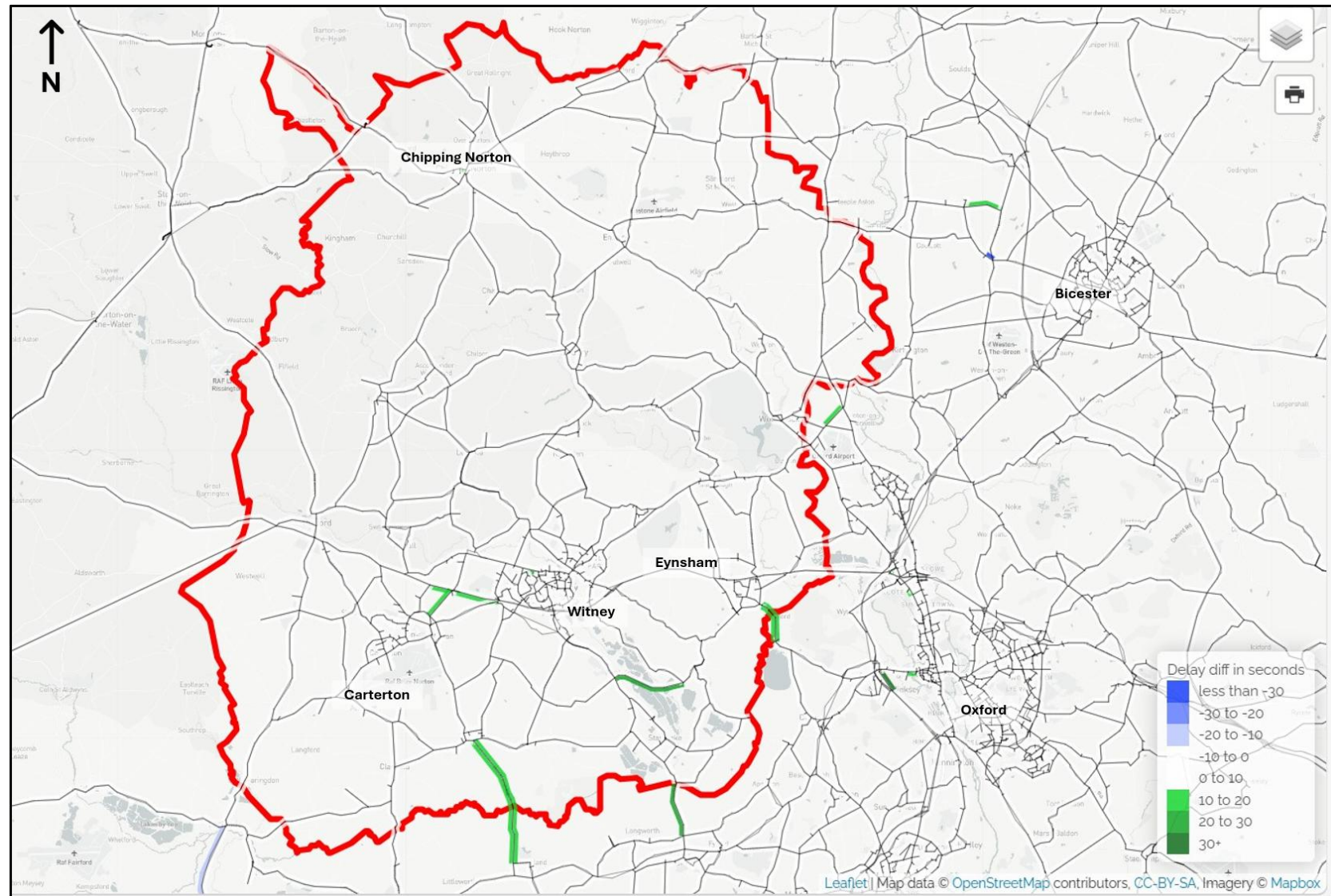
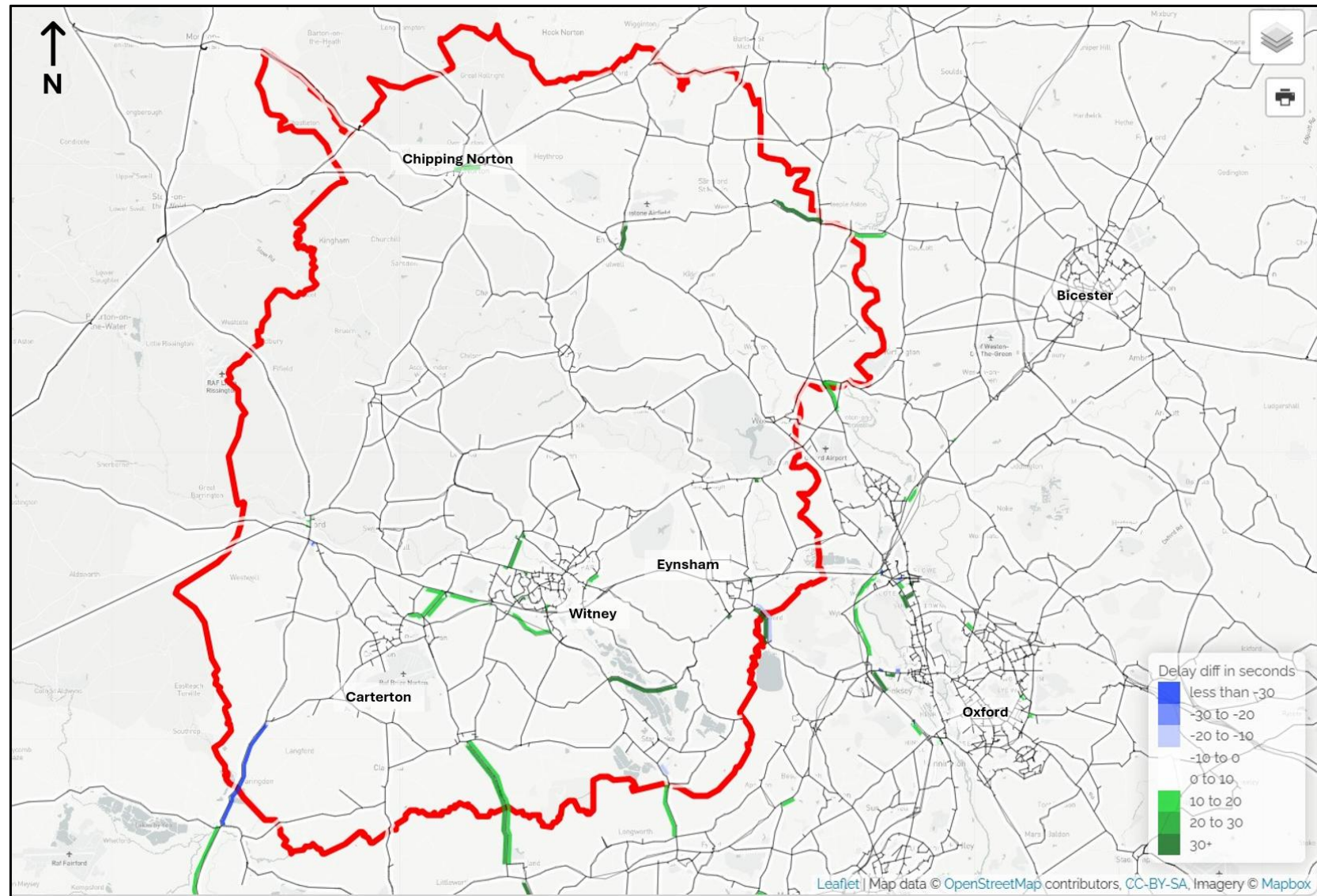


Figure 5-11 – PM peak – link delay change 2043 Reference Case to 2043 Local Plan: DS1



Bus flows and journey times

Patronage

- 5.3.23 Figure 5-12 shows the volumes of public transport trips, that start or end within West Oxfordshire. The figure shows greatest volumes are between Witney and Carterton, Eynsham and Cherwell and between Eynsham and Oxford City. There are also high volumes between West Oxfordshire and Cherwell, Oxford City and South Oxfordshire. Increases to Cherwell reflect an increase in employment in the area.
- 5.3.24 The dot represents a sector e.g. Witney, Carterton; where the dot in the centre of the West Oxfordshire boundary represents the rest of West Oxfordshire, the colour banding on the dot shows how many public transport trips occur within the sector.
- 5.3.25 Figure 5-13 to Figure 5-15 show the levels of bus patronage across West Oxfordshire. As a result of the addition of the new local plan sites, there are increases in bus patronage across most of West Oxfordshire and the surrounding area. In the AM peak, the restriction of Witney Road between Brize Norton and Curbridge to buses leads to large increases in patronage on services there as the services make use of this link and benefit from the dedicated uncongested route. These increases continue through Witney to the Eynsham P&R site and on to destinations in Oxford City and Cherwell. However, there are some reductions on services to Chipping Norton and Charlbury across the Swinford toll bridge and the A40. This is a result of preferable services running along the A44, rather than an overall reduction in demand, and small increases in journey times along the A40 as set out in the following section. These patterns are also seen in the interpeak and PM peak, with a steady reversal of the direction of travel along Witney Road.

A40 Segment Detail

- 5.3.26 This analysis compares highway and bus journey times along the A40 corridor, using data extracted from the variable demand model, pre-active mode adjustment, to ensure a consistent journey time baseline across both model runs. It is expected that highway journeys will generally be faster than bus journeys in sections without dedicated bus infrastructure, due to the impacts of intermediate stops, passenger dwell times, and vehicle deceleration/acceleration affecting bus performance.
- 5.3.27 Table 5-13 shows that compared to the Reference Case, the eastbound DS1 (No Mitigation) scenario shows a slight increase (of less than 1 minute) in journey times for both highway and bus for the inter-peak and evening peaks. The impact is higher in the AM peak where total eastbound travel times increase by around 2-4 minutes. Buses remain generally slower except where bus priority is provided.
- 5.3.28 Table 5-14 shows that for the westbound direction, the DS1 (No Mitigation) scenario results in modest increases in journey times compared to the Reference Case, in the AM and IP periods with a slightly higher increase of around 2-3 minutes in the PM peak (as expected with the direction out of Oxford). These increases are most noticeable on sections where the local plan sites are located, such as A40 (Shores Green) to Witney Centre and A40 (Downs Road) to Carterton, with the development demand, new A40 roundabouts and speed limit reductions resulting in journey time increases. Overall patterns do, however, remain consistent with the Reference Case, with highway journeys generally faster than bus, except where bus priority is present.
- 5.3.29 Consistent with the Reference Case, buses are modelled to operate faster than general traffic in the AM peak for A40 (Shores Green) – Witney Centre due to retained base model factors; this does not affect the validity of comparisons between scenarios.



Table 5-13 – A40 Eastbound journey time 2043 Ref Case and 2043 DS1 (minutes)

Towards Oxford (eastbound)	2043 Reference Case						Do Minimum Mitigation (DS1)					
	AM		IP		PM		AM		IP		PM	
	HY	Bus	HY	Bus	HY	Bus	HY	Bus	HY	Bus	HY	Bus
Carterton - A40 (Downs Road)	10.7	18.4	10.6	18.3	10.7	18.3	11.1	18.8	10.8	18.5	11.0	18.7
A40 (Downs Road) - Witney Centre	7.8	11.2	7.4	10.0	7.4	10.0	8.3	11.7	7.4	10.0	7.4	10.1
Witney Centre - A40 (Shores Green)	7.8	9.6	6.0	8.0	8.9	7.7	8.4	9.8	6.0	8.0	9.5	7.8
A40 (Shores Green) - Eynsham P&R	6.7	11.1	5.3	9.0	5.8	9.6	6.6	11.0	5.3	9.0	5.7	9.5
Eynsham P&R - Cassington*	5.0	2.9	4.4	2.4	4.8	2.6	5.6	3.0	4.4	2.4	4.8	2.6
Cassington - Wolvercote**	7.3	6.2	7.3	6.8	8.3	7.6	8.9	7.1	7.4	6.9	7.8	7.7
Total Carterton - Wolvercote	45.3	59.4	40.9	54.4	45.9	55.8	48.8	61.4	41.2	54.7	46.3	56.2

*Highlight reflects near full bus lane (not through stop line)

**Highlight reflects partial bus lane (Oxford North, approach to Wolvercote)



Table 5-14 – A40 Westbound journey time 2043 Ref Case and 2043 DS1 (minutes)

From Oxford (westbound)	2043 Reference Case						Do Minimum Mitigation (DS1)					
	AM		IP		PM		AM		IP		PM	
	HY	Bus	HY	Bus	HY	Bus	HY	Bus	HY	Bus	HY	Bus
Wolvercote - Cassington	6.0	7.1	5.5	8.1	5.8	8.1	5.9	7.0	5.6	8.2	6.1	8.4
Cassington - Eynsham P&R*	5.3	4.8	4.4	5.1	4.6	5.1	5.1	4.6	4.4	5.1	5.9	6.1
Eynsham P&R - A40 (Shores Green)	5.6	9.7	4.8	9.2	5.7	10.1	5.6	9.7	4.9	9.3	5.8	10.2
A40 (Shores Green) - Witney Centre	9.8	8.7	7.3	8.8	8.4	9.7	10.4	8.8	7.3	8.8	8.4	9.7
Witney Centre - A40 (Downs Road)	7.4	10.3	7.3	10.1	8.0	11.3	7.4	10.4	7.3	10.1	8.7	12.0
A40 (Downs Road) - Carterton	10.8	14.6	10.7	14.6	10.9	15.5	11.3	14.8	11.2	14.8	11.5	15.8
Total Wolvercote - Carterton	44.8	55.1	40.0	55.9	43.5	59.7	45.7	55.3	40.7	56.3	46.4	62.1

**Highlight reflects near full bus lane (not through stop line)*



Plots

Figure 5-12 – AM Peak – public transport volumes Local Plan: No Mitigation

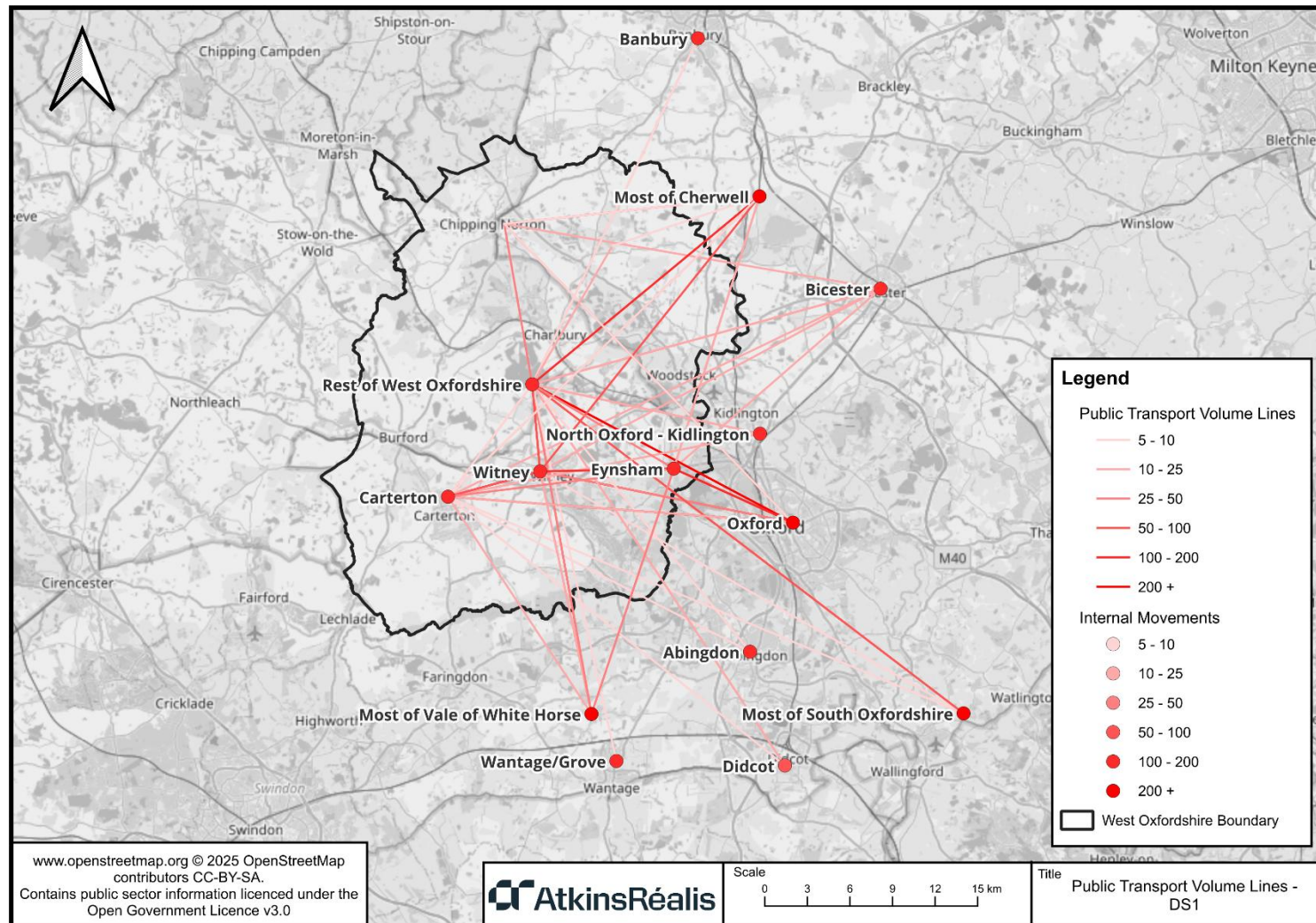


Figure 5-13 – AM Peak – bus patronage change 2043 Ref Case to 2043 Local Plan DS1

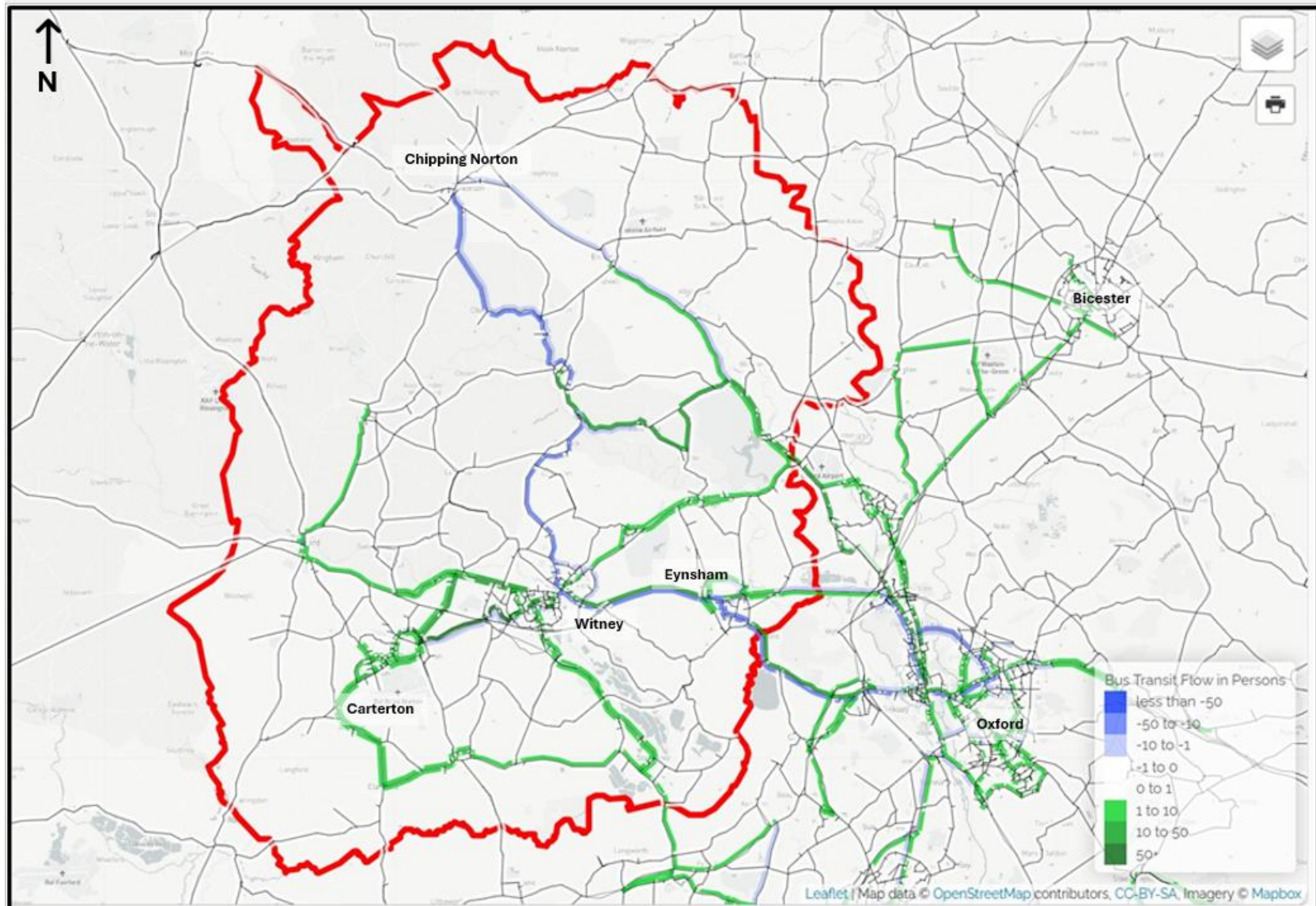


Figure 5-14 – Interpeak – bus patronage change 2043 Ref Case to 2043 Local Plan DS1

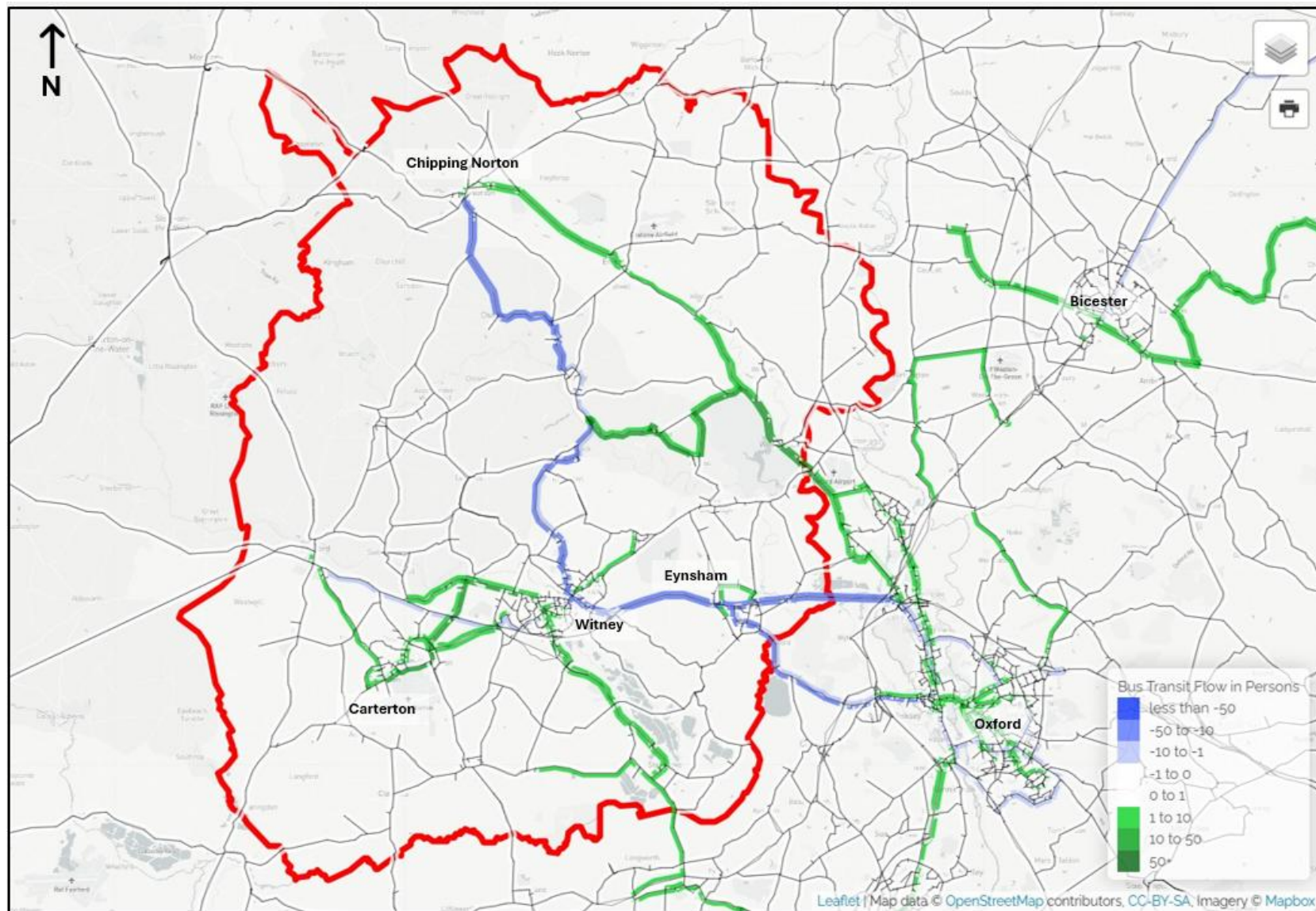
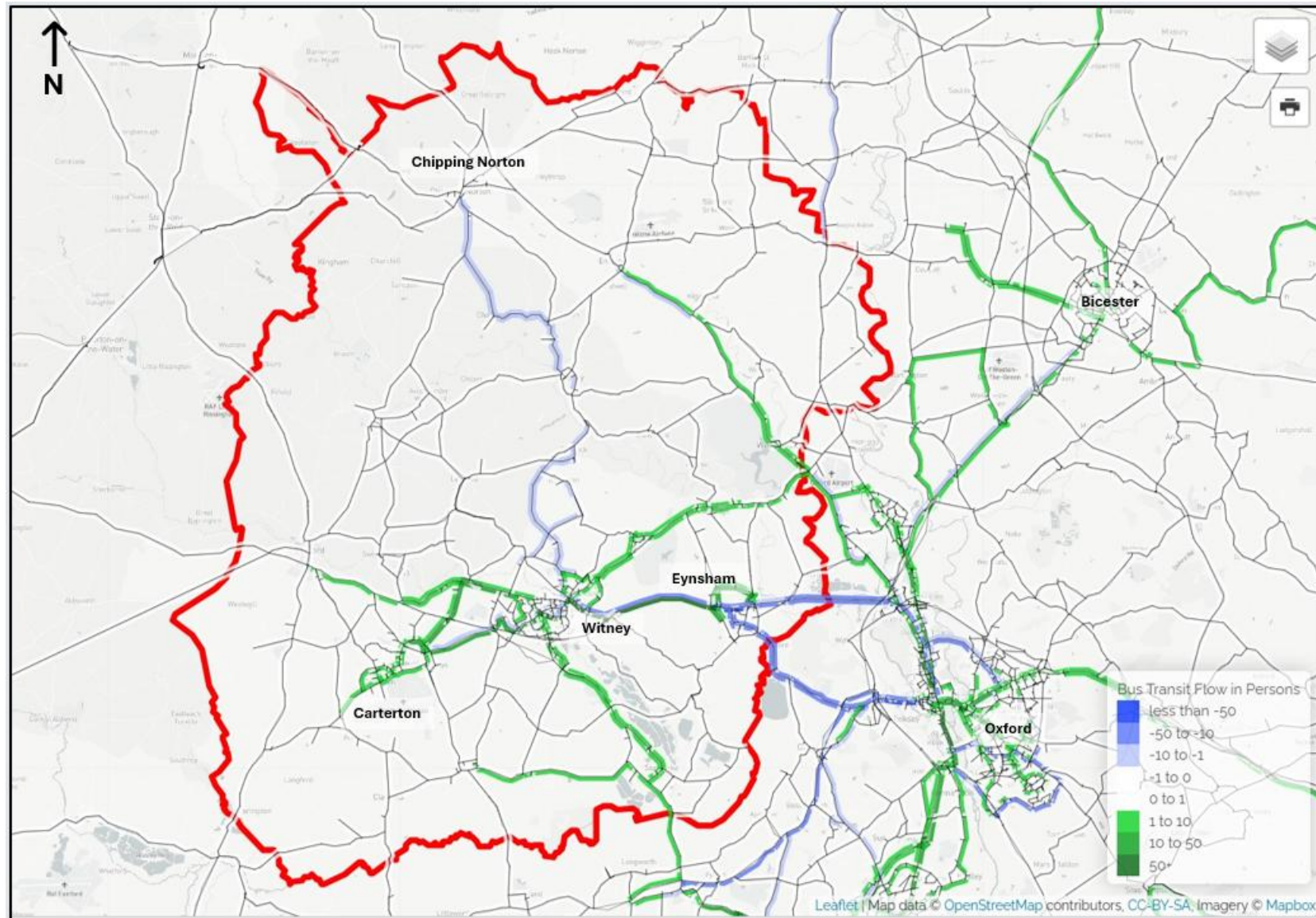


Figure 5-15 – PM Peak – bus patronage change 2043 Reference Case to 2043 DS1



5.4 West Oxfordshire Local Plan 2043 Do Something 2 (DS2) Scenario: With Enhanced Active Travel and Bus Mitigation – Impact

Demand by mode

- 5.4.1 Across the 12-hour period from 07:00 to 19:00, the modelled flows (person trips) are:
- 211,174 trips by car beginning in West Oxfordshire.
 - 208,592 trips by car ending in West Oxfordshire.
 - 117,512 trips by car both beginning and ending within West Oxfordshire.
 - 8,479 bus trips beginning in West Oxfordshire.
 - 9,882 bus trips ending in West Oxfordshire.
 - 4,094 bus trips both beginning and ending in West Oxfordshire.
 - 4,032 rail trips beginning in West Oxfordshire.
 - 4,274 rail trips ending in West Oxfordshire.
 - 779 rail trips both beginning and ending in West Oxfordshire.
- 5.4.2 Compared against the 2043 Local Plan: DS1/Do Minimum Mitigation scenario, there is a small reduction in the number of trips made by car, which is offset by an increase in travel by public transport due to the mitigation measures introduced. However, there is a small reduction in bus trips undertaken wholly within West Oxfordshire.
- 5.4.3 As DS2 adopts the same land use assumptions as DS1, any changes in mode share are attributable to the mitigation package rather than differences in development quantum or distribution.
- 5.4.4 The modelled mode shares for the trips over the 12 hours starting in West Oxfordshire compared to those in the full model are shown in Table 5-15. Mode share is presented as a percentage with changes relative to DS1 presented in percentage points. DS2 mode share is comparable to the DS1, with a slight decrease in overall car trips and increases across the public transport modes.

Table 5-15 – Mode share for trips starting in West Oxfordshire and Full Model, 12 hour – 07:00-19:00

Mode	West Oxfordshire		Full Model	
	DS2 (%)	Change from DS1 (pp)	DS2 (%)	Change from DS1 (pp)
Car	93.3%	-0.4%	89.0%	-0.1%
Bus P&R	1.1%	0.2%	1.0%	0.0%
Bus	3.7%	0.1%	7.0%	0.0%
Rail	1.8%	0.1%	3.0%	0.0%
Total	100.0%	-	100.0%	-

- 5.4.5 Compared with DS1, the car mode share in DS2 reduces by approximately 1% for the following developments:
- Salt Cross.
 - North Witney SDA.
 - Carterton Sites H and I.
 - Land At West Witney Downs Road, Curbridge Witney Oxfordshire.
 - Ventura Park.
- 5.4.6 Smaller reductions are also observed across several other developments and for Witney overall, indicating a modest but more widespread shift away from car use under DS2.
- 5.4.7 The Park & Ride site numbers and the change from the without mitigation scenario are shown in Table 5-16. Eynsham sees the greatest increase in usage due to the increase in service provision at the site, giving lower wait times, with services via the Park & Ride also benefitting from bus lanes along the corridor. Redbridge and Seacourt are sensitive to changes in delay at Botley interchange, so these sites see transfer between them as a result. Whilst the model forecasts increased usage of the Redbridge and Eynsham Park & Ride sites, both are known to be capacity-constrained, and therefore the extent to which this demand can be accommodated in practice may be limited.

Table 5-16 – Car arrivals by P&R site in DS2, AM period: 07:00-10:00

P&R Site	DS2	Change from DS1
Redbridge	2,282	-12
Seacourt	780	49
Peartree	417	21
Water Eaton	399	-1
Thornhill	701	6
Eynsham	1,531	281
Airport	325	-2

Travel patterns

- 5.4.8 The interaction between West Oxfordshire, the other districts in Oxfordshire and the rest of the country is shown in Table 5-17. Destination share is presented as a percentage with changes relative to DS1 presented in percentage points. There is very little overall change compared against DS1, with a very slight increase in travel to Oxford city as a result of increased public transport connectivity.

Table 5-17 – Destination share for trips starting in West Oxfordshire and Full Model, 12 hour – 07:00-19:00

District / area	Destination share	
	DS2 (%)	Change from DS1 (pp)
Oxford City	9.4%	0.2%
Cherwell	11.6%	0.0%
Vale of White Horse	9.4%	0.0%
South Oxfordshire	2.9%	0.0%
West Oxfordshire	54.1%	-0.1%
Rest of Great Britain	12.5%	0.0%
Total	100.0%	-

5.4.9 The patterns of travel within West Oxfordshire are very similar to those shown previously in the highway volume lines for DS1 in Figure 5-5.

Network impacts

5.4.10 The highway results detailed below include an active travel adjustment, with methodology detailed in section 5.2, allowing for some shorter car journeys to be replaced by cycling as a result of improved walking and cycling routes. The shift to cycling is projected to reduce car demand on the modelled highway network by approximately 5,400 trips across a 12-hour period, equating to around 340 trips per interpeak hour, 610 in the AM peak hour, and 660 in the PM peak hour. No adjustments are made to public transport trips.

Network performance

5.4.11 Table 5-18 presents the forecast year network statistics from the 2043 Local Plan: DS2 scenario for all modelled roads in Oxfordshire, as shown in Figure 2-3, and the change compared with the DS1 scenario. Table 5-19 presents the corresponding statistics for only the roads modelled in West Oxfordshire, while Table 5-20 presents the same for the A40 Corridor from Burford to the Wolvercote Roundabout. These are presented for all car trips in West Oxfordshire across the 12-hour period from 07:00 to 19:00, with the total on the roads also including LGV and HGV trips. Figure 2-3 shows the full extent of the roads considered, with those inside the West Oxfordshire border being used to provide the West Oxfordshire statistics.

Table 5-18 – Key highway network statistics – Full Model

Metric	With Active Travel & Bus Mitigation (DS2)		% Change from DS1	
	Car	All vehicles	Car	All vehicles
Total Travel Time (hr)	365,800	445,400	-0.2%	-0.2%
Cruise Time (hr)	308,000	376,600	-0.2%	-0.1%
Delay (hr)	57,800	68,800	-0.7%	-0.9%
Delay (sec per km)	10.2	9.8	-1.0%	-1.0%
Total Distance (km)	20,331,800	25,158,000	-0.2%	-0.2%
Average Speed (km/h)	55.6	56.5	0.2%	0.2%



Table 5-19 – Key highway network statistics – West Oxfordshire

Metric	With Active Travel & Bus Mitigation (DS2)		% Change from DS1	
	Car	All vehicles	Car	All vehicles
Total Travel Time (hr)	62,400	77,300	-1.0%	-0.8%
Cruise Time (hr)	54,700	67,300	-0.5%	-0.4%
Delay (hr)	7,700	9,900	-3.8%	-3.9%
Delay (sec per km)	9.2	9.6	-3.2%	-3.0%
Total Distance (km)	3,019,600	3,717,800	-0.9%	-0.8%
Average Speed (km/h)	48.4	48.1	0.0%	0.0%

Table 5-20 – Key highway network statistics – A40 Corridor

Metric	With Active Travel & Bus Mitigation (DS2)		% Change from DS1	
	Car	All vehicles	Car	All vehicles
Total Travel Time (hr)	13,200	16,800	-0.8%	-0.6%
Cruise Time (hr)	11,300	14,400	0.9%	1.5%
Delay (hr)	1,900	2,400	-9.5%	-11.1%
Delay (sec per km)	10.7	10.7	-8.5%	-8.5%
Total Distance (km)	639,300	809,900	-1.4%	-1.4%
Average Speed (km/h)	48.3	48.2	-0.8%	-0.8%

5.4.12 The statistics indicate that the inclusion of active travel and bus mitigation leads to a modest reduction in overall highway demand across the full model area. In West Oxfordshire, the model shows notable reductions in travel time and substantial decreases in delay, indicating a meaningful easing of congestion on the local network.

5.4.13 On the A40 corridor, reductions in delay and distance travelled indicate lower traffic demand and improved operation. There is a small reduction in average speed despite the reduction in delay, reflecting the implementation of lower speed limits. Overall, the results indicate that enhanced active travel provision, alongside bus mitigation, helps reduce highway demand and improve network performance, particularly on the A40 corridor.

A40 travel times by section

5.4.14 Table 5-21 sets out the average journey time along the A40 in the eastbound direction. Table 5-22 sets out the corresponding data for the westbound direction, with the sections listed in reverse. Journey time data shows a moderate increase between Witney and Eynsham P&R in the eastbound direction in the AM peak (circa 5%) due to an increase in link flow. This increase is primarily driven by eastbound bus lane flows rejoining the main carriageway downstream of the Salt Cross and West Eynsham junction, alongside some redistribution of demand from alternative routes such as via South Leigh.

- 5.4.15 For the same section, there is a minor decrease in journey time in the IP and PM peak periods. Between Eynsham P&R and Cassington there is a moderate decrease in journey time in the eastbound direction in the AM peak (circa 8%) and in the westbound direction in the PM peak (circa 10%) due to a slight decrease in flow in an already highly congested A40 corridor. In the westbound direction there is a substantial increase in journey time between Wolvercote Roundabout and Cassington across all three peaks (circa 15-19%) due to an extension of the 40mph speed limit. This is not observed in the eastbound direction as the journey time impact of reducing the speed limit is offset by a reduction in delay on the approach to A40/Canalside Quarter Junction (Wolvercote).

Table 5-21 – A40 Eastbound journey time change from 2043 DS1 to 2043 DS2 (minutes)

Journey time route section	With Active Travel & Bus Mitigation DS2			%Change from DS1		
	AM	IP	PM	AM	IP	PM
Section 1 - Burford to Witney (Ducklington Lane)	12.1	8.8	9.1	-3%	0%	0%
Section 2 - Witney to Eynsham P&R	10.1	8.0	8.3	5%	-1%	-1%
Section 3 - Eynsham P&R to Cassington	5.5	4.8	5.5	-8%	-1%	0%
Section 4 - Cassington to Wolvercote Rdbt	8.1	6.9	7.2	-1%	4%	0%
Full Route	35.8	28.6	30.1	-1%	0%	0%

Table 5-22 – A40 Westbound journey time change from 2043 DS1 to 2043 DS2 (minutes)

Journey time route section	With Active Travel & Bus Mitigation DS2			%Change from DS1		
	AM	IP	PM	AM	IP	PM
Section 4 - Wolvercote Rdbt to Cassington	6.5	6.0	6.5	18%	15%	18%
Section 3 - Cassington to Eynsham P&R	5.4	4.7	5.8	-2%	-2%	-10%
Section 2 - Eynsham P&R to Witney	8.8	8.0	9.3	-2%	-1%	1%
Section 1 - Witney (Ducklington Lane) to Burford	8.8	8.7	9.3	0%	0%	0%
Full Route	29.5	27.4	30.9	2%	2%	2%

Highway flow and delay

- 5.4.16 All figures in this section show the West Oxfordshire district boundary as a red line for context.

Flow

- 5.4.17 Figure 5-16 to Figure 5-18 show the change in traffic flow from the DS1 scenario to DS2 scenario. The DS2 scenario includes schemes on the A40 to improve public transport connectivity with bus lanes and changes to speed limits. This leads to a reduction in car trips on the A40 from the east of Witney through to the Wolvercote Roundabout, with some localised increases on adjacent roads.
- 5.4.18 Reductions within Witney, Carterton and between the two, are driven by active travel mitigation in the area. There is a reduction in highway flow forecast at major Carterton development sites, particularly Sites E and F. In addition to the reduction in flows in the Carterton/Witney area, some rerouting can be observed, resulting from localised reductions in traffic volumes and delays. There is minimal impact in the rest of West Oxfordshire. The model forecasts a minor increase in traffic along the route via South

Leigh, although the overall volume of change in the AM peak hour is low (24 passenger car units - PCU) and is not considered significant.

Delay

5.4.19 Figure 5-19 to Figure 5-21 show the change in link delay from the DS1 scenario to DS2 (With Active Travel & Bus Mitigation scenario). There is limited change across West Oxfordshire, with the largest increase in delay on the A40 at Cassington as a result of the planned reduction in speed limit. Reductions are forecast on the A40 and in Witney at the following locations:

- A40 Eastbound at Downs Road roundabout, Dry Lane Southbound or Bridge Street Southbound in the AM peak.
- Burford Road Westbound, at the roundabout with Tower Hill in the interpeak period.
- Burford Road Westbound, at the roundabout with Tower Hill, Curbridge Road Southbound at the roundabout with Deer Park Road or Bridge Road Northbound in the PM peak.

Junction metrics

5.4.20 Junction performance for DS2 has been assessed and compared against DS1 to identify the most affected locations. The primary improvement is observed at the A40 / Canalside Quarter junction, where a reduction in car trips leads to lower delays. Eynsham Roundabout also benefits from this reduction in demand, with delays decreasing by approximately 15 seconds compared to DS1, effectively offsetting the increase observed between the Reference Case and DS1. Within Witney, there is a general small reduction in delays, with the most notable improvement occurring at Bridge Street / High Street / Mill Lane in the AM peak (approximately 20 seconds). These reductions broadly offset the delay increases identified in DS1 relative to the Reference Case.

5.4.21 In terms of V/C ratio, the overall trend shows a slight decrease in DS2 compared to DS1, with the largest reduction of around 4 percentage points at the Burford Road / Deer Park Road junction in Witney. Appendix E provides a summary of delays and V/C ratios for junctions along the A40 corridor, as well as other key junctions across West Oxfordshire, for both the DS1 and DS2 scenarios.

Plots

Figure 5-16 – AM peak – change in flow from 2043 DS1 to 2043 DS2 With Active Travel and Bus Mitigation

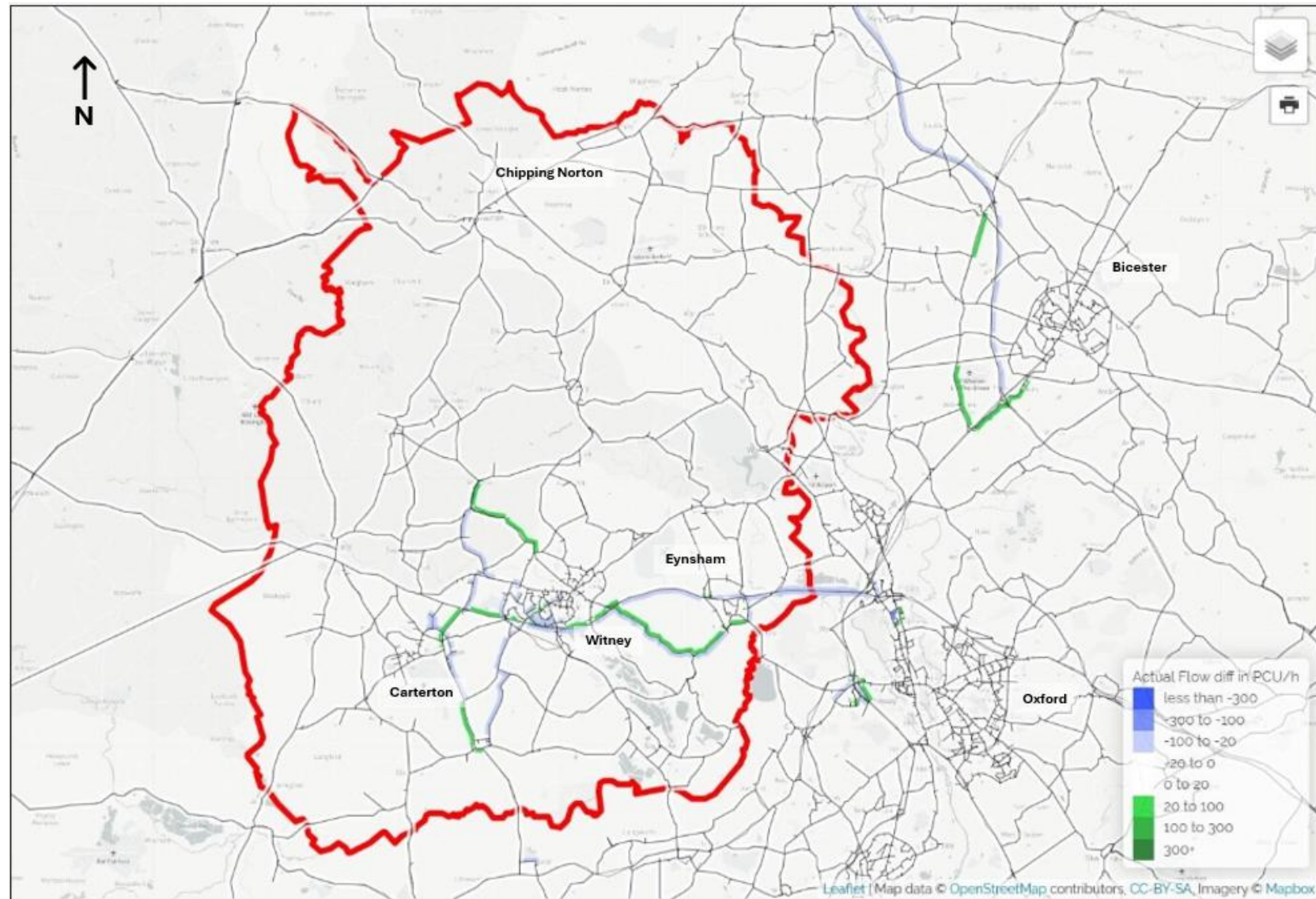


Figure 5-17 – Interpeak – change in flow from 2043 DS1 to 2043 DS2 With Active Travel and Bus Mitigation

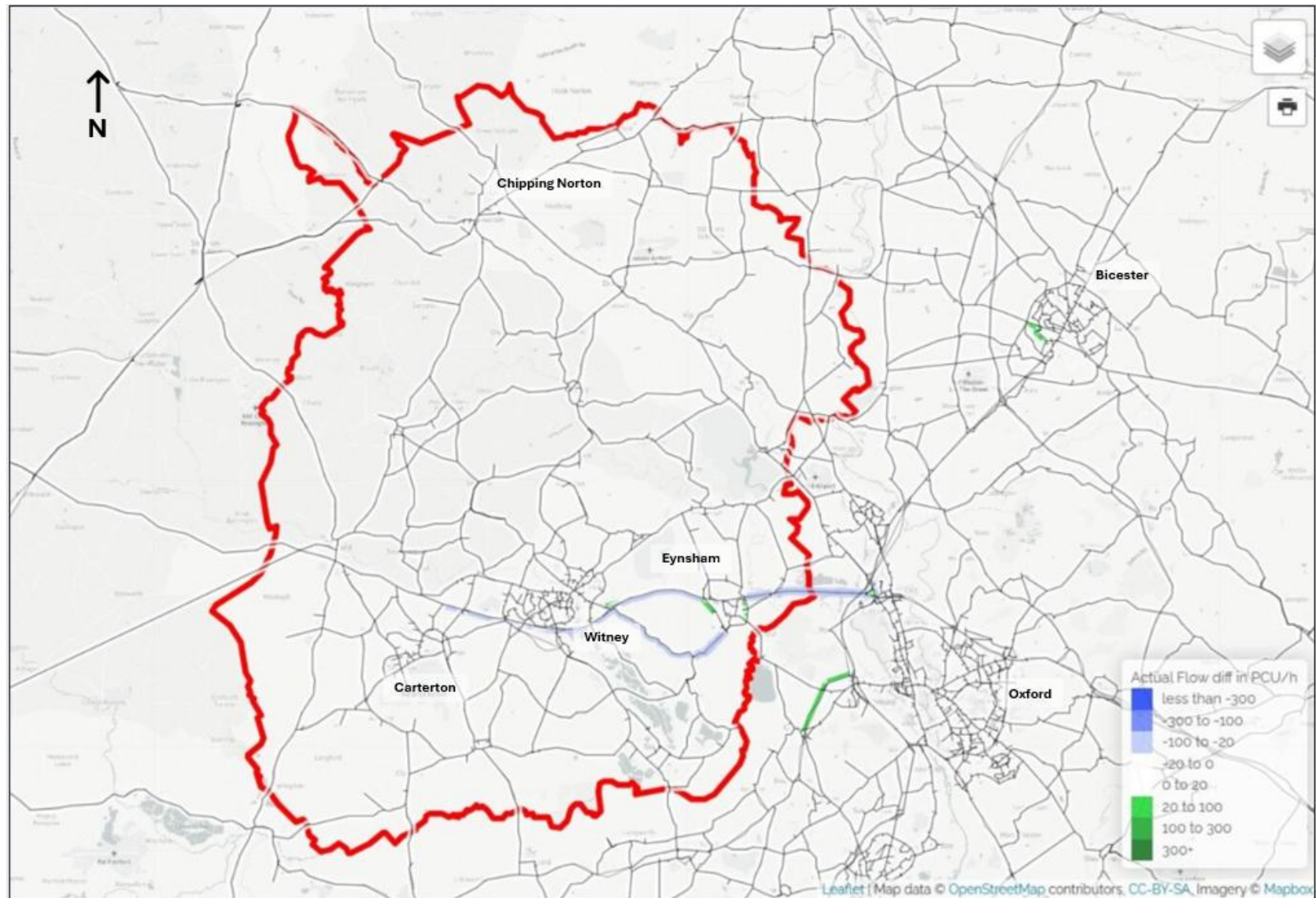


Figure 5-18 – PM peak – change in flow from 2043 DS1 to 2043 DS2 With Active Travel & Bus Mitigation

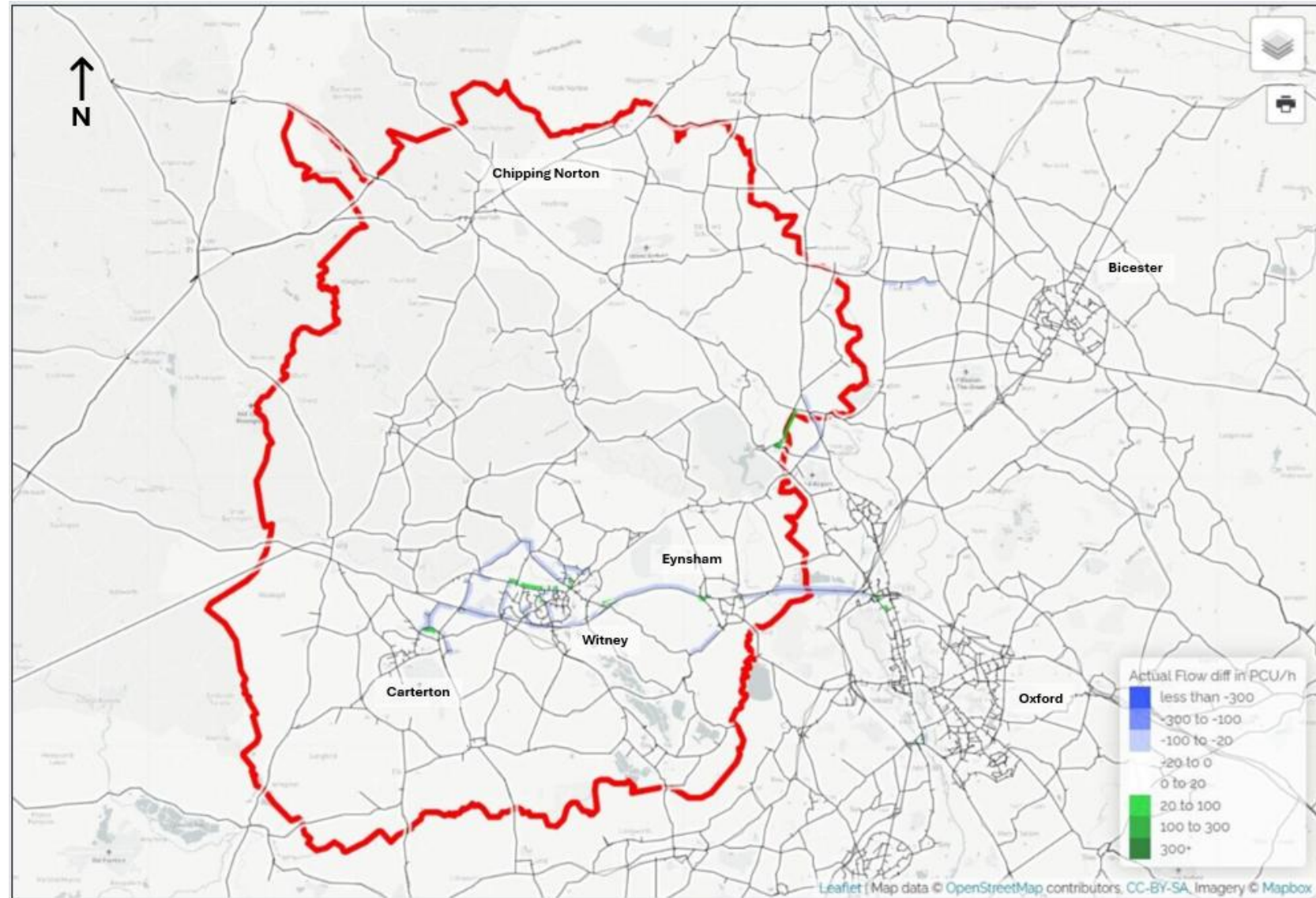


Figure 5-19 – AM peak – link delay change from 2043 DS1 to 2043 DS2 With Active Travel & Bus Mitigation

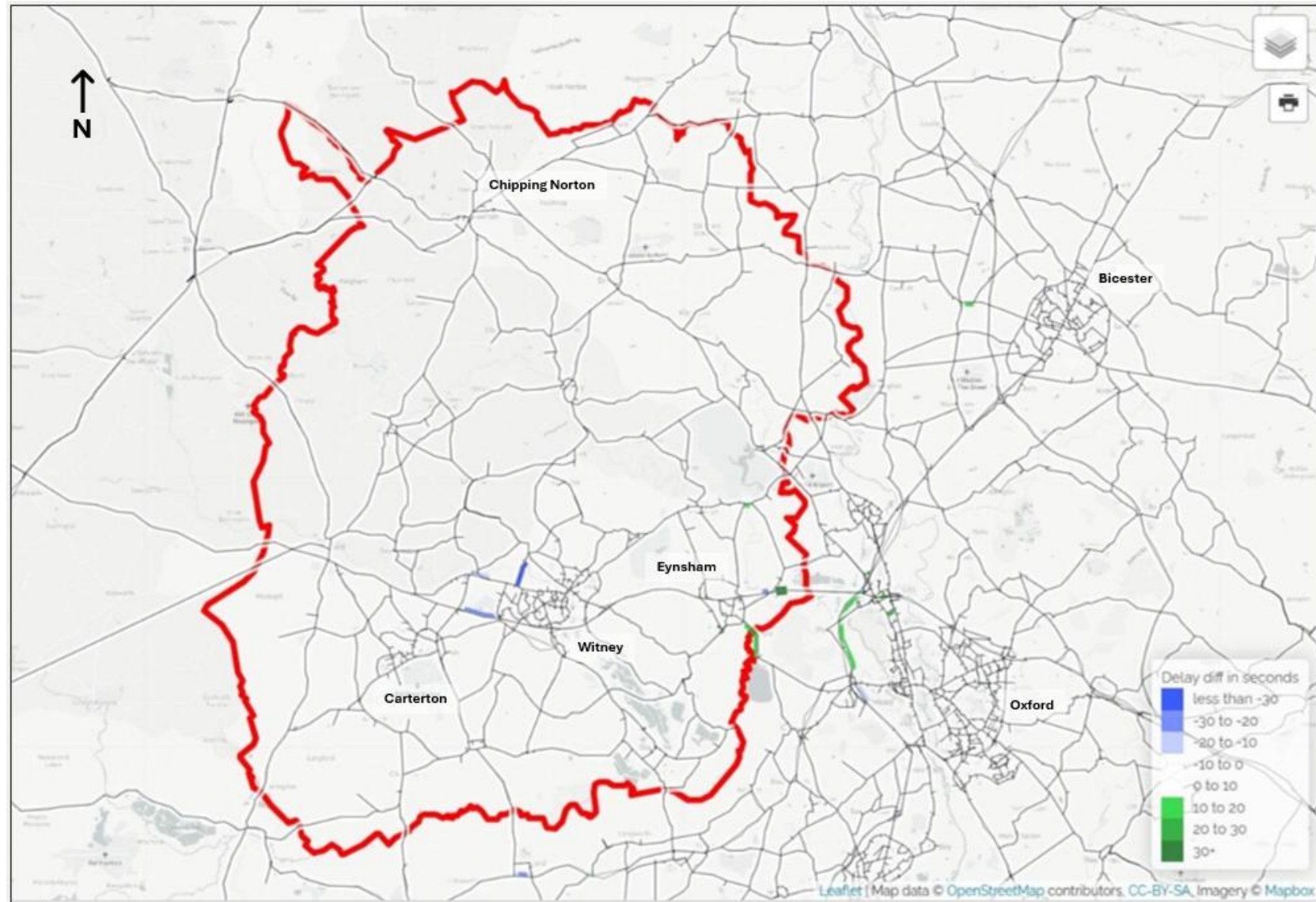


Figure 5-20 – Interpeak – link delay change from 2043 DS1 to 2043 DS2 With Active Travel & Bus Mitigation

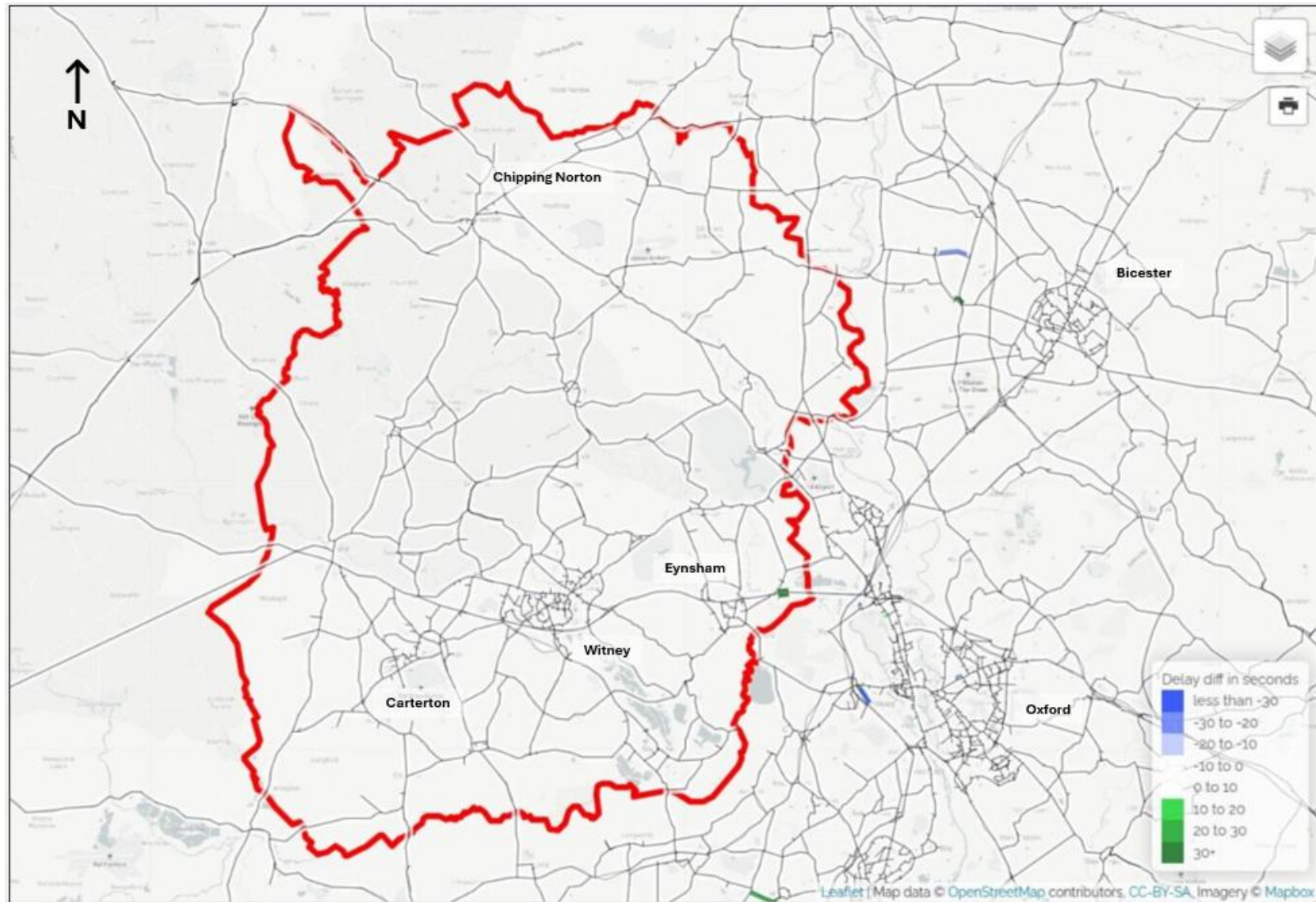
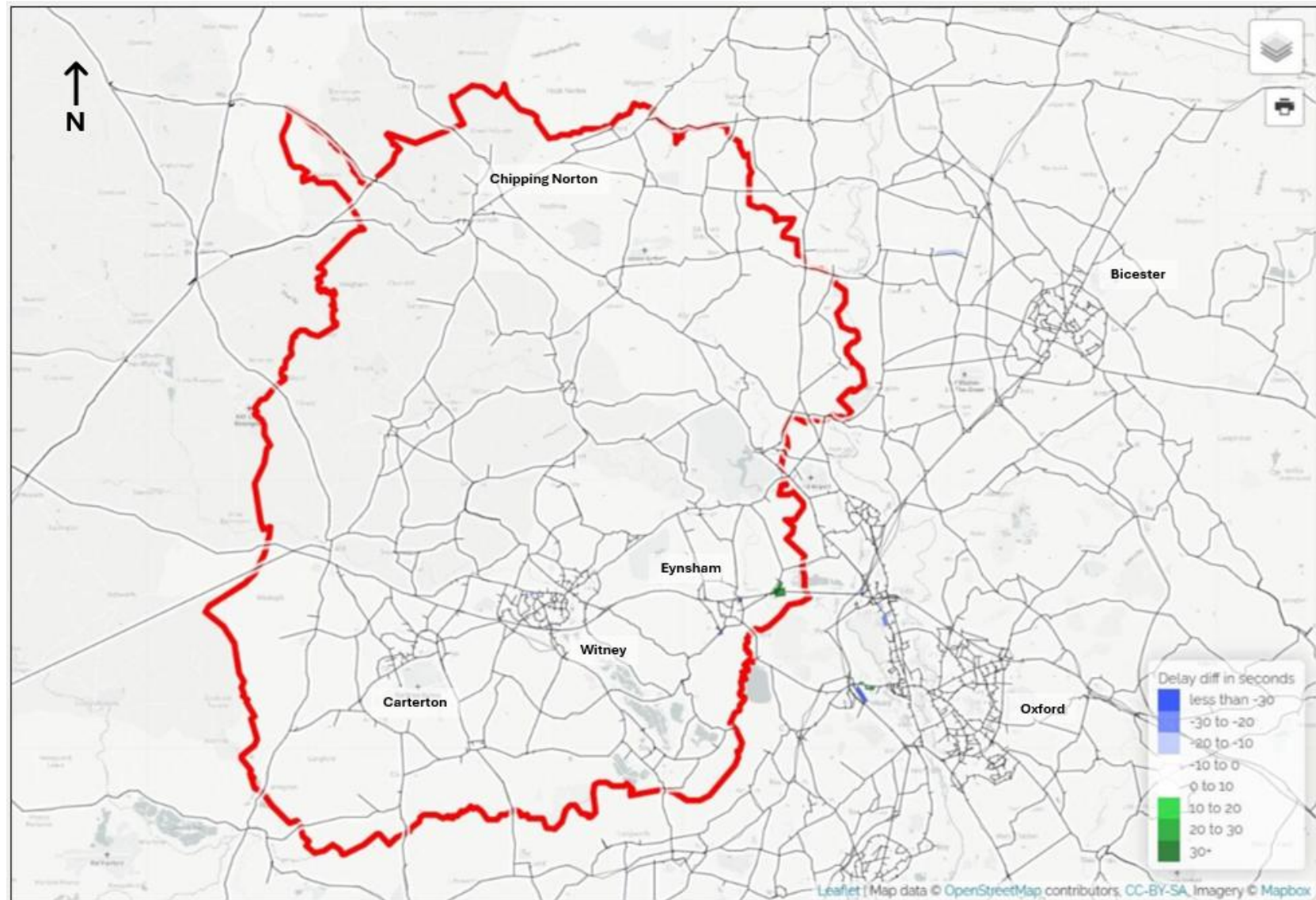


Figure 5-21 – PM peak – link delay change from 2043 DS1 to 2043 DS2 With Active Travel & Bus Mitigation



Bus flows and journey times

Patronage

- 5.4.22 The following figures show the changes in level of bus patronage across West Oxfordshire. Bus patronage generally increases by a small amount on many of the routes in West Oxfordshire, with additional usage of services from Carterton and Witney through to Oxford city in the AM peak, with a reversal of the directionality of the pattern in the PM peak. There are also increases on services to Chipping Norton. There is a reversal of the switch between the services using the Swinford toll bridge and the A40, and the services using the A44, as far as Charlbury.
- 5.4.23 In the AM period, there is an increase in patronage of around 9-12% to Oxford City from Witney, Eynsham and Carterton as a result of the increase in service provision along the A40 (50 passengers on average). There is an increase from Carterton to Witney of 16% (50 passengers), where there is an increase in service provision in DS2. As noted above, public transport demand is tidal, with these AM inflows to Oxford broadly reflected by reverse flows in the PM period.

Plots

Figure 5-22 – AM Peak – bus patronage change from 2043 DS1 to 2043 DS2 With Active Travel and Bus Mitigation

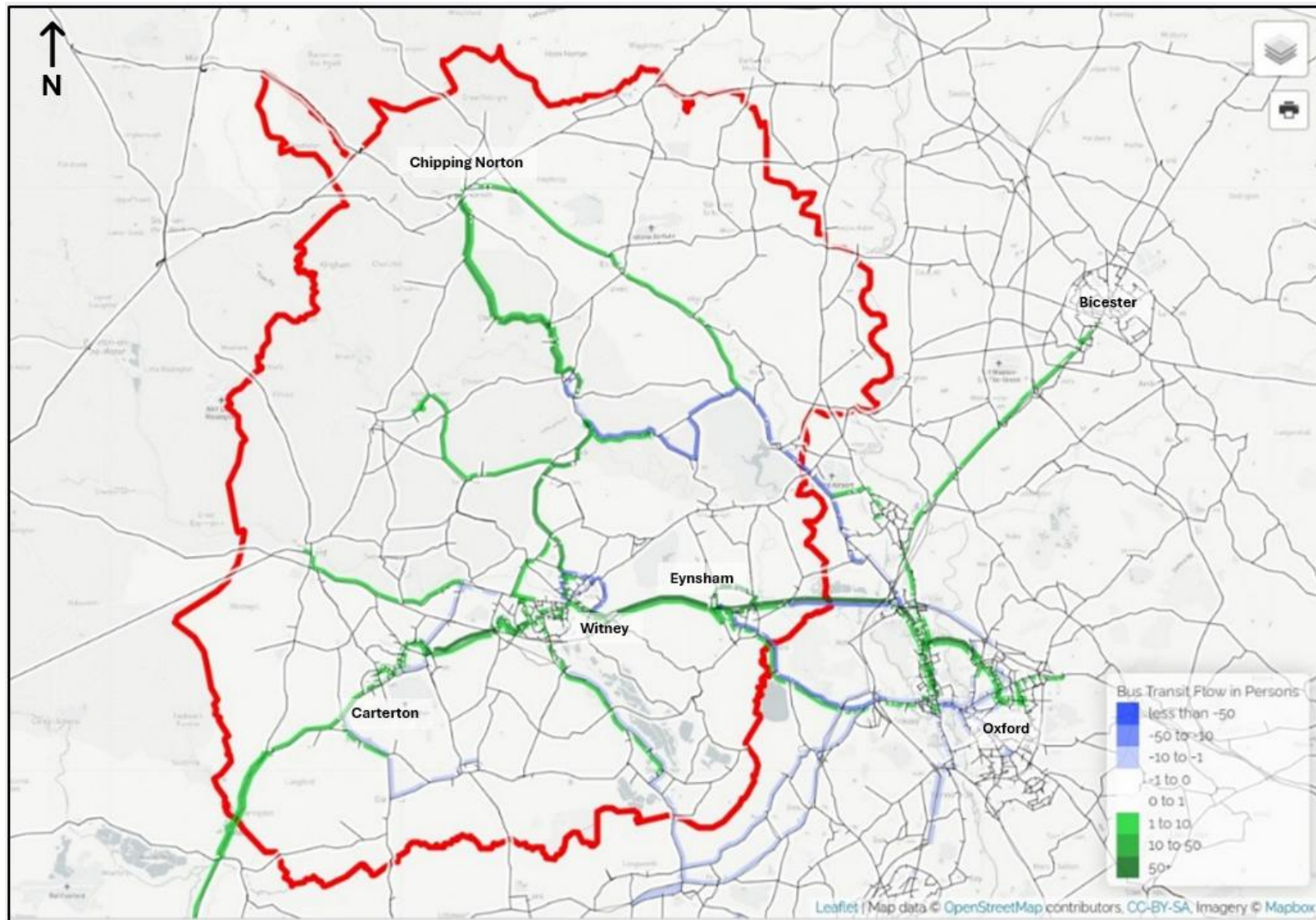


Figure 5-23 – Interpeak – bus patronage change from 2043 DS1 to 2043 DS2 With Active Travel and Bus Mitigation

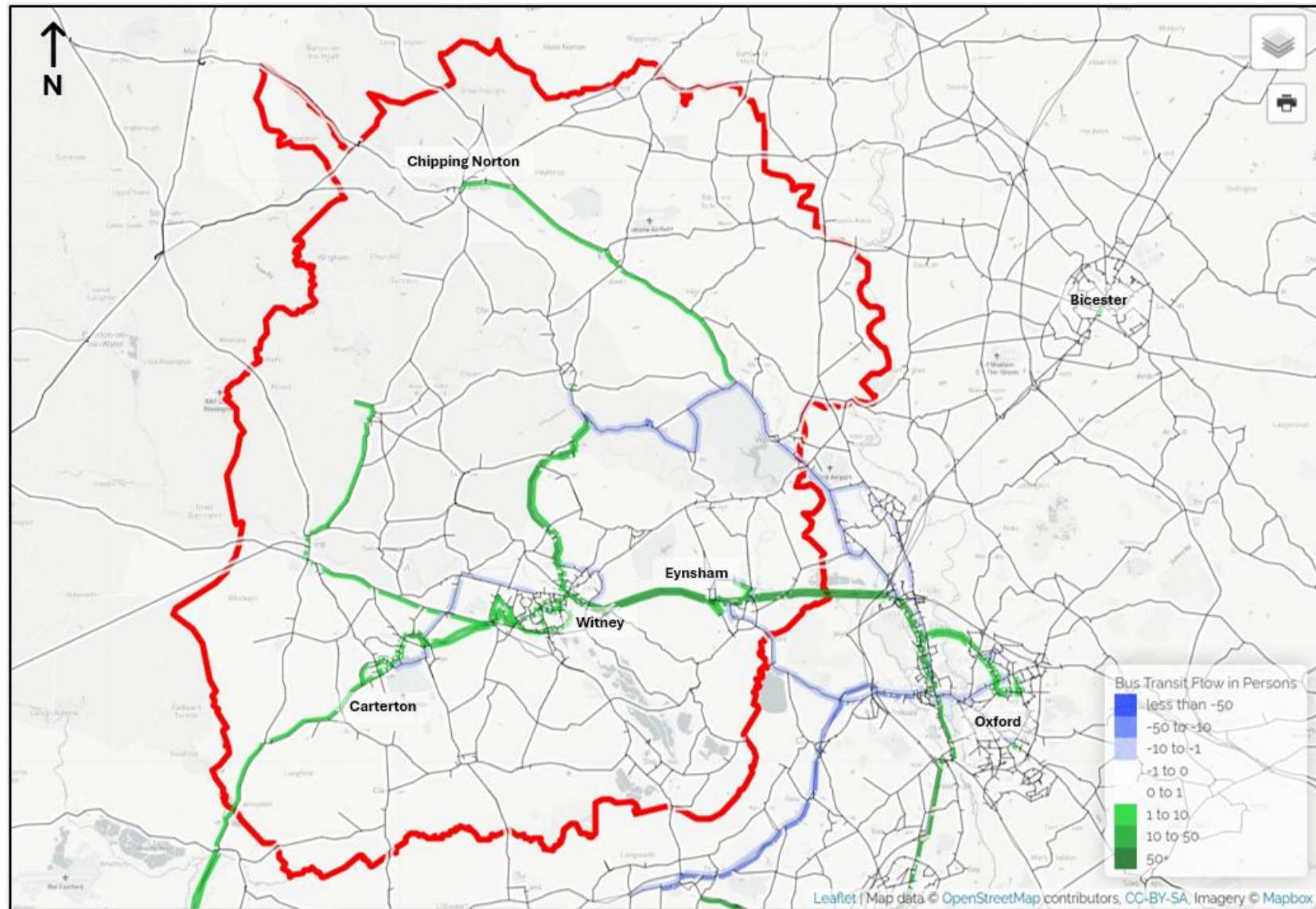
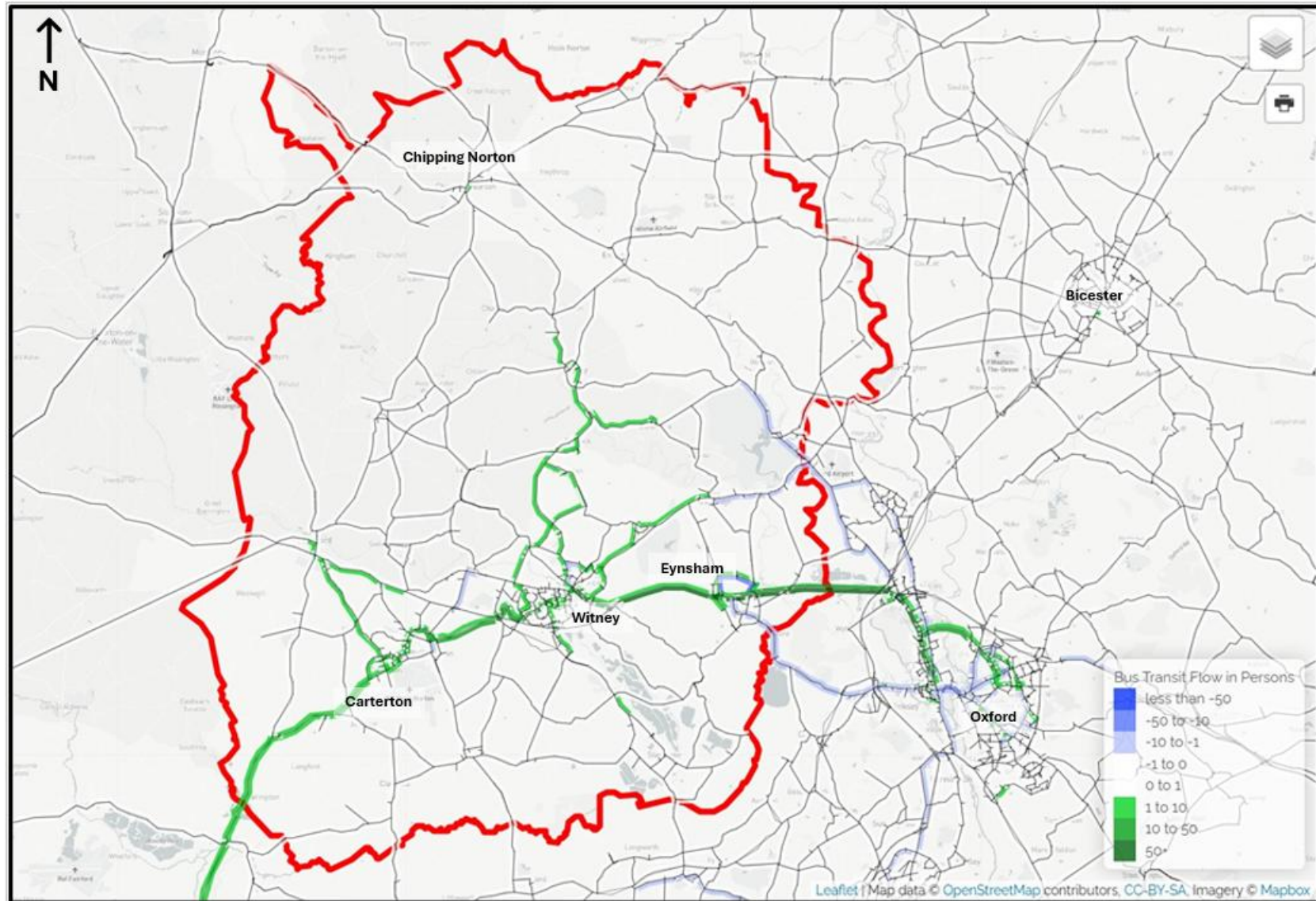


Figure 5-24 – PM Peak – bus patronage change from 2043 DS1 to 2043 DS2 With Active Travel and Bus Mitigation



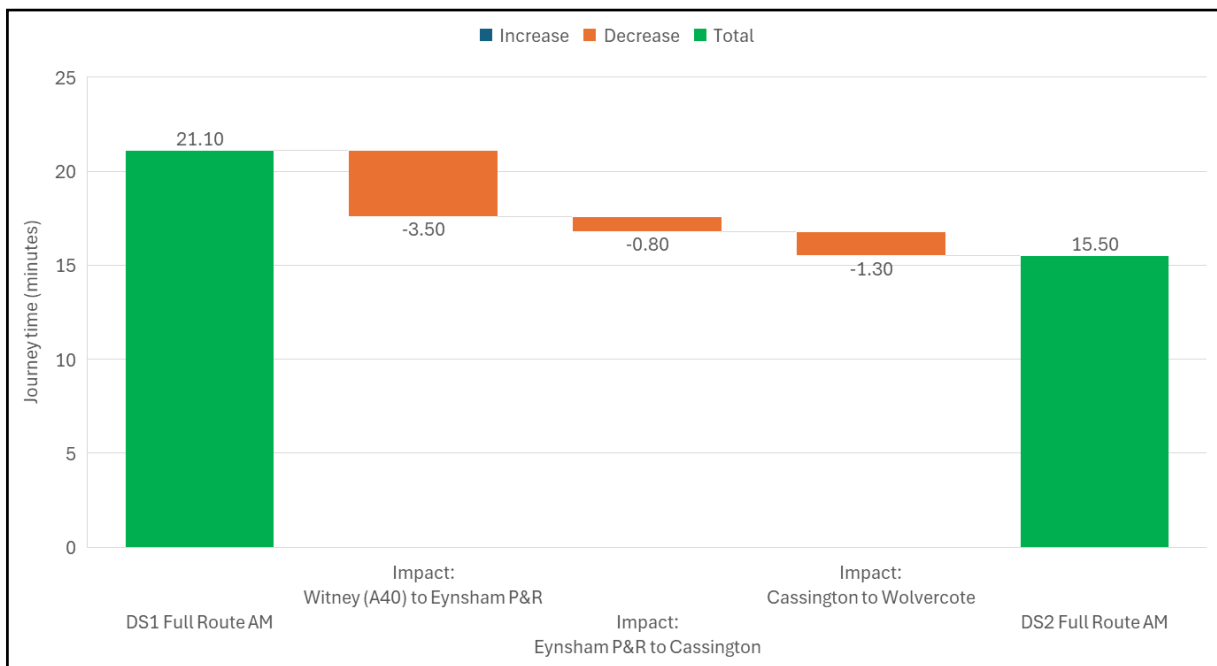
Journey times

5.4.24 The inclusion of the bus lanes along the A40 help to reduce the journey times of the bus services along the corridor. These improvements can be seen in Table 5-23. The bus lanes between Witney and Eynsham, introduced as part of the DS2 mitigation package, improve the eastbound bus journey time by 3.5 minutes compared to DS1 heading eastbound in the AM, as seen in Figure 5-25. The Eynsham to Wolvercote phase 2-4 bus lanes improve the eastbound bus journey time by 1.3 minutes compared to DS1 in the eastbound direction. This demonstrates that completion of the Eastbound bus lane between Cassington and Duke's Cut (proposed in Phases 2-4) will provide worthwhile passenger journey time and reliability benefits (on a section of the A40 that will have high bus passenger flows). There is an overall improvement of 5.6 minutes for buses heading eastbound towards Oxford in the AM.

Table 5-23 – A40 Eastbound bus journey time change from 2043 DS1 to 2043 DS2 (minutes)

Bus Lane section	Do Something 1			Do Something 2 improvement		
	AM	IP	PM	AM	IP	PM
Witney (A40) to Eynsham P&R	11.0	9.0	9.5	-3.5	-2.9	-3.2
Eynsham P&R to Cassington	3.0	2.4	2.6	-0.8	-0.6	-0.7
Cassington to Wolvercote	7.1	6.9	7.7	-1.3	-0.9	-0.9
Full Route	21.1	18.3	19.7	-5.6	-4.5	-4.8

Figure 5-25 – A40 Eastbound AM bus journey time change from 2043 DS1 to 2043 DS2 (minutes)



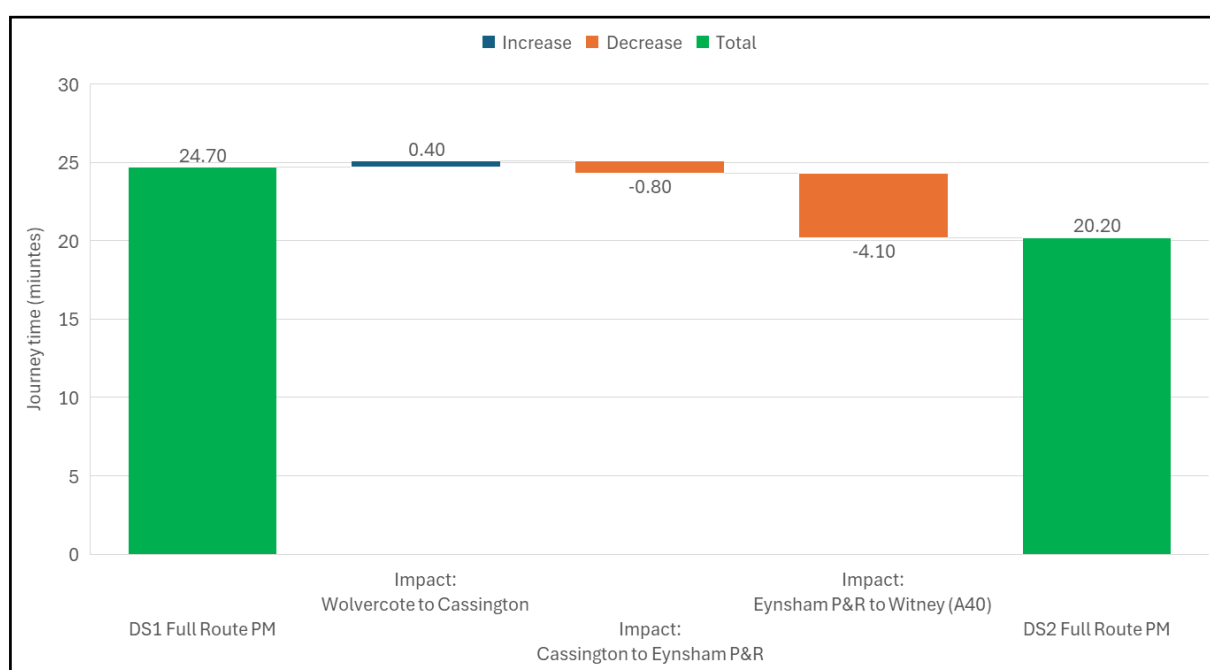
5.4.25 In the westbound direction lower levels of bus journey time improvement are forecast. Only a short section of westbound bus lane is proposed in Phases 2-4 of the A40 Eynsham Park & Ride to Wolvercote Scheme (included in the DS2 scenario) on the approach to Cassington, alongside a westbound bus lane between the new West Eynsham junction and Witney. A summary of the improvements is shown in Table 5-24. The introduction of the Eynsham to Witney bus lane results an improved westbound journey time of around four minutes in both the AM and PM, as seen in Figure 5-26.

- 5.4.26 The greatest improvement in travel time is tidal (AM towards Oxford and PM away from Oxford) so bus lanes in both directions is beneficial.

Table 5-24 – A40 Westbound bus journey time change from 2043 DS1 to 2043 DS2 (minutes)

Bus Lane section	Do Something 1			Do Something 2 improvement		
	AM	IP	PM	AM	IP	PM
Wolvercote to Cassington	7.0	8.2	8.4	0.5	0.3	0.4
Cassington to Eynsham P&R	4.6	5.1	6.1	-0.3	-0.6	-0.8
Eynsham P&R to Witney (A40)	9.7	9.3	10.2	-3.6	-2.8	-4.1
Full Route	21.3	22.6	24.7	-3.5	-3.0	-4.5

Figure 5-26 – A40 Westbound PM bus journey time change from 2043 DS1 to 2043 DS2 (minutes)



A40 Segment Detail

- 5.4.27 This analysis compares highway and bus journey times along the A40 corridor, using data extracted from the variable demand model, pre-active mode adjustment, to ensure a consistent journey time baseline across both model runs. It is expected that highway journeys will generally be faster than bus journeys in sections without dedicated bus infrastructure, due to the impacts of intermediate stops, passenger dwell times, and vehicle deceleration/acceleration affecting bus performance.
- 5.4.28 Table 5-25 shows that compared to the DS1 (No Mitigation) scenario, the DS2 (With Active Travel & Bus Mitigation) scenario results in broadly neutral impacts on highway journey times in the eastbound direction, with differences being within 30 seconds across all time periods. In contrast, bus journey times show notable improvements, particularly on sections with bus priority (most notably A40 Shores Green - Eynsham P&R), bringing travel times much closer to highway. As a result, total eastbound bus journey times decrease by approximately 4.5-6 minutes across all peak periods, while highway journey times remain largely unchanged.

- 5.4.29 Table 5-26 indicates that in the westbound direction, the DS2 scenario leads to marginal increases in highway journey times relative to DS1, with the largest being around a 1-minute increase in the AM peak. However, bus journey times reduce consistently across all time periods, with the most significant improvements occurring on sections benefiting from bus priority measures (notably between Eynsham P&R and A40 Shores Green). Overall, total bus journey times decrease by approximately 3-4.5 minutes compared to DS1, while changes in highway journey times remain relatively minor.
- 5.4.30 Consistent with the reference case, buses are modelled to operate faster than general traffic in the AM peak for A40 (Shores Green) – Witney Centre due to retained base model factors; this does not affect the validity of comparisons between scenarios.

Table 5-25 – A40 Eastbound journey time 2043 DS1 and 2043 DS2 (minutes)

Towards Oxford (eastbound)	Do Minimum Mitigation (DS1)						With Active Travel & Bus Mitigation (DS2)					
	AM		IP		PM		AM		IP		PM	
	HY	Bus	HY	Bus	HY	Bus	HY	Bus	HY	Bus	HY	Bus
Carterton - A40 (Downs Road)	11.1	18.8	10.8	18.5	11.0	18.7	11.1	18.9	10.8	18.5	11.0	18.7
A40 (Downs Road) - Witney Centre	8.3	11.7	7.4	10.0	7.4	10.1	8.3	11.7	7.4	10.0	7.4	10.1
Witney Centre - A40 (Shores Green)	8.4	9.8	6.0	8.0	9.5	7.8	8.6	9.4	6.0	8.0	9.7	7.8
A40 (Shores Green) - Eynsham P&R*	6.6	11.0	5.3	9.0	5.7	9.5	7.1	7.5	5.3	6.1	5.7	6.3
Eynsham P&R - Cassington*	5.6	3.0	4.4	2.4	4.8	2.6	5.1	2.2	4.4	1.8	4.8	1.8
Cassington - Wolvercote**	8.9	7.1	7.4	6.9	7.8	7.7	8.7	5.7	7.6	6.0	7.8	6.8
Total Carterton - Wolvercote	48.8	61.4	41.2	54.7	46.3	56.2	48.9	55.4	41.4	50.2	46.4	51.4

*Highlight reflects near full bus lane (not through stop line) **Highlight reflects partial bus lane (Oxford North, approach to Wolvercote)

Table 5-26 – A40 Westbound journey time 2043 DS1 and 2043 DS2 (minutes)

From Oxford (westbound)	Do Minimum Mitigation (DS1)						With Active Travel & Bus Mitigation (DS2)					
	AM		IP		PM		AM		IP		PM	
	HY	Bus	HY	Bus	HY	Bus	HY	Bus	HY	Bus	HY	Bus
Wolvercote - Cassington*	5.9	7.0	5.6	8.2	6.1	8.4	6.9	7.5	6.4	8.5	7.1	8.7
Cassington - Eynsham P&R*	5.1	4.6	4.4	5.1	5.9	6.1	5.0	4.3	4.4	4.6	5.2	5.4
Eynsham P&R - A40 (Shores Green)*	5.6	9.7	4.9	9.3	5.8	10.2	5.5	6.1	4.8	6.5	5.7	6.1
A40 (Shores Green) - Witney Centre	10.4	8.8	7.3	8.8	8.4	9.7	10.6	8.8	7.3	8.8	8.6	9.8
Witney Centre - A40 (Downs Road)	7.4	10.4	7.3	10.1	8.7	12.0	7.5	10.4	7.3	10.1	8.7	12.1
A40 (Downs Road) – Carterton	11.3	14.8	11.2	14.8	11.5	15.8	11.3	14.8	11.2	14.8	11.5	15.8
Total Wolvercote - Carterton	45.7	55.3	40.7	56.3	46.4	62.1	46.7	51.8	41.4	53.3	46.9	57.8

*Highlight reflects near full bus lane (not through stop line)



5.5 West Oxfordshire Local Plan 2043 Do Something 3 (DS3) Scenario: With Active Travel, Bus and Mass Rapid Transit Mitigation - Impact

Demand by mode

5.5.1 Across the 12-hour period from 07:00 to 19:00, the modelled flows (person trips) are:

- 211,821 trips by car beginning in West Oxfordshire.
- 209,115 trips by car ending in West Oxfordshire.
- 117,951 trips by car both beginning and ending within West Oxfordshire.
- 8,415 bus trips beginning in West Oxfordshire.
- 9,807 bus trips ending in West Oxfordshire.
- 4,035 bus trips both beginning and ending in West Oxfordshire.
- 3,913 rail trips beginning in West Oxfordshire.
- 4,111 rail trips ending in West Oxfordshire.
- 618 rail trips both beginning and ending in West Oxfordshire.

5.5.2 The DS3 scenario adopts the same land use assumptions as DS1; therefore, any changes in mode share are attributable to the mitigation package, rather than differences in development quantum. Compared against the 2043 Local Plan: DS1/Do Minimum Mitigation scenario, there is a small reduction in the number of trips made by car, which is offset by an increase in travel by public transport due to the mitigation measures introduced. This change is smaller than the one observed in the DS2 scenario.

5.5.3 The modelled mode shares for the trips over the 12 hours starting in West Oxfordshire compared to those in the full model are shown in Table 5-27. Mode share is presented as a percentage with changes relative to DS1 presented in percentage points. There is very little difference in mode share between DS3 and DS1, with less shift away from car than in DS2.

Table 5-27 – Mode share for trips starting in West Oxfordshire and Full Model, 12 hour – 07:00-19:00

Mode	West Oxfordshire		Full Model	
	DS3 (%)	Change from DS1 (pp)	DS1 (%)	Change from DS1 (pp)
Car	93.6%	-0.1%	89.1%	0.0%
Bus P&R	0.9%	0.0%	0.9%	0.0%
Bus	3.7%	0.1%	7.0%	0.0%
Rail	1.7%	0.0%	3.0%	0.0%
Total	100.0%	-	100.0%	-

- 5.5.4 Compared with DS1, the car mode share in DS3 reduces by approximately 1% for the following developments:
- Salt Cross.
 - North Witney SDA.
 - Carterton Sites H and I.
- 5.5.5 In contrast, other sites that showed a reduction in DS2 revert to broadly comparable levels to DS1 in DS3:
- Land At West Witney Downs Road, Curbridge, Witney.
 - Ventura Park.
- 5.5.6 Marginal reductions in car use are also observed for Carterton overall, indicating a small mode share impact associated with the MRT services.
- 5.5.7 The Park & Ride patronage in DS3 is similar to DS1, as shown in Table 5-28. The frequency of buses serving Eynsham reduces back to the level of DS1, and the model reliability factor associated with the MRT has minimal impact at Eynsham due to the high level of provision at the stop, so patronage levels similar to DS1 is to be expected.

Table 5-28 – Car Arrivals by P&R site in DS3, AM period: 07:00-10:00

P&R Site	DS3	Change from DS1
Redbridge	2,281	-13
Seacourt	722	-10
Peartree	408	13
Water Eaton	407	8
Thornhill	699	4
Eynsham	1,255	6
Airport	329	2

Travel patterns

- 5.5.8 The interaction between West Oxfordshire, the other districts in Oxfordshire and the rest of the country is shown in Table 5-29. Destination share is presented as a percentage with changes relative to DS1 presented in percentage points. There is very little change from DS1, with a very small increase in trips travelling to Oxford city. Again, this is a similar trend, but of a lesser scale, to the changes in DS2.

Table 5-29 – Destination share for trips starting in West Oxfordshire and Full Model, 12 hour – 07:00-19:00

District / area	Destination share	
	DS3 (%)	Change from DS1 (pp)
Oxford City	9.2%	0.1%
Cherwell	11.6%	0.0%
Vale of White Horse	9.5%	0.0%
South Oxfordshire	2.9%	0.0%
West Oxfordshire	54.2%	0.0%
Rest of Great Britain	12.5%	0.0%
Total	100.0%	-

Network impacts

- 5.5.9 The highway results detailed below include an active travel adjustment, with methodology detailed in section 5.2, allowing for some shorter car journeys to be replaced by cycling as a result of improved walking and cycling routes. The shift to cycling impact shows similar results to the Do Something 2 mitigation scenario, where the difference between the two scenarios is estimated to be around 10 person trips per time period and is therefore considered negligible. The shift to cycling is projected to reduce car demand on the modelled highway network by approximately 5,400 trips across a 12-hour period, equating to around 340 trips per interpeak hour, 610 in the AM peak hour, and 660 in the PM peak hour. No adjustments are made to public transport trips.

Network performance

- 5.5.10 Table 5-30 presents the forecast year network statistics from the 2043 Local Plan DS3 scenario for all modelled roads in Oxfordshire, as shown in Figure 2-3, and the change compared with the forecast year DS1/Do Minimum Mitigation scenario. Table 5-31 presents the corresponding statistics for only the roads modelled in West Oxfordshire, while Table 5-32 presents the same for the A40 Corridor from Burford to the Wolvercote Roundabout. These are presented for all car trips in West Oxfordshire across the 12-hour period from 07:00 to 19:00, with the total on the roads also including LGV and HGV trips. Figure 2-3 shows the full extent of the roads considered, with those inside the West Oxfordshire border being used to provide the West Oxfordshire statistics.

Table 5-30 – Key highway network statistics – Full Model

Metric	With AT, Bus & MRT Mitigation (DS3)		% Change from DS1	
	Car	All vehicles	Car	All vehicles
Total Travel Time (hr)	365,700	445,400	-0.3%	-0.2%
Cruise Time (hr)	308,000	376,700	-0.2%	-0.1%
Delay (hr)	57,700	68,700	-0.9%	-1.0%
Delay (sec per km)	10.2	9.8	-1.0%	-1.0%
Total Distance (km)	20,332,900	25,158,900	-0.2%	-0.1%
Average Speed (km/h)	55.6	56.5	0.2%	0.2%



Table 5-31 – Key highway network statistics – West Oxfordshire

Metric	With AT, Bus & MRT Mitigation (DS3)		% Change from DS1	
	Car	All vehicles	Car	All vehicles
Total Travel Time (hr)	62,300	77,200	-1.1%	-0.9%
Cruise Time (hr)	54,600	67,300	-0.7%	-0.4%
Delay (hr)	7,700	9,900	-3.8%	-3.9%
Delay (sec per km)	9.2	9.6	-3.2%	-3.0%
Total Distance (km)	3,019,100	3,717,400	-1.0%	-0.8%
Average Speed (km/h)	48.4	48.1	0.0%	0.0%

Table 5-32 – Key highway network statistics – A40 Corridor

Metric	With AT, Bus & MRT Mitigation (DS3)		% Change from DS1	
	Car	All vehicles	Car	All vehicles
Total Travel Time (hr)	13,200	16,800	-0.8%	-0.6%
Cruise Time (hr)	11,300	14,400	0.9%	1.4%
Delay (hr)	1,900	2,400	-9.5%	-11.1%
Delay (sec per km)	10.6	10.6	-9.4%	-9.4%
Total Distance (km)	638,900	809,200	-1.5%	-1.4%
Average Speed (km/h)	48.4	48.3	-0.6%	-0.6%

- 5.5.11 The statistics show a very similar overall pattern to that in DS2, with only minor differences between the two scenarios. The DS3 shows a large reduction in delay on the A40 relative to the DS1 scenario. There is a slight reduction in average speed caused by the implementation of lower speed limits, despite the reduction in delay.
- 5.5.12 DS3 delivers marginally greater reductions in highway demand compared to DS2, indicating that most mode shift from car is already achieved through active travel and bus interventions, with MRT providing relatively minor incremental benefits, most notably on the A40 corridor where there is just under a 1% additional reduction in delay (sec per km).

A40 travel times by section

- 5.5.13 Table 5-33 sets out the average journey time along the A40 in the eastbound direction. Table 5-34 sets out the corresponding data for the westbound direction, with the sections listed in reverse. Journey time data shows a slight decrease between Eynsham Park & Ride and Cassington in the AM peak and interpeak in both directions (circa 1-2%) and a moderate decrease in the PM peak in the westbound direction (circa 9%). This is a result of a decrease in delay on the westbound approach to Eynsham Roundabout. In the westbound direction there is a large increase in journey time between Wolvercote Roundabout and Cassington across all three peaks (circa 15-18%) due to an extension of the 40mph speed limit. This is not observed in the eastbound direction (with the exception of the interpeak) as the

journey time impact of reducing the speed limit is offset by a reduction in delay on the approach to A40/Canalside Quarter Junction (Wolvercote).

Table 5-33 – A40 Eastbound journey time change from 2043 DS1 to 2043 DS3 (minutes)

Journey time section	With AT, Bus & MRT Mitigation DS3			%Change from DS1		
	AM	IP	PM	AM	IP	PM
Section 1 - Burford to Witney (Ducklington Lane)	12.1	8.8	9.1	-3%	0%	0%
Section 2 - Witney to Eynsham P&R	9.6	8.0	8.4	0%	-1%	-1%
Section 3 - Eynsham P&R to Cassington	5.9	4.8	5.5	-2%	-1%	0%
Section 4 - Cassington to Wolvercote Rdbt	8.1	6.9	7.1	-1%	3%	-1%
Full Route	35.6	28.6	30.0	-2%	0%	0%

Table 5-34 – A40 Westbound journey time change from 2043 DS1 to 2043 DS3 (minutes)

Journey time section	With AT, Bus & MRT Mitigation DS3			%Change from DS1		
	AM	IP	PM	AM	IP	PM
Section 4 - Wolvercote Rdbt to Cassington	6.5	6.0	6.5	18%	15%	18%
Section 3 - Cassington to Eynsham P&R	5.4	4.7	5.9	-2%	-2%	-9%
Section 2 - Eynsham P&R to Witney	8.8	8.0	9.2	-1%	-1%	0%
Section 1 - Witney (Ducklington Lane) to Burford	8.8	8.7	9.3	0%	-1%	0%
Full Route	29.5	27.4	30.9	2%	2%	1%

Highway flow and delay

5.5.14 All figures in this section show the West Oxfordshire district boundary as a red line for context.

Flow

5.5.15 Figure 5-27 to Figure 5-29 show the change in flow from the DS1 scenario to the 2043 Local Plan DS3 scenario. The DS3 scenario includes the proposed local plan sites, which are mainly situated in the vicinity of Witney and Carterton, but includes a potential Mass Rapid Transit service scenario, running from the centre and east of Oxford to Witney and Carterton. As a consequence, there is a small reduction in demand along the A40, particularly from Witney to Eynsham and from Cassington to the Wolvercote Roundabout. There is also some minor re-routing leading to local increases at some of the junctions around Eynsham. Flows reduce in the Carterton-Witney area as a result of active travel improvements, consequently some re-routing occurs as a result of localised reductions in traffic and delay. The model does not show an increase in traffic along the route via South Leigh as it does in DS2, where the overall volume of change in the AM peak hour is below the 20 PCU threshold.

Delay

5.5.16 Figure 5-30 to Figure 5-32 show the change in link delay from the DS1 scenario to the DS3 scenario. In keeping with the limited flow changes, there are also limited changes to the link delays. The main increase is at Cassington where the speed limit is reduced in both directions with other fluctuations



mainly at highly congested areas such as the Swinford toll bridge, or signalised junctions. Similarly to DS2, reductions are forecasted on the A40 and in Witney at the following locations:

- A40 Eastbound at Downs Road roundabout, Dry Lane Southbound or Bridge Street Southbound in the AM peak.
- Burford Road Westbound, at the roundabout with Tower Hill in the interpeak period.
- Burford Road Westbound, at the roundabout with Tower Hill, Curbridge Road Southbound at the roundabout with Deer Park Road or Bridge Road Northbound in the PM peak.

Junction metrics

- 5.5.17 Junction performance for DS3 has been assessed and compared against DS1 to identify those locations most affected. The overall impacts are similar to those observed in DS2, with the A40 / Canalside Quarter junction and Eynsham Roundabout (PM peak) showing reductions in delay along the A40 corridor. Smaller reductions in delay are also evident across junctions within Witney, with the most notable improvement occurring at the Bridge Street / High Street / Mill Street junction in the AM peak, where delays decrease by approximately 19 seconds.
- 5.5.18 Consistent with DS2, the general trend in V/C ratios is a slight decrease in DS3 compared to DS1, indicating improved junction performance. The largest reduction is observed at the Burford Road / Deer Park Road junction in Witney, where the V/C ratio decreases by four percentage points. Appendix E provides a summary of delays and V/C ratios for junctions along the A40 corridor, as well as other key junctions across West Oxfordshire, for both DS1 and DS3 scenarios.

Plots

Figure 5-27 – AM peak – change in flow 2043 DS1 to 2043 DS3 Local Plan: With AT, Bus & MRT Mitigation

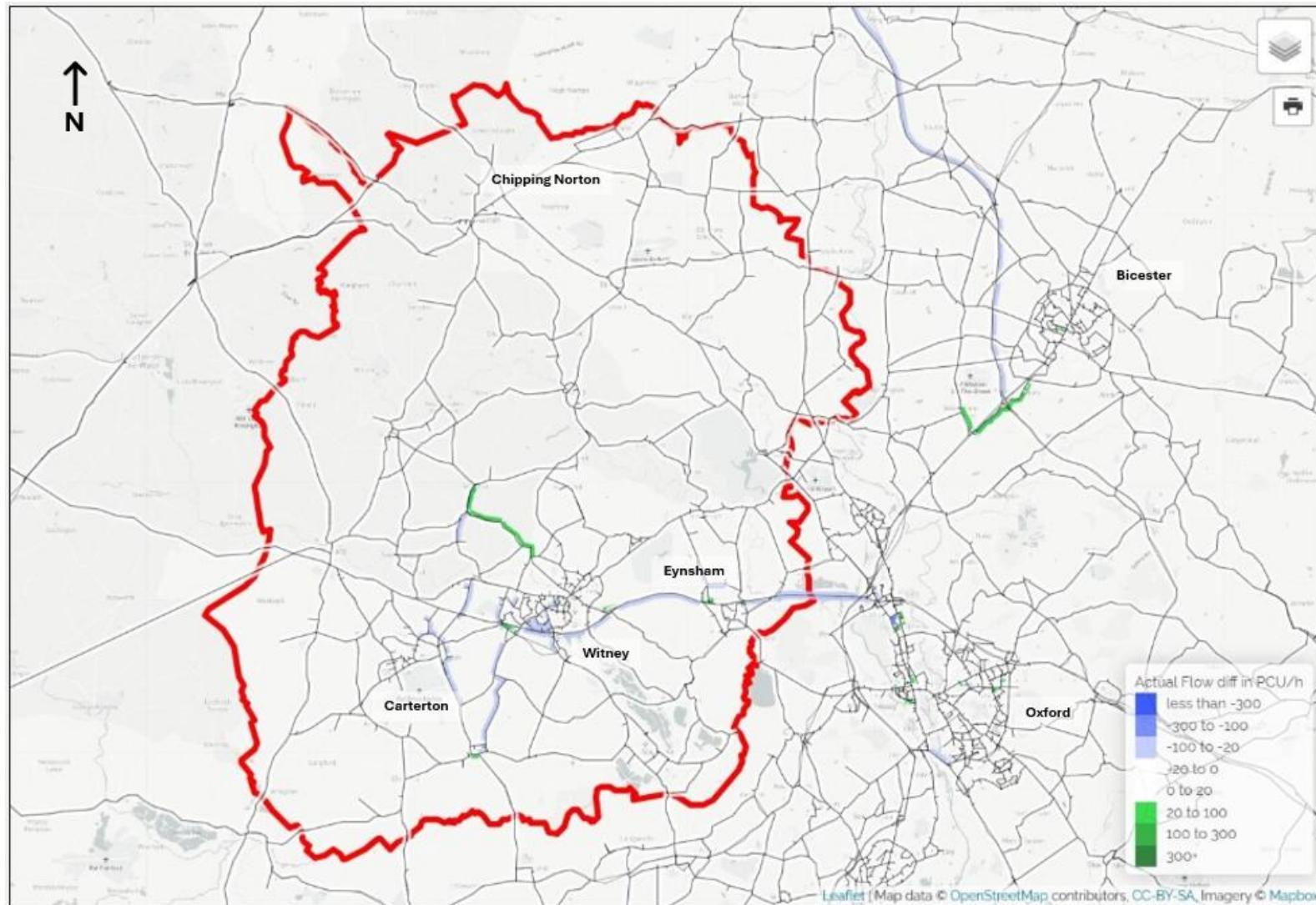


Figure 5-28 – Interpeak – change in flow 2043 DS1 to 2043 DS3 Local Plan: With AT, Bus & MRT Mitigation

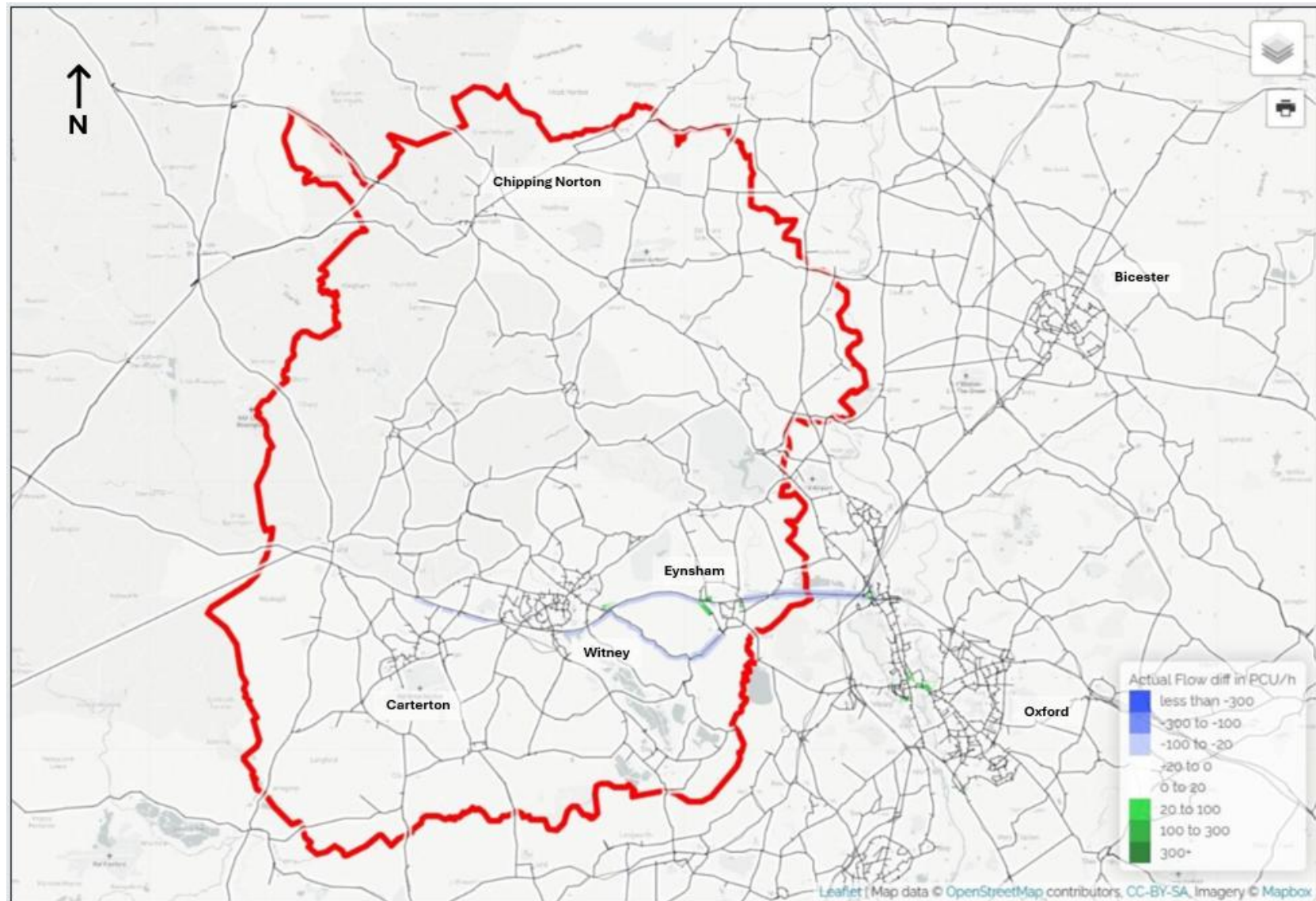


Figure 5-29 – PM peak – change in flow 2043 DS1 to DS3 2043 Local Plan: AT, Bus & MRT Mitigation

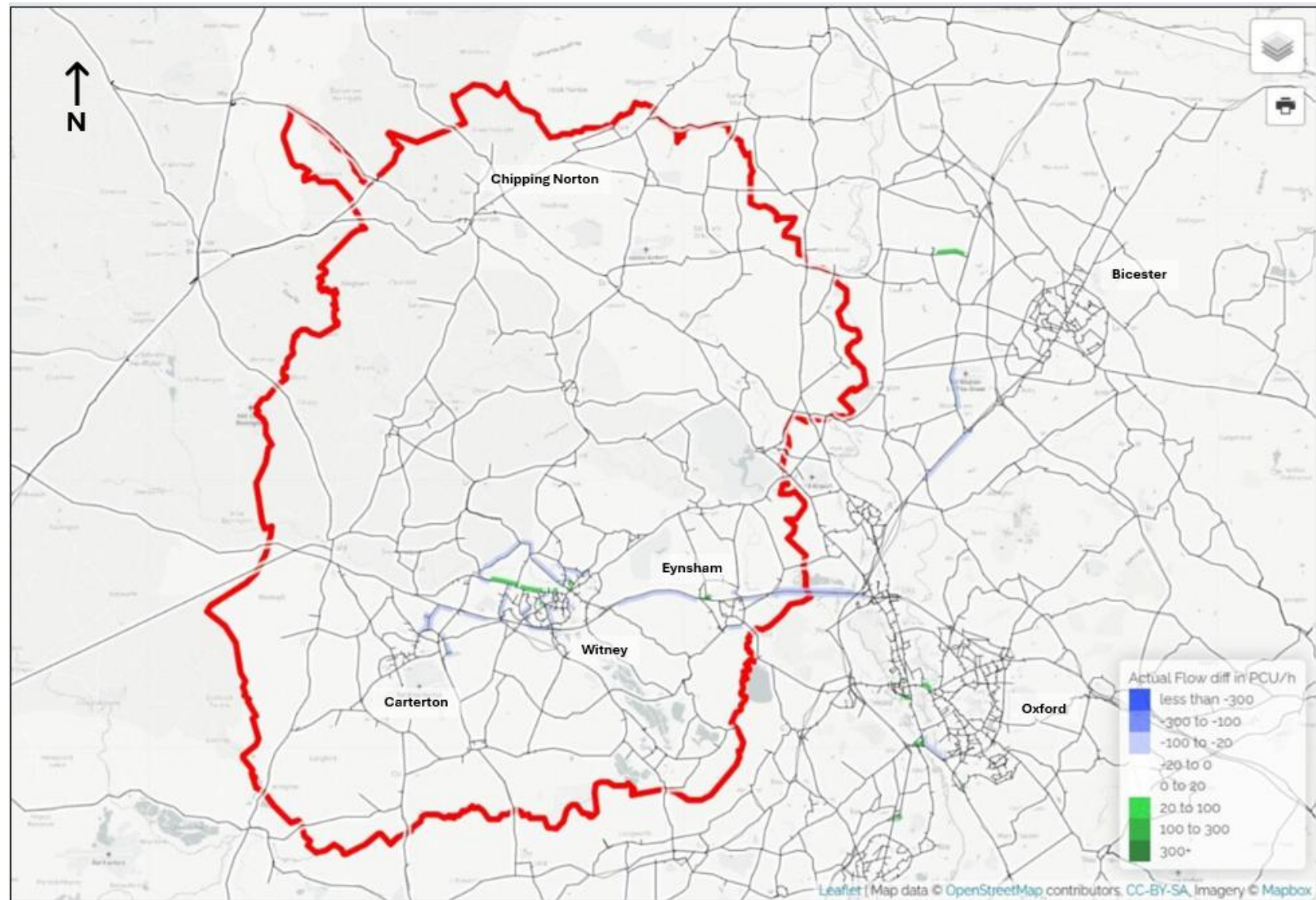


Figure 5-30 – AM peak – link delay change DS1 to DS3 Local Plan: With MRT Mitigation

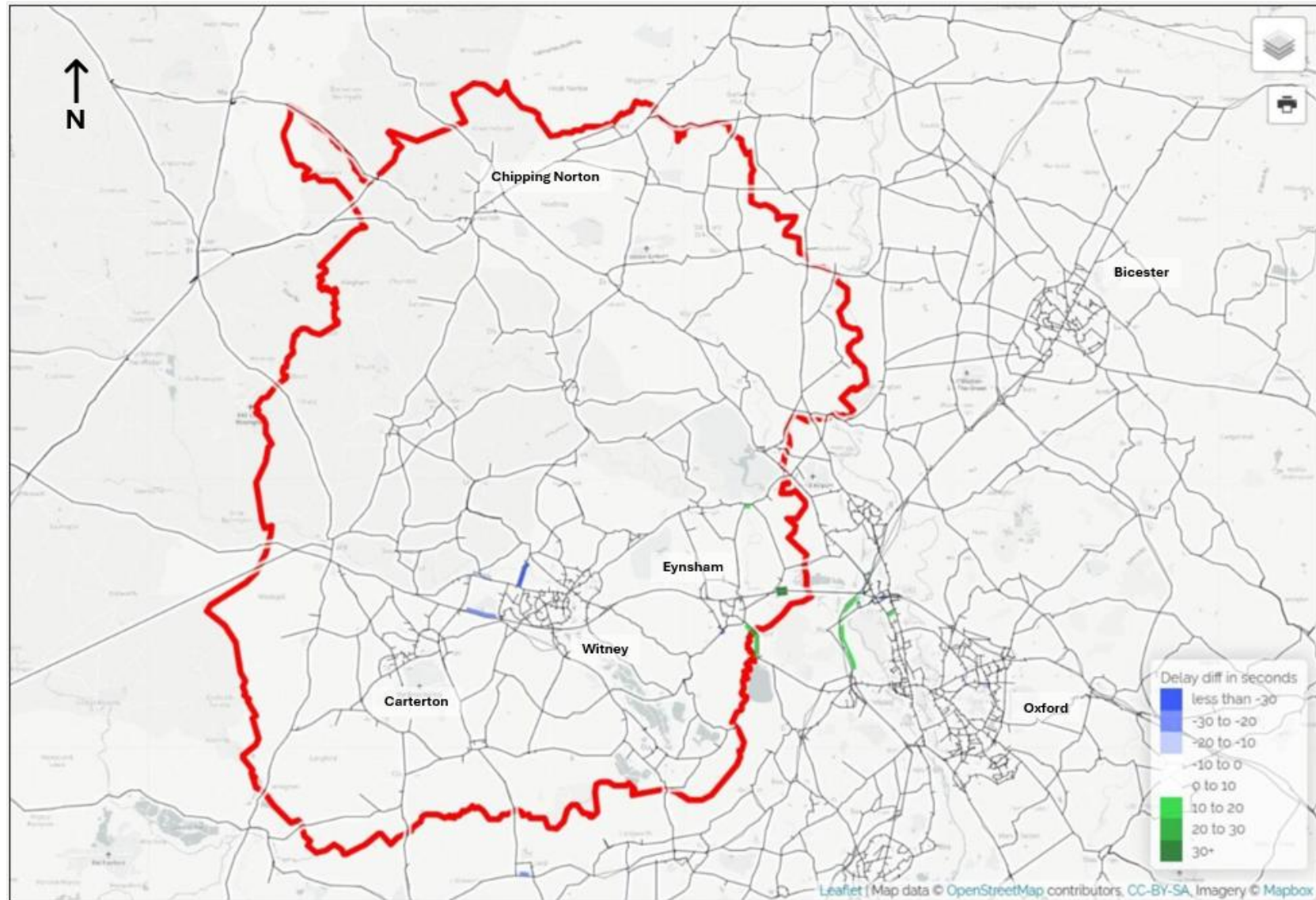


Figure 5-31 – Interpeak – link delay change DS1 to DS3 Local Plan: With MRT Mitigation

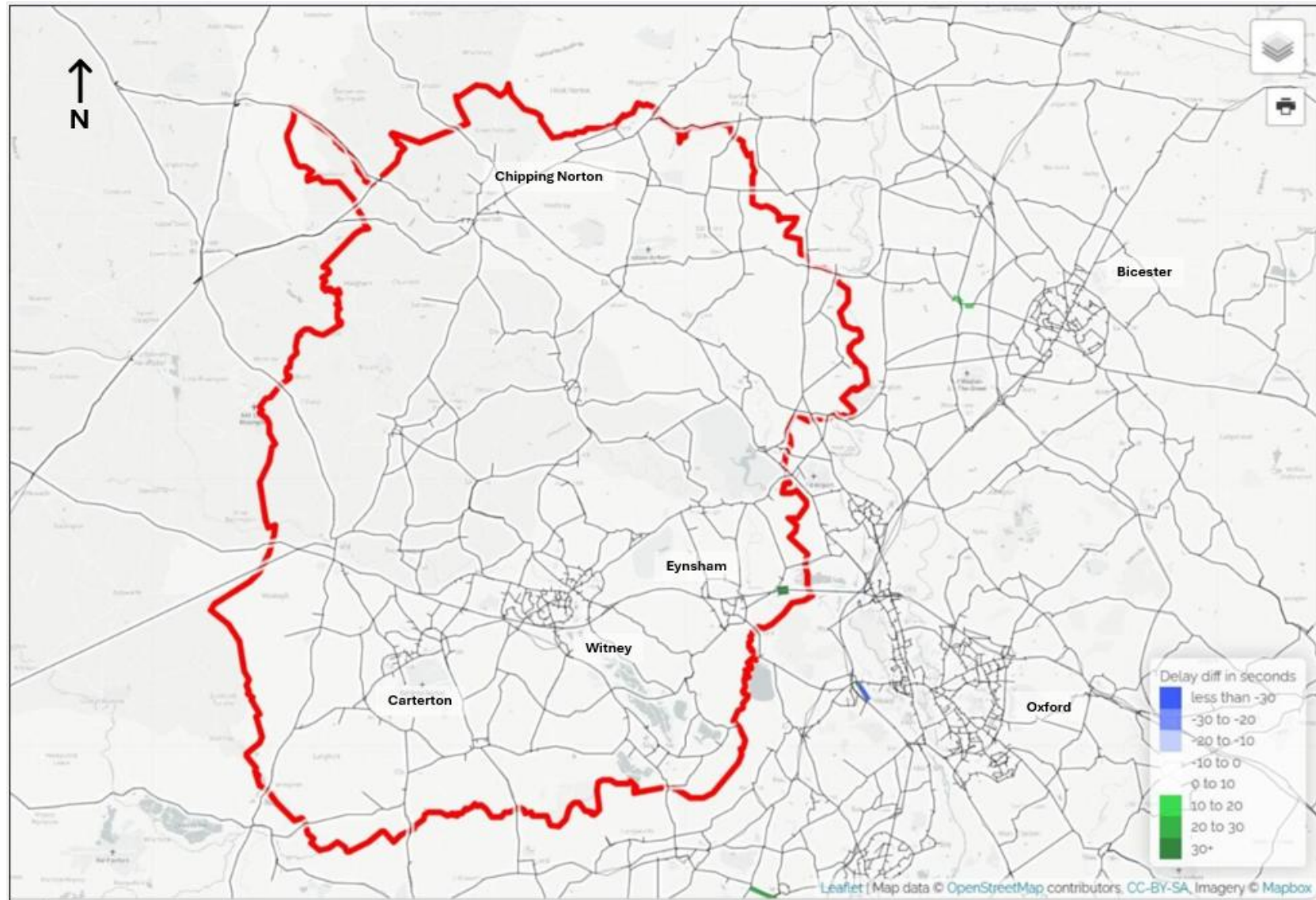
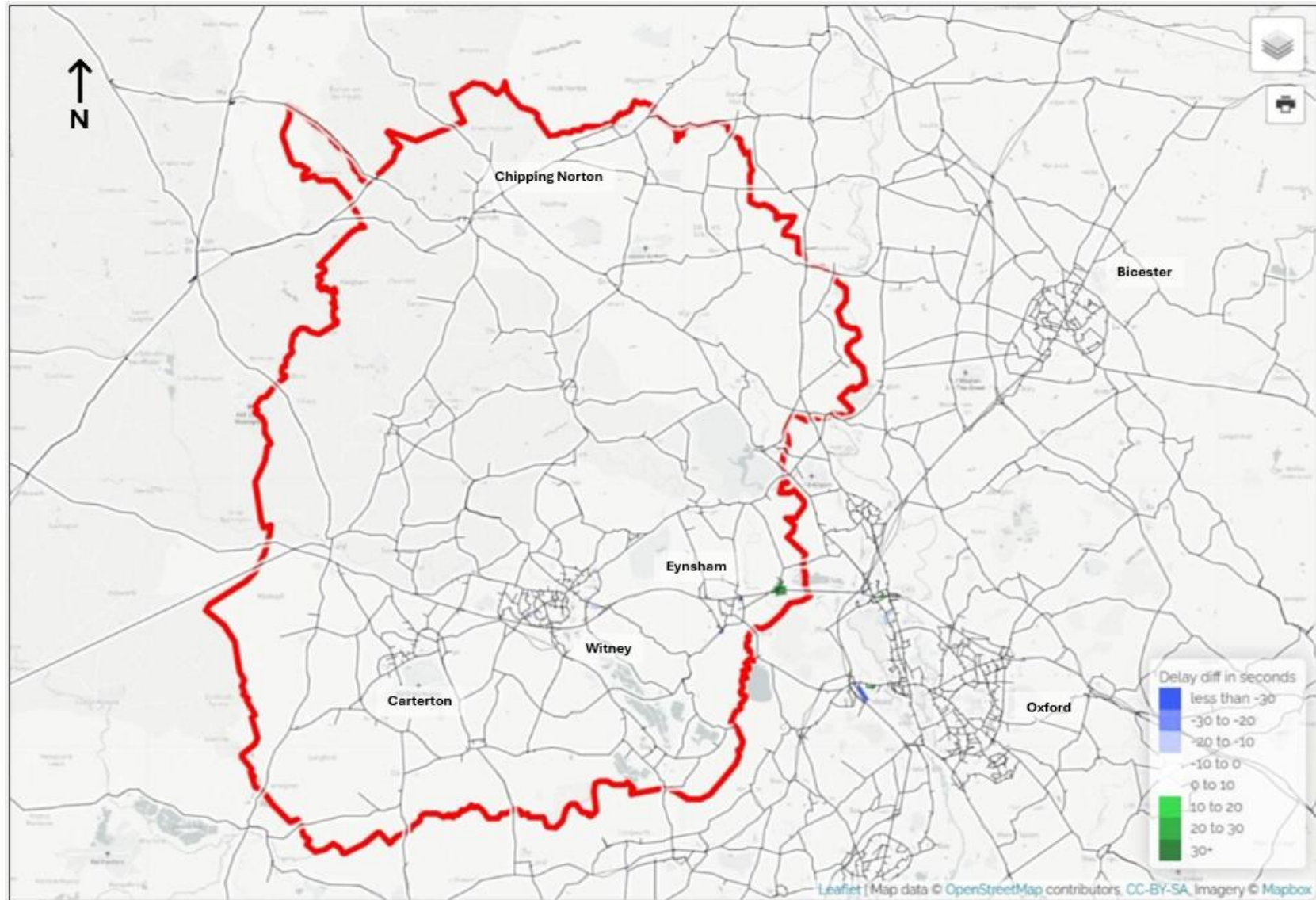


Figure 5-32 – PM peak – link delay change DS1 to DS3 Local Plan: With MRT Mitigation



Bus flows and journey times

Patronage

- 5.5.19 The following figures show the levels of bus patronage across West Oxfordshire. The introduction of the additional bus priority infrastructure and MRT services results in changes in public transport usage, with significant increases on the A40 south of Witney reflecting the introduction of direct MRT services between Carterton and Eynsham P&R, alongside reductions on other routes through Witney.
- 5.5.20 In comparison to DS1, the AM period, there is an increase in patronage of around 10-18% to Oxford City from Witney, Eynsham and Carterton (59 passengers on average). As service provision remains broadly similar to DS1; therefore, most of the changes reflect a shift from regular bus services to the MRT. There is a reduction in patronage between Carterton and Witney of 5% (16 passengers), where there is a lower frequency between these locations in DS3. As noted above, public transport demand is tidal, with these AM inflows to Oxford broadly reflected by reverse flows in the PM period.
- 5.5.21 In comparison to DS2, in the AM period, there is little change in bus patronage between Oxford City and Witney. However, patronage between Carterton and Witney reduces by 18% (66 passengers), as the introduction of the MRT is assumed to replace local buses services. This reduces connectivity between Carterton and Witney because the MRT operates at a lower frequency between these locations and serves fewer intermediate stops. Wider stop spacing also increases access (walking) times, which partially offsets the benefits of faster in-vehicle journey times and improved reliability.
- 5.5.22 In comparison to DS2, patronage increases from Carterton to Oxford City by 8% (34 passengers) and Oxford City to Eynsham by 13% (17 passengers). As noted above, public transport demand is tidal, with AM changes into Oxford broadly mirrored by reverse flows in the PM period.

Plots

Figure 5-33 – AM Peak – bus patronage change 2043 DS1 to 2043 DS3 Local Plan: With Active Travel, Bus and MRT Mitigation

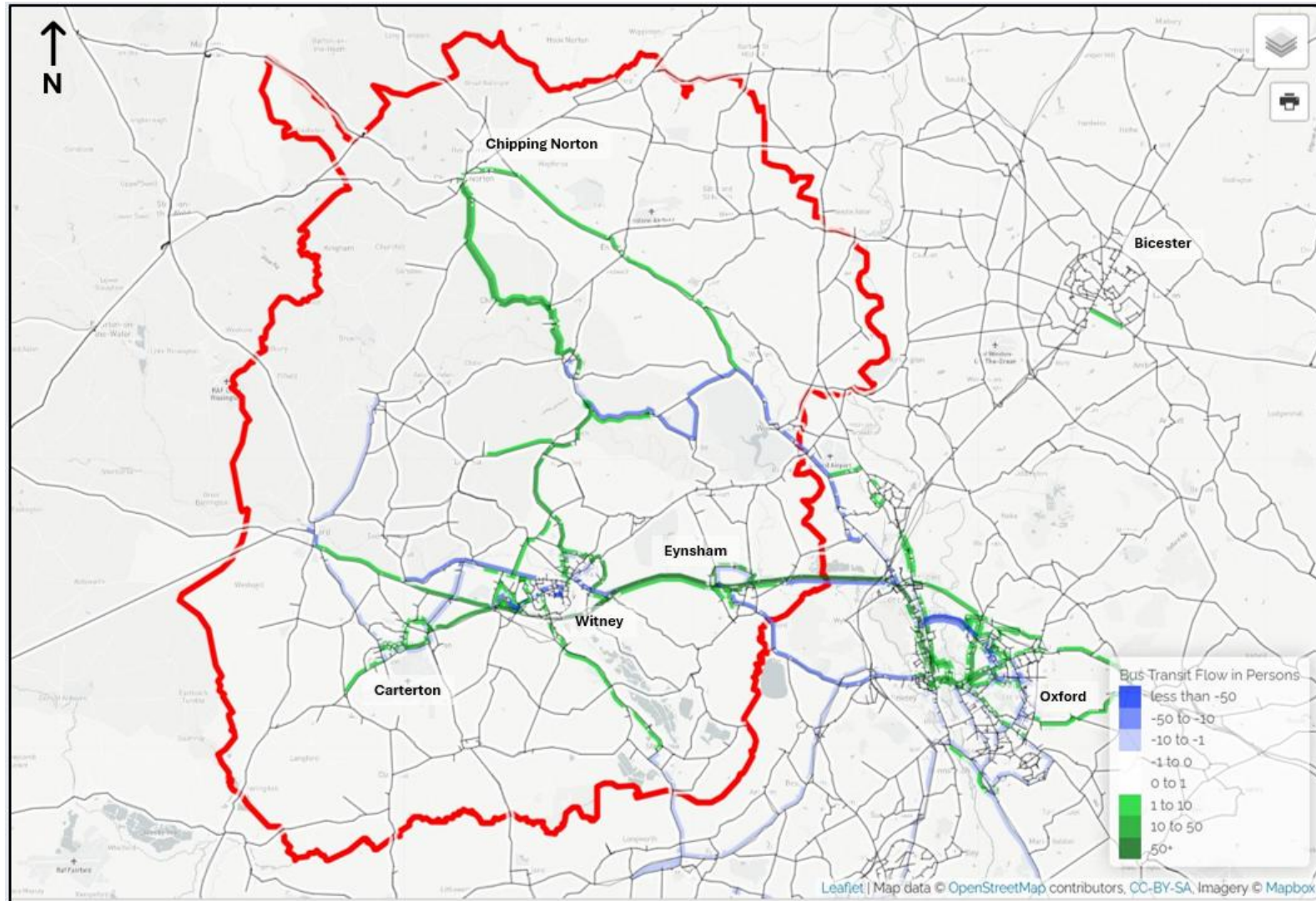


Figure 5-34 – Interpeak – bus patronage change 2043 DS1 to 2043 DS3 Local Plan: With Active Travel, Bus and MRT Mitigation

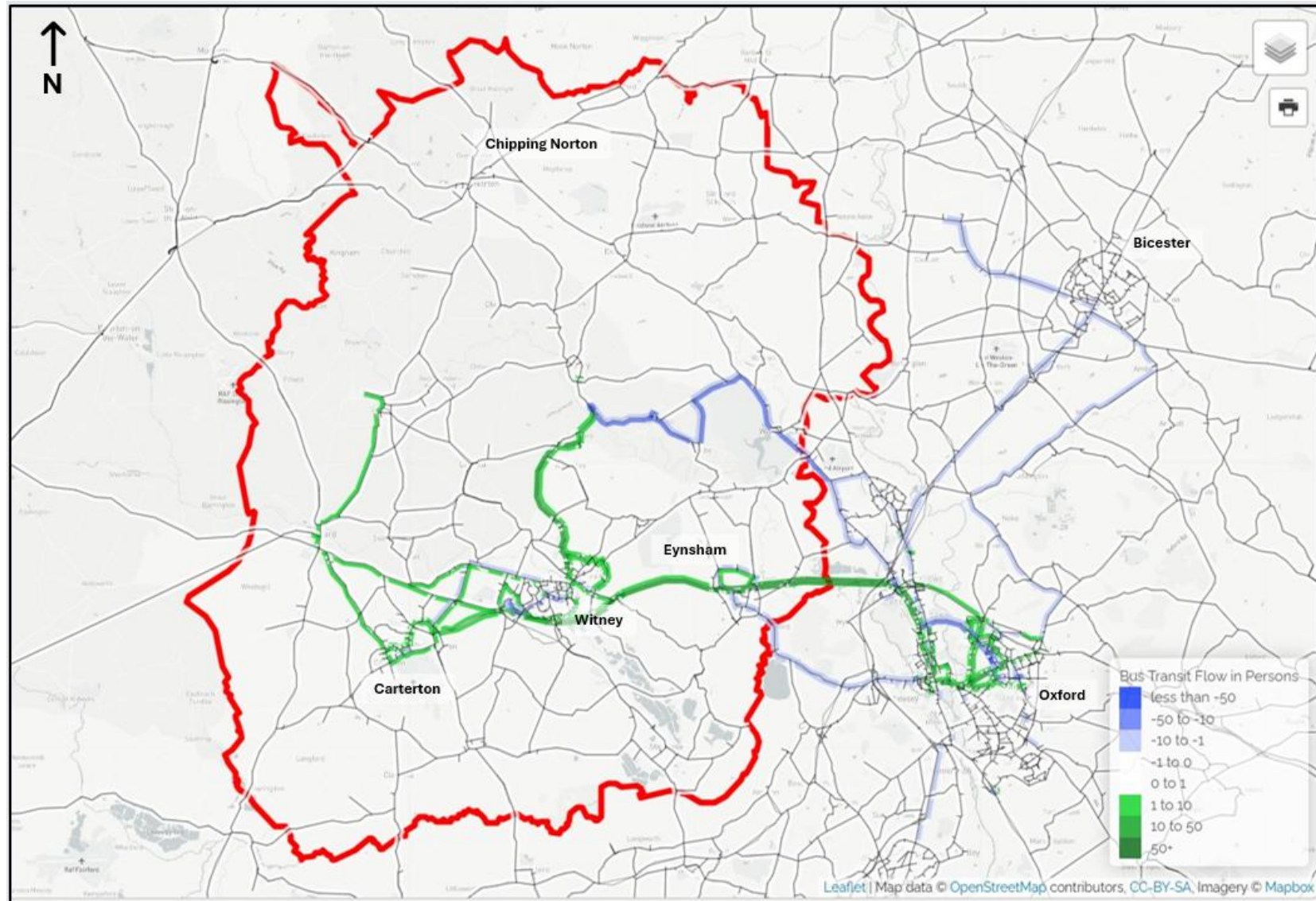
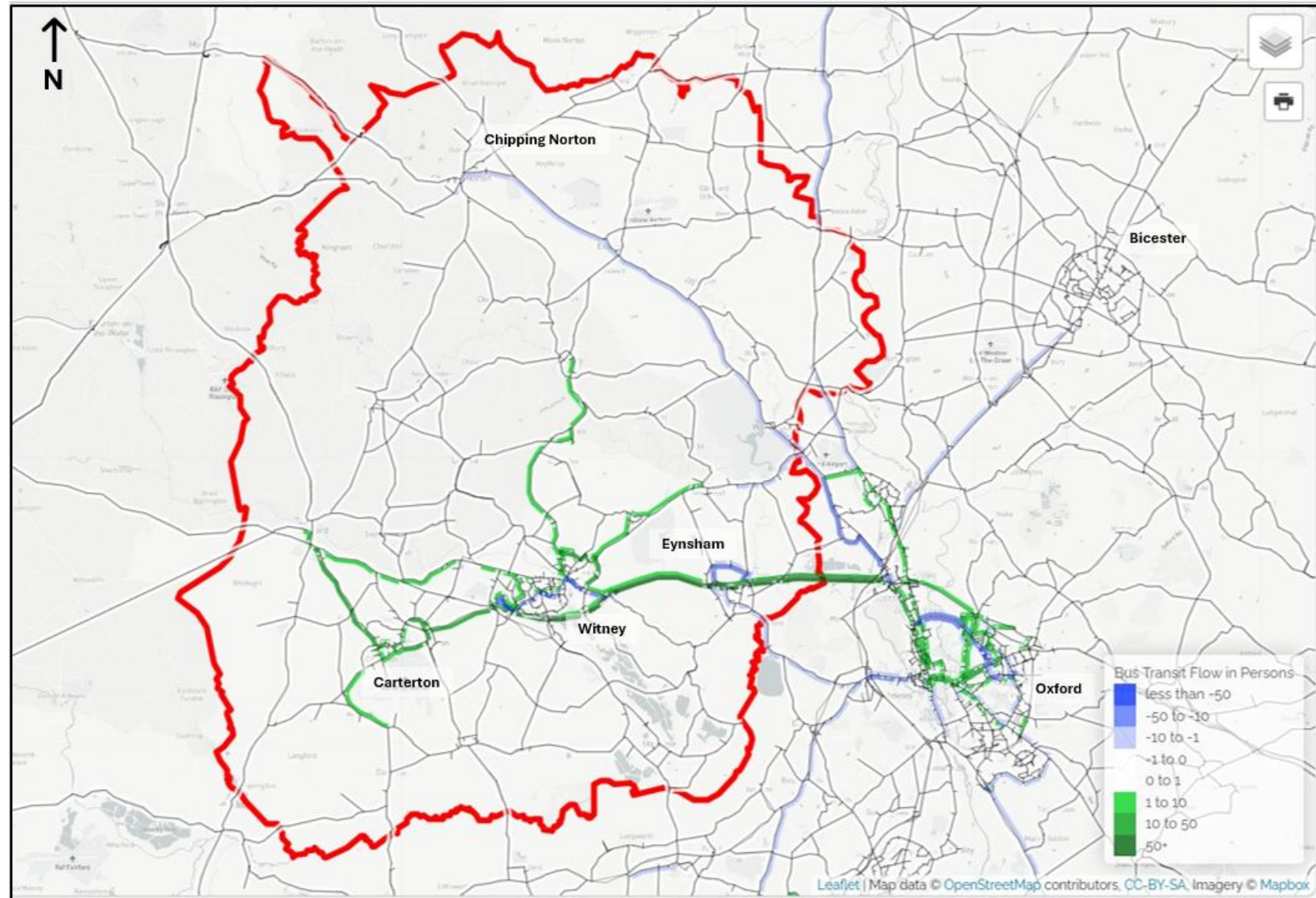


Figure 5-35 – PM Peak – bus patronage change 2043 DS1 to 2043 DS3 Local Plan: With Active Travel, Bus and MRT Mitigation



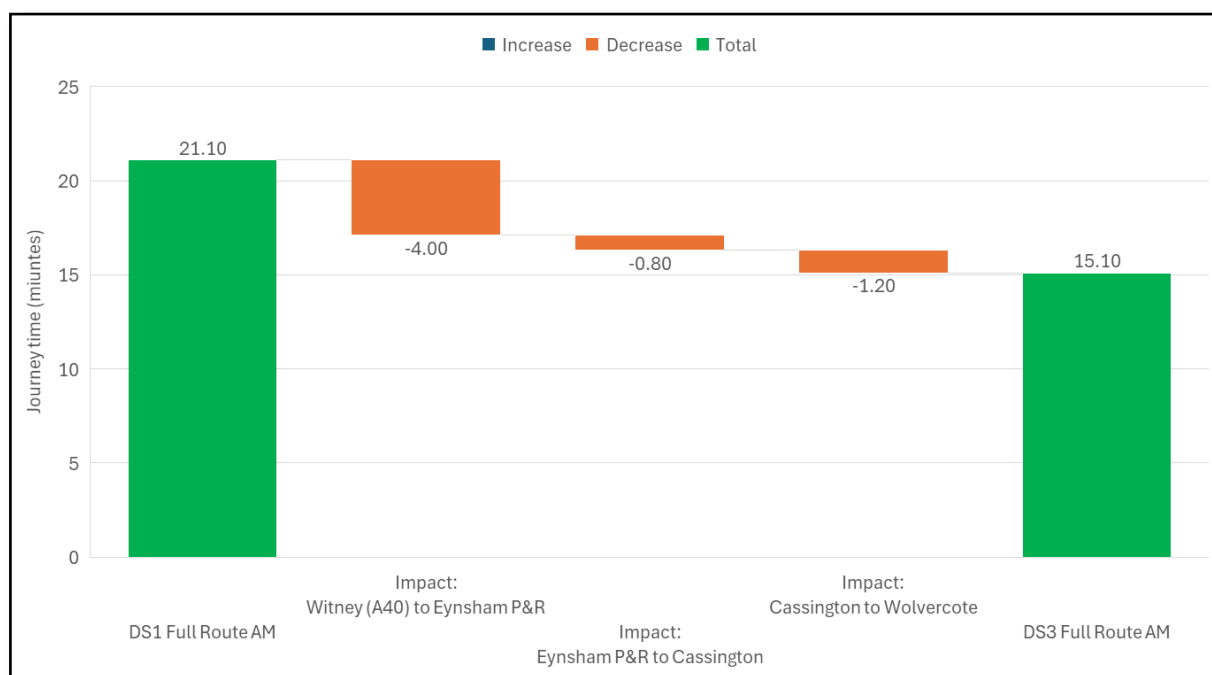
Journey times

5.5.23 The inclusion of the bus lanes along the A40 help to improve reliability of the bus services along the corridor, these improvements can be seen in Table 5-35. The bus lanes between Witney and Eynsham introduced as part of the public transport mitigation package improve the bus journey time by 4 minutes compared to DS1 heading eastbound. The Eynsham to Wolvercote phase 2-4 bus lanes improve the bus journey time by 1.2 minutes compared to DS1 in the eastbound direction resulting in an overall improvement of 6.1 minutes for buses heading towards Oxford in the AM, as seen in Figure 5-36. The changes are similar to those seen for DS2, so MRT does not have a material impact on the bus journey time. In addition, direct services from Carterton to Eynsham, without the need to first travel through Witney, leads to additional journey time savings.

Table 5-35 – A40 Eastbound bus journey time change from 2043 DS1 to 2043 DS3 (minutes)

Bus lane section	Do Something 1			Do Something 3 improvement		
	AM	IP	PM	AM	IP	PM
Witney (A40) to Eynsham P&R	11.0	9.0	9.5	-4.0	-2.9	-3.2
Eynsham P&R to Cassington	3.0	2.4	2.6	-0.8	-0.6	-0.7
Cassington to Wolvercote	7.1	6.9	7.7	-1.2	-1.0	-1.0
Full Route	21.1	18.3	19.7	-6.1	-4.5	-4.9

Figure 5-36 – A40 Eastbound AM bus journey time change from 2043 DS1 to 2043 DS3 (minutes)



5.5.24 In the westbound direction lower levels of bus journey time improvement are forecast. Only a short section of westbound bus lane is proposed in Phases 2-4 of the A40 Eynsham Park & Ride to Wolvercote Scheme (included in the DS3 scenario) on the approach to Cassington, alongside a westbound bus lane between the new West Eynsham junction and Witney. A summary of the improvements is shown in Table 5-24. The introduction of the Eynsham to Witney bus lane results an improved westbound journey time of around 4 minutes in both the AM and PM, as seen in Figure 5-37.

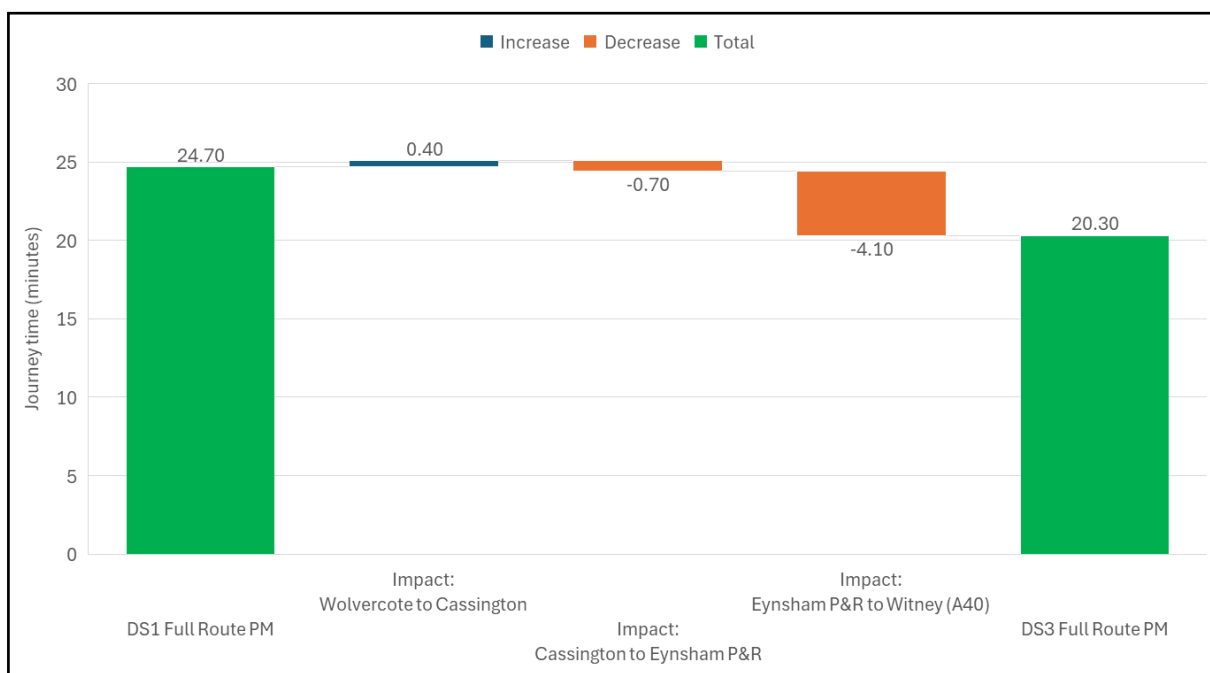
The changes are similar to those seen for DS2, so MRT does not have a material impact on the bus journey time.

- 5.5.25 The greatest improvement in travel time is tidal (AM towards Oxford and PM away from Oxford) so bus lanes in both directions is beneficial.

Table 5-36 – A40 Westbound bus journey time change from 2043 DS1 to 2043 DS3 (minutes)

Bus lane section	Do Something 1			Do Something 3 improvement		
	AM	IP	PM	AM	IP	PM
Wolvercote to Cassington	7.0	8.2	8.4	0.5	0.3	0.4
Cassington to Eynsham P&R	4.6	5.1	6.1	-0.3	-0.5	-0.7
Eynsham P&R to Witney (A40)	9.7	9.3	10.2	-3.6	-2.8	-4.1
Full Route	21.3	22.6	24.7	-3.4	-3.0	-4.4

Figure 5-37 – A40 Westbound PM bus journey time change from 2043 DS1 to 2043 DS3 (minutes)



A40 Segment Detail

- 5.5.26 This analysis compares highway and bus journey times along the A40 corridor, using data extracted from the variable demand model, pre-active mode adjustment, to ensure a consistent journey time baseline across both model runs. It is expected that highway journeys will generally be faster than bus journeys in sections without dedicated bus infrastructure, due to the impacts of intermediate stops, passenger dwell times, and vehicle deceleration/acceleration affecting bus performance.
- 5.5.27 Table 5-37 shows that compared to the DS1 (No Mitigation) scenario, the DS3 (With Active Travel & Mitigation, excluding MRT) scenario results in negligible impacts on eastbound highway journey times, with differences being within 30 seconds across all time periods. Bus journey times, however, show notable improvements, particularly on sections with bus priority, around 3-4 minutes for A40 (Shores

Green) to Eynsham P&R and around 1 minute for Cassington to Wolvercote. Consequently, total eastbound bus journey times reduce by approximately 4.5-6.5 minutes across the peak periods, while total highway journey times remain largely unchanged.

- 5.5.28 Table 5-38 indicates that in the westbound direction, the DS3 scenario results in marginal increases in highway journey times relative to DS1, typically around 1 minute or less. In contrast, bus journey times decrease consistently across all time periods, with the most significant improvements on sections benefiting from bus priority, particularly between Eynsham P&R and A40 Shores Green (3-4 minutes). Overall, total westbound bus journey times reduce by approximately 3.5-4 minutes compared to DS1, while highway journey time impacts remain minor and broadly comparable to the DS1 scenario.
- 5.5.29 Consistent with the reference case, buses are modelled to operate faster than general traffic in the AM peak for A40 (Shores Green) – Witney Centre due to retained base model factors; this does not affect the validity of comparisons between scenarios.

Table 5-37 – A40 Eastbound journey time 2043 DS1 and 2043 DS3 (minutes)

Towards Oxford (eastbound)	Do Minimum Mitigation (DS1)						With Active Travel & Mitigation (DS3) exc. MRT					
	AM		IP		PM		AM		IP		PM	
	HY	Bus	HY	Bus	HY	Bus	HY	Bus	HY	Bus	HY	Bus
Carterton - A40 (Downs Road)	11.1	18.8	10.8	18.5	11.0	18.7	11.1	18.8	10.8	18.5	11.0	18.7
A40 (Downs Road) - Witney Centre	8.3	11.7	7.4	10.0	7.4	10.1	8.3	11.7	7.4	10.0	7.4	10.1
Witney Centre - A40 (Shores Green)	8.4	9.8	6.0	8.0	9.5	7.8	8.6	9.4	6.0	8.0	9.6	7.8
A40 (Shores Green) - Eynsham P&R*	6.6	11.0	5.3	9.0	5.7	9.5	6.6	7.0	5.3	6.1	5.7	6.3
Eynsham P&R - Cassington*	5.6	3.0	4.4	2.4	4.8	2.6	5.4	2.2	4.4	1.8	4.8	1.8
Cassington - Wolvercote**	8.9	7.1	7.4	6.9	7.8	7.7	8.8	5.8	7.6	5.9	7.7	6.7
Total Carterton - Wolvercote	48.8	61.4	41.2	54.7	46.3	56.2	48.7	54.9	41.4	50.2	46.2	51.3

*Highlight reflects near full bus lane (not through stop line) **Highlight reflects partial bus lane (Oxford North, approach to Wolvercote)

Table 5-38 – A40 Westbound journey time 2043 DS1 and 2043 DS3 (minutes)

From Oxford (westbound)	Do Minimum Mitigation (DS1)						With Active Travel & Mitigation (DS3) exc. MRT					
	AM		IP		PM		AM		IP		PM	
	HY	Bus	HY	Bus	HY	Bus	HY	Bus	HY	Bus	HY	Bus
Wolvercote - Cassington*	5.9	7.0	5.6	8.2	6.1	8.4	6.9	7.5	6.4	8.5	7.1	8.7
Cassington - Eynsham P&R*	5.1	4.6	4.4	5.1	5.9	6.1	5.0	4.3	4.4	4.6	5.3	5.4
Eynsham P&R - A40 (Shores Green)*	5.6	9.7	4.9	9.3	5.8	10.2	5.5	6.1	4.8	6.5	5.7	6.1
A40 (Shores Green) - Witney Centre	10.4	8.8	7.3	8.8	8.4	9.7	10.6	8.8	7.3	8.8	8.5	9.8
Witney Centre - A40 (Downs Road)	7.4	10.4	7.3	10.1	8.7	12.0	7.4	10.4	7.3	10.1	8.7	12.0
A40 (Downs Road) - Carterton	11.3	14.8	11.2	14.8	11.5	15.8	11.3	14.8	11.2	14.8	11.5	15.8
Total Wolvercote - Carterton	45.7	55.3	40.7	56.3	46.4	62.1	46.7	51.8	41.4	53.3	46.9	57.8

*Highlight reflects near full bus lane (not through stop line)



6. Key Findings and Conclusions

- 6.1.1 This section draws together the key findings from the strategic transport modelling undertaken to support the emerging West Oxfordshire Local Plan. It summarises the principal forecast impacts of planned growth and the relative performance of the scenarios tested, with a particular focus on highway network performance, bus patronage and bus journey times. The findings are intended to inform decision-making on the scale and type of transport intervention that may be required over time, rather than to define a final or deliverable scheme solution.

Highway

- 6.1.2 The modelling demonstrates that highway conditions in West Oxfordshire deteriorate materially over time, driven both by committed growth in the adopted 2031 Local Plan and by the additional development proposed in the emerging 2043 Local Plan. Even in the Reference Case scenario, increases in travel demand lead to higher total travel time, increased delay and reduced average speeds across the network. The Reference Case also identifies notable operational constraints at junctions including Canalside Quarter, Downs Road, Eynsham Roundabout and several junctions within Witney, where substantial delays are already evident.
- The Local Plan: DS1/Do Minimum Mitigation Scenario shows that the inclusion of the additional housing and employment allocations further exacerbates these pressures. While growth is geographically spread, the modelling indicates that its effects are highly concentrated at specific junctions rather than uniformly across links. The largest impacts are generally observed at locations that are already constrained in the Reference Case, demonstrating that additional demand primarily intensifies existing operational issues rather than creating entirely new network constraints. In particular:
 - Junctions on and adjacent to the A40 corridor act as controlling features, with relatively small increases in flow leading to disproportionate increases in delay once capacity is exceeded.
 - Constraints at locations such as Downs Road, the approach to Park & Ride access junction, and selected West Eynsham, Carterton (including the new/reconfigured A40 junctions) and Witney access points contribute to queuing and delay that then propagates along the corridor.
 - These constraints highlight the need for careful planning of the proposed new junctions on the A40, serving development at Carterton/Brize Norton.
 - Notable increases in delay are observed at Canalside Quarter, Downs Road and Eynsham Roundabout on the A40 corridor, as well as at key junctions within Witney where delays are already significant in the Reference Case.
 - Consideration should also be given to whether forecast demand and delays warrant the inclusion of bus priority measures at these junctions and on their approaches, to minimise delays and maintain journey time advantages for public transport.
 - As capacity is reached, the model shows some re-routing onto alternative and more rural routes, increasing vehicle kilometres travelled and transferring pressure to parts of the network not designed to accommodate strategic movements.
- 6.1.3 The mitigation tested within the active travel and bus-led package (DS2) delivers some modest improvements in aggregate highway performance. At a county-wide and district-wide level, changes in total travel time and delay are small when compared with DS1. However, junction-level assessment demonstrates more noticeable localised benefits, particularly at the A40 / Canalside Quarter junction, Eynsham Roundabout and key junctions within Witney, where reductions in delay broadly offset the

increases associated with the Local Plan development. Volume-to-capacity ratios also show small reductions, indicating a modest easing of pressure at some of the network's more constrained locations. Along parts of the A40 corridor the introduction of bus priority, some targeted junction improvements and changes in speed management reduce delay on some links, offsetting congestion effects elsewhere. This reflects the fact that:

- The corridor is already operating close to capacity in several locations.
- Localised improvements tend to redistribute delay rather than remove it entirely.
- There is limited scope to materially increase general traffic capacity without more substantial intervention.

6.1.4 The Mass Rapid Transit led scenario (DS3) reflects the same highway network as DS2 and shows similar highway performance to DS2, with no step-change improvement in car travel conditions, indicating that the introduction of MRT does not materially alter highway performance within the tested assumptions. This outcome reinforces the conclusion that, within the constraints tested, the level of highway provision represented in the model is unlikely to fully mitigate the impacts of planned growth, particularly on the A40.

6.1.5 Overall, the highway results indicate that:

- There is limited headroom within the existing network to accommodate forecast growth.
- Junction performance, rather than link capacity, is the primary driver of congestion.
- The greatest impacts of planned growth are concentrated at junctions that are already operating under pressure in the Reference Case, particularly along the A40 corridor and at key locations in Witney and Eynsham.
- Any future strategy for supporting growth generally and at specific sites will require a vision-led approach (in-line with Oxfordshire's Local Transport and Connectivity Plan and 'decide and provide' guidance for new development) using combination of demand management, mode shift and targeted intervention, rather than reliance on highway capacity increases alone.

6.1.6 Overall, the strategic modelling indicates that while targeted mitigation can influence how demand is distributed and improve conditions for specific modes, particularly buses, it does not fundamentally remove the underlying pressure on the highway network arising from forecast growth. Both the bus-led (DS2) and MRT-led (DS3) scenarios provide localised improvements in junction performance, reducing delays at several key constrained locations, but neither delivers a step-change in overall highway performance. The A40 corridor in particular remains capacity-constrained, with junction performance driving delay and limiting the effectiveness of incremental highway interventions. The results therefore point to the importance of balancing highway management with measures that reduce reliance on car travel, rather than seeking to accommodate growth through highway capacity alone.

Bus Patronage and Network Performance

6.1.7 Across all scenarios, the modelling shows that bus services remain a critical component of the transport network, particularly for movements along the A40 corridor between West Oxfordshire, Oxford City and Cherwell.

6.1.8 In the Reference Case scenario, bus patronage increases over time broadly in line with overall growth. However, increased congestion along the highway leads to worsening general traffic conditions, which in turn is likely to adversely affect bus journey times and reliability. This limits the effectiveness of bus services in accommodating additional demand without further intervention.

6.1.9 The Local Plan: Do Minimum Mitigation scenario (DS1) results in additional bus patronage associated with new development, particularly from Witney, Carterton and Eynsham. However, without



enhancement to priority or frequency, these services remain exposed to worsening highway conditions. As a result, increases in patronage are achieved with only limited improvement in competitiveness relative to car travel, with modest changes in bus journey times and little material change in general traffic journey times along the A40 (Table 5-13 and Table 5-14).

- 6.1.10 The bus-focused mitigation package (DS2) produces the clearest and most consistent public transport benefits of the scenarios tested. Key outcomes include:
- Increases in bus patronage on core corridors, particularly in the peak periods, reflecting improved service frequency and reduced wait times.
 - Meaningful reductions in bus journey times on the A40, especially in peak directions where buses currently experience significant delay at congested junctions.
 - Improved bus journey time competitiveness relative to car, with reduced bus travel times and minimal impacts on highway journey times.
 - Improved reliability, which underpins increased demand even where highway conditions for general traffic do not materially improve.
- 6.1.11 Importantly, while the absolute scale of mode shift remains modest at a strategic level, the modelling shows that high-quality and frequent bus services are effective at attracting trips that would otherwise travel by car, particularly for commuting and longer-distance movements towards Oxford.
- 6.1.12 The Mass Rapid Transit scenario (DS3) also results in increased bus-based public transport patronage; however, the overall uplift is smaller than that achieved under DS2. This reflects the high-level and conceptual nature of the MRT representation tested, including simplified service patterns and stopping arrangements. While MRT improves journey times between Carterton and Oxford City, these benefits are partially offset by reduced accessibility due to fewer stops, wider spacing, and the replacement of local bus services. Reduced connectivity to key destinations such as the Eastern Arc further weakens overall attractiveness. This is also influenced by the dispersed nature of travel demand across West Oxfordshire, where Figure 5-5 shows trips are distributed across a range of origins and destinations rather than only being concentrated along a single corridor.
- 6.1.13 The rural nature of West Oxfordshire, with relatively small population centres and varied travel patterns, may mean that travel demand is less concentrated than typically required to maximise the effectiveness of MRT or rail-based solutions, and may therefore be more responsive to a combination of flexible bus services and Park & Ride provision. The results suggest potential, but also indicate that:
- Further refinement of routeing, service frequency and integration would be required to unlock stronger benefits.
 - At this stage, the potential MRT scenario tested performs no better than an enhanced high-frequency bus offer in supporting mode shift.
- 6.1.14 Across both the DS2 and DS3 mitigation scenarios, the inclusion of active travel assumptions in support of public transport helps to reinforce bus use for shorter feeder trips within Witney and Carterton, and to Park & Ride locations. While the scale of the modelled cycling shift is limited, it contributes to incremental reductions in local highway demand and delay, particularly at busy urban junctions that also affect bus reliability.
- 6.1.15 In summary, the bus patronage results demonstrate that:
- Service quality and frequency matter more than network coverage alone.
 - Planned and potential further bus priority on the A40 delivers tangible journey time and reliability benefits, even where highway congestion persists.

- High-quality bus services represent one of the most effective tools available within the corridor to support planned growth and promote mode shift.
- More transformative outcomes would require either higher frequencies and more extensive public transport priority or a wider package of complementary measures, such as priority at bus junctions.

Bus Journey Times

- 6.1.16 The A40 segment corridor analysis for both DS2 and DS3 demonstrates a consistent pattern, with bus priority measures delivering targeted and tangible improvements in bus journey times, particularly at key congestion pinch points such as Eynsham, Cassington and the approaches to Wolvercote Roundabout and in peak periods. In both scenarios, these benefits are most evident in locations where buses are currently most affected by delay, while general traffic journey times show limited change and remain constrained by junction capacity and background demand. As a result, improvements in bus performance are achieved primarily through enhanced reliability and reduced delay rather than through a step change in overall corridor conditions. This leads to a measurable improvement in bus journey time competitiveness relative to car travel in both scenarios, which will be critical in supporting increased bus patronage and driving mode shift associated with new development at Eynsham, Witney and Carterton.
- 6.1.17 The modelling demonstrates that the delivery of the Eynsham to Wolvercote Phase 2-4 bus lanes, and particularly completion of the eastbound bus lane between Cassington and Duke's Cut, will provide worthwhile passenger journey time and reliability benefits on a section of the A40 that will have high bus flows and passenger numbers.
- 6.1.18 The analysis demonstrates that the primary driver of bus journey time improvements is the provision of bus lanes between Witney and Eynsham P&R in both directions, and smaller gains further west. Journey times are broadly similar in DS2 and DS3, suggesting infrastructure provision plays a key role; however, service patterns (including limited stops and reduced local provision) also influence patronage, particularly for trips such as Carterton–Witney where reduced stopping and frequency offset MRT benefits.

Park & Ride

- 6.1.19 In the DS2 mitigation scenario, the model shows an increase in Park & Ride (P&R) usage at Eynsham (+281 AM boarders), driven by improved service frequency and reduced wait times compared to DS1. It should be noted that key sites, particularly Redbridge and Eynsham, are already forecast by OSM to be at or over capacity, meaning the modelled increases may not be fully achievable in practice without additional provision. This will need to be monitored over time and once Eynsham Park & Ride site begins operation.
- 6.1.20 In the DS3 MRT scenario, modelled patronage returns broadly to DS1 levels, reflecting the reduced frequency of the proposed MRT scenario and also not fully serving key P&R trip patterns, which diminishes the attractiveness of sites such as Eynsham.

Active travel

- 6.1.21 The highway results incorporate an active travel adjustment allowing a proportion of shorter car journeys to be replaced by cycling, reflecting improved walking and cycling provision. The resulting mode shift is similar across the DS2 and DS3 scenarios and is forecast to reduce car demand on the modelled highway network by approximately 5,400 trips over a 12-hour period (around 340 interpeak, 610 AM peak and 660 PM peak hourly trips). Reductions are particularly evident in movements between Carterton, Witney and the Local Plan sites. These findings emphasise the importance of delivering high-



quality active travel infrastructure that provides direct and attractive connections between new developments, existing communities and key services. Such provision will be critical in reducing short-distance car trips in settlements including Witney, Carterton, Eynsham and Chipping Norton, thereby helping to manage highway demand and associated delays.

Sector demand analysis

- 6.1.22 In the Reference Case scenario, car mode share is materially lower for trips between West Oxfordshire and Oxford City than for trips between West Oxfordshire and other Oxfordshire districts or the rest of the model area, which is consistent with the assumptions underpinning the VDM; Park & Ride trips are included within total car share in this analysis. Within the Reference Case, the car mode share for movements between West Oxfordshire and Oxford City typically sits in the 70-80% range (varying by time period), whereas movements between West Oxfordshire and other districts are generally above 95%; trips within West Oxfordshire average around 90%. These absolute values should, however, be interpreted with caution, as car demand was calibrated for both the 2019 base year and 2023 present year (increasing car trips notably along the A40 corridor and in Witney), while equivalent calibration of public transport demand was not undertaken due to limited disaggregated data - meaning bus demand may be underestimated and car mode shares correspondingly overstated. Against that backdrop, the relative changes reported for the DS scenarios compared with Ref Case are expected to be more reliable based on the changes in transport supply and travel costs than the absolute mode shares.
- 6.1.23 Across the DS scenarios, DS1 shows broadly similar mode shares to the Reference Case averages, with Witney and Carterton consistently exhibiting the highest car mode shares (above the West Oxfordshire average); the additional Enstone Site V development also sits at a similarly high car mode share (96%), and trips within West Oxfordshire are slightly higher than Ref Case (averaging 93%). The high levels of car use are related to dispersed travel patterns in the mainly rural area which are harder to serve by public transport. Because DS2 adopts the same land use assumptions as DS1, differences in mode share are attributable to the mitigation package: compared with DS1, car mode share reduces by around 1% for Salt Cross, North Witney SDA, Carterton Sites H and I, Land at West Witney Downs Road (Curbridge), and Ventura Park, with smaller reductions also apparent across other developments and for Witney overall. DS3 likewise retains DS1 land use assumptions, and compared with DS1 it continues to show an approximately 1% reduction for Salt Cross, North Witney SDA, and Carterton Sites H and I, while Land at West Witney Downs Road (Curbridge) and Ventura Park revert to broadly DS1 levels; marginal reductions are also evident for Carterton overall, indicating a modest impact associated with the MRT services.
- 6.1.24 The sector demand analysis highlights that a significant proportion of future travel demand is concentrated within West Oxfordshire and along the A40 corridor between the settlements of Carterton, Witney and Eynsham, as well as Oxford. This provides a strong basis for investment in high-quality public transport and active travel infrastructure to support planned growth.
- 6.1.25 The modelling indicates that car travel is likely to remain an important mode for many journeys, reflecting the district's rural nature and dispersed travel patterns. Achieving lower car mode shares at new development sites is therefore likely to require a combination of attractive public transport, improved bus reliability, bus priority measures and high-quality active travel connections. The results suggest that current travel patterns and density of development are more closely aligned with enhanced bus-based solutions than a dedicated MRT network. While the MRT scenario generated some additional benefits, these were generally modest compared with the enhanced bus and active travel scenario, indicating that any future MRT proposal would require further development and integration with local bus services to extend the catchment areas.

- 6.1.26 More generally, the findings highlight the benefits of locating new homes, employment and services in close proximity, helping to support shorter journeys and increasing opportunities for travel by sustainable modes. These findings can help inform future master planning and site-specific mitigation proposals.

Bus Priority Opportunities

- 6.1.27 The combined junction performance, link delay and bus journey time assessments highlight several locations where future development proposals could consider bus priority measures to support reliable and attractive bus services.
- 6.1.28 The strongest opportunities are along the A40 corridor, particularly at the West Eynsham / Salt Cross access junctions and the Eynsham Park & Ride junction and western approaches to Oxford, where high junction delays and link delays coincide with key bus routes serving existing and planned development.
- 6.1.29 Within Witney and Carterton, delays are concentrated at key access and gateway junctions, including the Downs Road and Jubilee Way / Oxford Hill corridors. These routes provide important connections between planned development areas and Oxford-bound bus services, suggesting that opportunities to improve bus reliability should be considered as development comes forward.
- 6.1.30 The proposed new A40 junctions serving development at Carterton and Brize Norton also provide an opportunity for measures that support efficient bus operation to be considered as part of the detailed design process, helping to improve access to sustainable travel options from the outset.
- 6.1.31 Overall, the modelling indicates that the greatest opportunities for future bus-focused interventions are likely to be at locations where junction constraints and link delays coincide with key public transport corridors, particularly between Carterton, Witney, West Eynsham and the Eynsham Park & Ride. These findings can be used to inform future planning decisions and the development of transport strategies across the district.

APPENDICES

Appendix A. Base Year Validation

A.1 Screenlines

Table A-1 – AM peak screenlines

Screenline	Direction	Observed Flow (Vehicles)	Modelled Flow (Vehicles)	Abs Diff	% Diff	GEH	Pass/Fail
Witney Screenline 1	Eastbound	2,487	2,602	115	4.60%	2.3	Pass
Witney Screenline 1	Westbound	1,239	1,051	-188	-15.20%	5.6	Near
Witney Screenline 2	Northbound	2,451	3,158	707	28.80%	13.3	Fail
Witney Screenline 2	Southbound	2,158	2,187	29	1.30%	0.6	Pass
Witney Cordon	Inbound	5,120	5,239	118	2.30%	1.6	Pass
Witney Cordon	Outbound	3,990	3,874	-116	-2.90%	1.9	Pass
Carterton Cordon	Inbound	1,318	1,247	-71	-5.40%	2	Near
Carterton Cordon	Outbound	1,613	1,478	-135	-8.40%	3.4	Near
Eynsham Cordon	Inbound	2,572	2,662	90	3.50%	1.8	Pass
Eynsham Cordon	Outbound	2,681	2,554	-127	-4.70%	2.5	Pass
Oxford Screenline	Inbound	1,731	1,644	-87	-5.10%	2.1	Near
Oxford Screenline	Outbound	1,264	1,184	-80	-6.30%	2.3	Near
Oxford ZEZ Cordon	Inbound	1,164	1,119	-45	-3.90%	1.3	Pass
Oxford ZEZ Cordon	Outbound	1,110	1,246	136	12.30%	4	Near
Oxford Inner Cordon	Inbound	3,706	3,796	90	2.40%	1.5	Pass
Oxford Inner Cordon	Outbound	3,136	3,266	130	4.10%	2.3	Pass
Oxford Outer Cordon	Inbound	3,891	4,156	265	6.80%	4.2	Near
Oxford Outer Cordon	Outbound	2,985	3,114	129	4.30%	2.3	Pass



Table A-2 – Interpeak screenlines

Screenline	Direction	Observed Flow (Vehicles)	Modelled Flow (Vehicles)	Abs Diff	% Diff	GEH	Pass/Fail
Witney Screenline 1	Eastbound	1,549	1,574	25	1.60%	0.6	Pass
Witney Screenline 1	Westbound	1,627	1,782	155	9.50%	3.8	Near
Witney Screenline 2	Northbound	1,757	2,096	339	19.30%	7.7	Fail
Witney Screenline 2	Southbound	1,837	2,298	461	25.10%	10.1	Fail
Witney Cordon	Inbound	3,231	3,410	179	5.50%	3.1	Near
Witney Cordon	Outbound	3,223	3,223	0	0.00%	0	Pass
Carterton Cordon	Inbound	944	929	-16	-1.70%	0.5	Pass
Carterton Cordon	Outbound	1,004	967	-37	-3.70%	1.2	Pass
Eynsham Cordon	Inbound	2,018	2,087	69	3.40%	1.5	Pass
Eynsham Cordon	Outbound	1,990	2,075	85	4.30%	1.9	Pass
Oxford Screenline	Inbound	1,410	1,299	-111	-7.90%	3	Near
Oxford Screenline	Outbound	1,433	1,338	-95	-6.70%	2.6	Near
Oxford ZEZ Cordon	Inbound	848	1,043	195	22.90%	6.3	Near
Oxford ZEZ Cordon	Outbound	907	860	-47	-5.20%	1.6	Near
Oxford Inner Cordon	Inbound	2,679	2,704	25	0.90%	0.5	Pass
Oxford Inner Cordon	Outbound	2,694	2,821	127	4.70%	2.4	Pass
Oxford Outer Cordon	Inbound	2,888	2,821	-67	-2.30%	1.3	Pass
Oxford Outer Cordon	Outbound	3,254	3,307	53	1.60%	0.9	Pass



Table A-3 – PM peak screenlines

Screenline	Direction	Observed Flow (Vehicles)	Modelled Flow (Vehicles)	Abs Diff	% Diff	GEH	Pass/Fail
Witney Screenline 1	Eastbound	1,527	1,278	-249	-16.30%	6.6	Near
Witney Screenline 1	Westbound	2,518	2,481	-37	-1.50%	0.7	Pass
Witney Screenline 2	Northbound	2,385	2,739	354	14.80%	7	Near
Witney Screenline 2	Southbound	2,499	2,981	482	19.30%	9.2	Fail
Witney Cordon	Inbound	4,939	5,056	117	2.40%	1.7	Pass
Witney Cordon	Outbound	5,423	5,221	-202	-3.70%	2.8	Pass
Carterton Cordon	Inbound	1,870	1,690	-179	-9.60%	4.3	Near
Carterton Cordon	Outbound	1,461	1,418	-44	-3.00%	1.2	Pass
Eynsham Cordon	Inbound	3,125	3,216	91	2.90%	1.6	Pass
Eynsham Cordon	Outbound	3,021	3,071	50	1.60%	0.9	Pass
Oxford Screenline	Inbound	1,748	1,650	-98	-5.60%	2.4	Near
Oxford Screenline	Outbound	1,646	1,722	76	4.60%	1.8	Pass
Oxford ZEZ Cordon	Inbound	1,094	1,259	165	15.10%	4.8	Near
Oxford ZEZ Cordon	Outbound	1,181	1,148	-32	-2.70%	0.9	Pass
Oxford Inner Cordon	Inbound	3,173	3,243	70	2.20%	1.2	Pass
Oxford Inner Cordon	Outbound	3,452	3,594	142	4.10%	2.4	Pass
Oxford Outer Cordon	Inbound	3,272	3,055	-217	-6.60%	3.9	Near
Oxford Outer Cordon	Outbound	4,772	4,495	-277	-5.80%	4.1	Near

A.2 Journey time routes

Table A-4 – AM Peak journey time routes – West Oxfordshire

Route ID	Observed Journey Time	Modelled Journey Time	Difference	Percentage Difference	Pass/Near/Fail
R2 EB	18:49	12:40	-06:09	-32.70%	Fail
R2 WB	09:47	11:54	02:06	21.50%	Near
R3 NB	15:28	14:10	-01:17	-8.40%	Pass
R3 SB	27:39	15:55	-11:43	-42.40%	Fail
R5 NB	06:46	06:29	-00:17	-4.20%	Pass
R5 SB	06:53	06:39	-00:13	-3.40%	Pass
R6 NB	08:08	07:23	-00:44	-9.10%	Pass
R6 SB	07:36	07:57	00:21	4.60%	Pass
R7 EB	06:25	08:29	02:04	32.40%	Fail
R7 WB	06:52	06:53	00:01	0.40%	Pass
R8 EB	08:44	09:38	00:54	10.30%	Pass
R8 WB	13:06	14:05	00:58	7.40%	Pass
R9 EB	08:48	06:46	-02:02	-23.20%	Near
R9 WB	07:07	07:25	00:18	4.30%	Pass
R10 NB	12:58	11:43	-01:14	-9.60%	Pass
R10 SB	20:06	15:45	-04:20	-21.60%	Near
R11 EB	13:43	05:21	-08:22	-61.00%	Fail
R11 WB	14:06	06:01	-08:05	-57.30%	Fail

Table A-5 – AM Peak journey time routes – Rest of Oxfordshire

Route ID	Observed Journey Time	Modelled Journey Time	Difference	Percentage Difference	Pass/Near/Fail
R1 NB	02:22	02:58	00:36	26.00%	Pass
R1 SB	04:41	03:04	-01:36	-34.30%	Fail
R4 NB	20:44	17:41	-03:02	-14.70%	Pass
R4 SB	32:37	21:10	-11:26	-35.10%	Fail
R12 NB	20:03	19:43	-00:19	-1.60%	Pass
R12 SB	21:35	23:33	01:58	9.20%	Pass
R13 EB	11:34	13:36	02:02	17.60%	Near
R13 WB	07:46	08:47	01:01	13.20%	Pass
R14 EB	09:17	10:30	01:13	13.20%	Pass
R14 WB	14:39	12:29	-02:09	-14.70%	Pass
R15 NB	07:42	08:08	00:26	5.70%	Pass
R15 SB	06:43	07:03	00:20	5.10%	Pass
R16 NB	21:36	21:30	-00:05	-0.40%	Pass
R16 SB	20:48	20:51	00:02	0.20%	Pass
R17 EB	24:19	22:30	-01:48	-7.50%	Pass
R17 WB	23:50	26:37	02:46	11.60%	Pass
R18 EB	04:44	05:21	00:36	13.00%	Pass
R18 WB	05:06	07:03	01:56	37.90%	Fail
R19 EB	05:15	05:01	-00:14	-4.50%	Pass
R19 WB	04:17	04:53	00:36	14.00%	Pass
R20 EB	14:49	13:10	-01:39	-11.20%	Pass
R20 WB	15:09	16:06	00:56	6.20%	Pass
R21 EB	10:36	09:23	-01:13	-11.50%	Pass
R21 WB	10:12	09:23	-00:49	-8.00%	Pass

Table A-6 – Interpeak journey time routes – West Oxfordshire

Route ID	Observed Journey Time	Modelled Journey Time	Difference	Percentage Difference	Pass/Near/ Fail
R5 NB	06:31	06:23	-00:07	-2.00%	Pass
R5 SB	06:34	06:29	-00:04	-1.30%	Pass
R6 NB	07:45	07:16	-00:28	-6.20%	Pass
R6 SB	07:46	07:56	00:10	2.20%	Pass
R7 EB	06:40	07:29	00:49	12.30%	Pass
R7 WB	06:46	07:00	00:14	3.50%	Pass
R8 EB	07:22	09:23	02:01	27.60%	Fail
R8 WB	06:43	06:55	00:12	3.00%	Pass
R9 EB	07:43	07:21	-00:21	-4.60%	Pass
R9 WB	08:09	06:27	-01:41	-20.80%	Near
R10 NB	10:40	09:37	-01:02	-9.70%	Pass
R10 SB	11:25	10:10	-01:14	-10.90%	Pass
R11 EB	06:04	04:53	-01:10	-19.30%	Near
R11 WB	06:13	05:34	-00:38	-10.30%	Pass

Table A-7 – Interpeak journey time routes – Rest of Oxfordshire

Route ID	Observed Journey Time	Modelled Journey Time	Difference	Percentage Difference	Pass/Near/ Fail
R12 NB	16:20	18:40	02:20	14.30%	Pass
R12 SB	17:18	19:12	01:54	11.00%	Pass
R13 EB	07:47	09:51	02:04	26.80%	Fail
R13 WB	07:42	10:18	02:36	33.90%	Fail
R14 EB	09:00	10:19	01:19	14.70%	Pass
R14 WB	09:39	11:35	01:56	20.10%	Near
R15 NB	06:54	06:58	00:03	0.90%	Pass
R15 SB	06:40	06:56	00:16	4.20%	Pass
R16 NB	21:38	20:49	-00:49	-3.80%	Pass
R16 SB	20:46	20:50	00:04	0.30%	Pass
R17 EB	21:19	19:51	-01:28	-6.90%	Pass
R17 WB	21:29	20:49	-00:39	-3.00%	Pass
R18 EB	04:19	05:04	00:44	17.00%	Pass
R18 WB	04:35	05:32	00:57	20.70%	Pass
R19 EB	04:32	04:58	00:25	9.40%	Pass
R19 WB	04:29	04:53	00:23	8.60%	Pass
R20 EB	14:13	12:38	-01:35	-11.20%	Pass
R20 WB	14:22	13:14	-01:08	-7.90%	Pass
R21 EB	10:01	09:18	-00:43	-7.20%	Pass
R21 WB	09:48	09:15	-00:32	-5.60%	Pass

Table A-8 – PM Peak journey time routes – West Oxfordshire

Route ID	Observed Journey Time	Modelled Journey Time	Difference	Percentage Difference	Pass/Near/Fail
R2 EB	10:27	14:30	04:02	38.70%	Fail
R2 WB	24:11	11:24	-12:46	-52.80%	Fail
R3 NB	19:25	17:31	-01:53	-9.80%	Pass
R3 SB	16:05	16:27	00:21	2.30%	Pass
R5 NB	06:26	06:32	00:06	1.70%	Pass
R5 SB	06:32	06:40	00:08	2.10%	Pass
R6 NB	08:16	07:17	-00:58	-11.80%	Pass
R6 SB	07:44	08:12	00:28	6.10%	Pass
R7 EB	07:16	07:34	00:18	4.20%	Pass
R7 WB	06:25	07:12	00:47	12.40%	Pass
R8 EB	11:56	13:37	01:41	14.20%	Pass
R8 WB	10:05	13:06	03:01	29.90%	Fail
R9 EB	08:38	07:14	-01:23	-16.10%	Near
R9 WB	08:14	07:03	-01:10	-14.30%	Pass
R10 NB	14:53	15:33	00:40	4.60%	Pass
R10 SB	12:26	12:29	00:03	0.50%	Pass
R11 EB	06:37	05:48	-00:48	-12.20%	Pass
R11 WB	06:53	06:06	-00:46	-11.20%	Pass

Table A-9 – PM Peak journey time routes – Rest of Oxfordshire

Route ID	Observed Journey Time	Modelled Journey Time	Difference	Percentage Difference	Pass/Near/Fail
R1 NB	03:48	03:09	-00:38	-17.00%	Pass
R1 SB	02:40	03:01	00:21	13.50%	Pass
R4 NB	23:19	20:03	-03:15	-14.00%	Pass
R4 SB	21:50	17:58	-03:51	-17.70%	Near
R12 NB	19:38	18:40	-00:57	-4.90%	Pass
R12 SB	21:28	20:41	-00:46	-3.60%	Pass
R13 EB	08:34	09:56	01:22	16.10%	Near
R13 WB	10:34	10:09	-00:24	-3.90%	Pass
R14 EB	15:50	10:46	-05:03	-31.90%	Fail
R14 WB	12:34	12:57	00:23	3.10%	Pass
R15 NB	07:19	07:25	00:05	1.30%	Pass
R15 SB	06:56	07:08	00:12	3.10%	Pass
R16 NB	22:03	20:48	-01:14	-5.70%	Pass
R16 SB	20:48	20:43	-00:04	-0.40%	Pass
R17 EB	22:42	20:13	-02:28	-10.90%	Pass
R17 WB	23:56	21:03	-02:53	-12.10%	Pass
R18 EB	04:27	05:23	00:56	20.90%	Pass
R18 WB	06:21	06:25	00:03	1.00%	Pass
R19 EB	04:20	04:59	00:39	15.20%	Pass
R19 WB	04:15	04:58	00:42	16.60%	Pass
R20 EB	14:50	12:51	-01:58	-13.30%	Pass
R20 WB	14:24	13:15	-01:08	-8.00%	Pass
R21 EB	10:15	09:16	-00:58	-9.60%	Pass
R21 WB	10:07	09:23	-00:43	-7.20%	Pass

Appendix B. Uncertainty Logs

B.1 Infrastructure log

The schemes listed in the Infrastructure log below are included in all forecast scenarios.

Table B-1 – Highway Infrastructure Log

District	Highway scheme description	Classification	Ref Case	DS1	DS2 / DS3
West	Carterton Site F: New Access Junction A40 Roundabout	Dependent on LP site development	x	✓	✓
West	Carterton Site G: Reconfigured A40 Junction Access	Dependent on LP site development	x	✓	✓
West	Carterton F: Site Access Infrastructure	Dependent on LP site development	x	✓	✓
West	Carterton G: Site Access Infrastructure	Dependent on LP site development	x	✓	✓
West	Access to Witney Site B: Downs Road Roundabout	Dependent on LP site development	x	✓	✓
West	Brize Norton Bypass: through proposed sites Carterton G & H	Dependent on LP site development	x	✓	✓
West	A40 Speed Limits: Carterton Sites F, G, H A40 50mph Burford Road Roundabout to Shores Green	Dependent on LP site development	x	✓	✓
West	A40 Bus Lanes: Witney to Eynsham P&R (Shores Green - West Eynsham/Salt Cross)	More than Likely	x	x	✓
West	A40 Bus Lanes: Eynsham P&R to Wolvercote (Phase 2-4)	More than Likely	x	x	✓
West	HIF2 Full Scheme Speed Limits (Part of Phase 2-4 above)	More than Likely	x	x	✓



District	Highway scheme description	Classification	Ref Case	DS1	DS2 / DS3
West	Chipping Norton: Concept design of New Street/High Street/West End Chipping Norton (pedestrian only therefore not modelled)	Dependent on LP site development	x	x	x
West	Witney to Eynsham: Dualling (2 lanes for general traffic in both directions)	Excluded from scenarios	x	x	x
West	Witney West End Link (Phase 2) and Bridge Street Improvements (Gyratory Operation)	Excluded from scenarios	x	x	x
West	20mph speed limit changes - various locations	Completed	✓	✓	✓
West	South Leigh Traffic Calming	Completed	✓	✓	✓
West	A40 Eynsham P&R Access Junction	Near Certain	✓	✓	✓
West	Witney High Street	Near Certain	✓	✓	✓
West	Alvescot traffic calming	Near Certain	✓	✓	✓
West	Brighthampton traffic calming	Near Certain	✓	✓	✓
West	Standlake A415 traffic calming	Near Certain	✓	✓	✓
West	B4477 Capacity Enhancement through widening (still single carriageway)	More than Likely	✓	✓	✓
West	Straightening of the existing road between the A40 at Minster Lovell south to the roundabout junction north of Brize Norton	More than Likely	✓	✓	✓
West	A40 Witney - Shores Green scheme (adds access to/from A40 West)	More than Likely	✓	✓	✓
West	Oxford Hill/Jubilee Way/ Cogges Hill - Junction Improvements	More than Likely	✓	✓	✓
West	Jubilee Way/Woodstock Road - Junction Improvements	More than Likely	✓	✓	✓
West	A40 Eynsham Park & Ride to Wolvercote Scheme (Phase 1) - Bus Lanes Between Eynsham Park & Ride and Cassington Signals - Park & Ride Signalised Access Junction (3 Arm) - Junction Improvements at Witney Road, Eynsham Roundabout and Cassington Signals - Eastbound Bus Lane Across Duke's Cut Bridges	More than Likely	✓	✓	✓



District	Highway scheme description	Classification	Ref Case	DS1	DS2 / DS3
West	HIF2 Phase 1 Scheme Limits	More than Likely	✓	✓	✓
West	Salt Cross and West Eynsham A40 Access Junction	More than Likely	✓	✓	✓
West	Salt Cross Link Road through development connects to Lower Road in the east	More than Likely	✓	✓	✓
West	Lower Road / A4095 Signalised Junction	More than Likely	✓	✓	✓
West	A40 Cuckoo Lane is closed at junction with A40	More than Likely	✓	✓	✓
West	West Eynsham SDA – link road to the B4449 (roundabout) Now accessed off Salt Cross Western Access Junction	More than Likely	✓	✓	✓
West	North Witney - Northern Distributor Road	More than Likely	✓	✓	✓
West	Lower Road Active Travel Route between Eynsham and Long Hanborough Station	More than Likely	✓	✓	✓
West	B4044 Active Travel Route between Eynsham and Botley	Reasonably Foreseeable	✓	✓	✓
West	Access to Carterton Scheme - Access only restrictions on Witney Road between Downs Road Witney and Minster Road	Reasonably Foreseeable	✓	✓	✓
Cherwell	A44 Corridor Improvements - Kidlington Roundabout (P1B), Peartree Loop Farm (P1D) and A44 up to and including junction with Cassington Road (P1A)	Completed	✓	✓	✓
Cherwell	Upper Heyford improvement	Near Certain	✓	✓	✓
Cherwell	Tunnel under the rail line – Howes Lane Realignment and the off-site mitigation at Lords Lane	Near Certain	✓	✓	✓
Cherwell	Include the realignment and signalisation of the A4260/ A4095 junctions as part of the Shipton Quarry permitted use	Near Certain	✓	✓	✓
Cherwell	Upgrade of the SE Segment of the A4421	More than Likely	✓	✓	✓
Cherwell	Improvements to Skimmingdish Lane	More than Likely	✓	✓	✓
Cherwell	London Road is not available as a through route in the model to reflect the severe restrictions of the level crossing by 2031	More than Likely	✓	✓	✓



District	Highway scheme description	Classification	Ref Case	DS1	DS2 / DS3
Cherwell	Begbroke P&R access junction	More than Likely	✓	✓	✓
Cherwell	Charbridge Lane – dualled	Reasonably Foreseeable	✓	✓	✓
Cherwell	Updated Bicester South East Peripheral Road (SEPR) as indicated by OCC (Langford Lane is not included in the model for being only a local access)	Reasonably Foreseeable	✓	✓	✓
Cherwell	Spine Road Through SE Bicester – modelled at a speed of 40 mph (64 kph) as indicated by OCC	Reasonably Foreseeable	✓	✓	✓
Cherwell	A44 Corridor Improvements - P2B (A44/A4095 to Langford Lane to Cassington Road)	Reasonably Foreseeable	✓	✓	✓
Cherwell	A44 Corridor Improvements - P2C Langford Lane to Cassington Road	Reasonably Foreseeable	✓	✓	✓
City	North Oxford Scheme (including Eastbound bus lane) – includes updated infrastructure around Northern Gateway according to the latest layout, which includes the internal link road open to through traffic	Completed	✓	✓	✓
City	Eastern Arc	Near Certain	✓	✓	✓
City	Hinksey Hill – Kennington Bridge Improvements	Near Certain	✓	✓	✓
City	Horspath Driftway queue relocation	More than Likely	✓	✓	✓
City	Access to Land North of Bayswater Brook. Includes additional access on to A40 bypass plus changes at Marston Interchange plus Headington Roundabout including new bus link	More than Likely	✓	✓	✓
City	Traffic Filters	Reasonably Foreseeable	✓	✓	✓
City	Oxford Workplace Parking Levy	Reasonably Foreseeable	✓	✓	✓
City	Zero Emission Zone	Excluded from scenarios	x	x	x
City	Speed Limit Changes: 20mph in city, 20mph radial roads	Excluded from scenarios	x	x	x
Vale/South	Didcot Northern Perimeter Road (NPR) 3 and associated junctions	More than Likely	✓	✓	✓
Vale/South	Wantage Eastern Link Road (WELR)	More than Likely	✓	✓	✓



District	Highway scheme description	Classification	Ref Case	DS1	DS2 / DS3
Vale/South	Grove Northern Link Rd	More than Likely	✓	✓	✓
Vale/South	Rowstock Roundabout improvements	More than Likely	✓	✓	✓
Vale/South	Featherbed/Steventon Lights junction improvements	More than Likely	✓	✓	✓
Vale/South	Valley Park spine road (A4130 – B4493)	More than Likely	✓	✓	✓
Vale/South	Coding to reflect traffic management measures in villages (Harwell)	More than Likely	✓	✓	✓
Vale/South	Harwell Oxford all access points junction improvements	More than Likely	✓	✓	✓
Vale/South	Improvements to traffic signals at Frilford Junction (A415/A336)	More than Likely	✓	✓	✓
Vale/South	Junctions on A4130	More than Likely	✓	✓	✓
Vale/South	A420 Western Vale infrastructure (Faringdon – access to The Steeds development)	More than Likely	✓	✓	✓
Vale/South	Lodge Hill Interchange (South facing slip roads onto the A34)	More than Likely	✓	✓	✓
Vale/South	Clifton Hampden Bypass	More than Likely	✓	✓	✓
Vale/South	Culham to Didcot Thames River Crossing	More than Likely	✓	✓	✓
Vale/South	Science Bridge modelled with two roundabouts as in the OCC layout & A4130 Capacity Improvements	More than Likely	✓	✓	✓
Vale/South	South Access to Valley Park Spine Road modelled according to the layout provided by Brookbanks in October (5 arm roundabout).	More than Likely	✓	✓	✓
Vale/South	Grenoble Road Development Access	More than Likely	✓	✓	✓
Vale/South	Golden Balls P&R and associated infrastructure along A4074	Excluded from scenarios	x	x	x
Vale/South	Redesignation of Abingdon Road (currently A415) and Oxford Road (currently B4015) as B and A roads	Excluded from scenarios	x	x	x
Vale/South	Bus Priority along the A4074 corridor	Excluded from scenarios	x	x	x
Vale/South	Traffic filter in Cumnor	Excluded from scenarios	x	x	x



B.2 Public Transport log

Table B-2 – Bus Scheme Log

District	Service Number	Bus scheme description	Classification
Cherwell	S4	Assume 1 bus per hour	Near Certain
Cherwell	S5, X5	Assume 2 buses per hour each	Near Certain
Cherwell	700	Assume 3 buses per hour	Near Certain
Cherwell	25	Assume 2 buses per hour	Near Certain
Cherwell	NWB	New bus service Elmsbrook - Bicester - Himley Village Assume 2 buses per hour	Near Certain
Cherwell	H5I/O, BV1C, 500I/O, 29I/O, 18I/O, 25I/O	Closure of London Road likely to mean buses rerouted via A41 rather than Charbridge Lane	Near Certain
City	P600	New service between Redbridge P&R and Thornhill P&R via Grenoble Road, Cowley Centre, Brookes Uni and JR Hospital – Assume 3 buses per hour	Near Certain
City	NSS	Bus services serving Bayswater Brook (north of Barton) development – Assume re-route of service 8 and new service to JR Hospital (2 buses per hour) and city centre (4 buses per hour)	Near Certain
City	11X	New service between Northfield development and city centre Assume 4 buses per hour	More than likely
Vale/ South	S6 (previously 66)	This is now service S6 and is already in operation Assume 3 buses per hour	Near Certain
Vale/ South	X7, X8 (previously 280)	Assume 4 buses per hour	Near Certain
Vale/ South	X1, X36	Assume 2 buses per hour Harwell-Didcot, 1 bus per hour to Oxford	Near Certain
Vale/South	X40	Assume 3 buses per hour	Near Certain



District	Service Number	Bus scheme description	Classification
Vale/ South	45, 46	Assume 2 buses per hour each	Near Certain
Vale/ South	55, 56	Assume 4 buses per hour to Didcot and Harwell, 2 to Wantage	Near Certain
Vale/ South	S9	Assume 3 buses per hour	More than likely
Vale/ South	44	Local Plan allocation. Assume 4 buses per hour	More than likely
Vale/ South	AC	Assume 2 buses per hour	More than likely
Vale/ South	BO	Assume 2 buses per hour	More than likely
Vale/ South	DC	Assume 2 buses per hour	More than likely
Vale/ South	DPNG	Assume 4 buses per hour	More than likely
Vale/ South	GO	Assume 6 buses per hour	More than likely
West	488	Assume 1 bus per hour	Near Certain
West	S3, S3a, S3b	S3 between Oxford and Woodstock (4bph) S3a between Oxford and Charlton (1bph) S3b between Oxford and Chipping Norton (1bph)	More than likely
West	P64 (64)	Assume 1 bus per hour	Near Certain
West	S2	Assume 1 bus per hour	Near Certain
West	S7	Assume 2 bus per hour	Near Certain
West	233	Assume 1 bus per hour	Near Certain
West	234	Assume 1 bus per hour	Near Certain
West	S0	Ref Case: Assume 2 buses per hour Scenario 1: Assume 2 buses per hour Scenario 2: Assume 3 buses per hour Scenario 3: Assume 2 buses per hour	Near Certain (differing scenario assumptions)



District	Service Number	Bus scheme description	Classification
West	S1	Ref Case: Assume 4 buses per hour Scenario 1: Assume 4 buses per hour Scenario 2: Assume 4 buses per hour Scenario 3: Assume 4 buses per hour	Near Certain (differing scenario assumptions)
West	S2A	Ref Case: Assume 2 buses per hour Scenario 1: Assume 2 buses per hour Scenario 2: Assume 4 buses per hour Scenario 3: Assume 3 buses per hour	Near Certain (differing scenario assumptions)
West	S2B	Ref Case: Assume 2 buses per hour Scenario 1: Assume 2 buses per hour Scenario 2: Assume 3 buses per hour Scenario 3: Assume 3 buses per hour	Near Certain (differing scenario assumptions)
West	H2A	Ref Case: Assume 2 buses per hour Scenario 1: Assume 2 buses per hour Scenario 2: Assume 4 buses per hour	Near Certain (differing scenario assumptions)
West	H2B	Ref Case: Assume 2 buses per hour Scenario 1: Assume 2 buses per hour Scenario 2: Assume 3 buses per hour	Near Certain (differing scenario assumptions)
West	MRT1	Scenario 3: Assume 3 buses per hour	Near Certain (differing scenario assumptions)
West	MRT2	Scenario 3: Assume 3 buses per hour	Near Certain (differing scenario assumptions)



Table B-3 – Park & Ride Log

Park & Ride	Classification
Peartree	Existing
Water Eaton	Existing
Seacourt	Existing
Redbridge	Existing
Thornhill	Existing
Begbroke (Oxford Airport)	More than likely
Eynsham	More than likely
Golden Balls	Excluded from scenarios

Table B-4 – Rail Scheme Log

Station/ Route	Service	Rail scheme description	Classification
Evergreen 3	EW3	New service between Oxford and London Marylebone, with a frequency of 2 trains per hour.	Completed
Henley-on-Thames	GW_N13 GW_S13	Shuttle service between Henley and Twyford with a frequency of 2 trains per hour, allowing the transfer to the services to London and Oxford.	Completed
North Cotswolds Line	GW_N7 GW_S8	Worcester, Moreton-in-Marsh, Oxford, London Paddington with a frequency of 1 train per hour	More than likely
	GW_S3	Great-Malvern, Moreton-in-Marsh, Oxford, London Paddington with a frequency of 1 train per hour	More than likely
	GW_N10 GW_S10	Kidderminster, Moreton-in-Marsh, Oxford, London Paddington with a frequency of 1 train per hour	More than likely
	GW_S11	Hanborough, Oxford, Didcot with a frequency of 1 train per hour	More than likely



Station/ Route	Service	Rail scheme description	Classification
	GW_N11		
	GW_S14 GW_N14	Hanborough, Oxford, Culham, Didcot with a frequency of 1 train per hour	More than likely
Culham Station	EWR1	Oxford to/from Bedford with a frequency of 1 train per hour	Reasonably Foreseeable
	EWR2	Oxford to/from Milton Keynes with a frequency of 1 train per hour	Reasonably Foreseeable
Oxford to Didcot	GW_N14 GW_S14 GW_N11 GW_S11 GW_N7 GW_S8	Additionally, two more trains per hour stop at Radley and 1 train per hour stops at Appleton	Reasonably Foreseeable
Didcot Parkway	GW_N4 GW_S5	Service between Swindon and London Paddington increased by 1 train per hour (totalling 3)	Reasonably Foreseeable
Banbury to Oxford	GW_S1 GW_N3	Banbury to Oxford with a frequency 1 train per hour	Reasonably Foreseeable
East West Rail	EWR4	Bletchley to Milton Keynes with a frequency of 1 train per hour	Reasonably Foreseeable
	EWR5	Milton Keynes to Marylebone with a frequency of 1 train per hour	Reasonably Foreseeable
Oxford to Heathrow	LHR	Oxford, Didcot Parkway, Reading, Heathrow, London Paddington with a frequency of 2 trains per hour	Reasonably Foreseeable
	GW_N4	London Paddington to Swindon with a frequency of 3 trains per hour	Reasonably Foreseeable
	GW_S4	Oxford - London Paddington with a frequency of 2 trains per hour	Reasonably Foreseeable
	GW_N2	London Paddington - Oxford with a frequency of 2 trains per hour	Reasonably Foreseeable
Cowley Branch Line Stations		Two New Stations: Oxford Littlemore and Oxford Cowley with three trains per hour via Oxford Station through to London Marylebone Station	Reasonably Foreseeable



B.3 Development log

Table B-5 – Residential – West Oxfordshire

Status	Housing	Level of Uncertainty	Site Name
Small Housing	775	Completions and Commitments	
Small Housing	325	More Than Likely	
Small Housing	11	Near Certain	
Windfalls	2249	Near Certain	
Large Housing	18	Completions and Commitments	12 Corndell Gardens, Witney, Oxfordshire, OX28 4DF
Large Housing	71	Completions and Commitments	75 New Road, Bampton, Oxfordshire, OX18 2NP
Large Housing	12	Completions and Commitments	Applegarth, 2A Holloway Road, Witney, Oxfordshire, OX28 6NF
Large Housing	350	More Than Likely	Burford Road, Brize Norton
Large Housing	18	More Than Likely	Campbells Close, Woodstock
Large Housing	10	More Than Likely	Car Park Rear Of, 58 West End, Witney, Oxfordshire
Large Housing	104	More Than Likely	Charlbury Road, Chipping Norton
Large Housing	14	More Than Likely	Chipping Norton War Memorial Hospital, Horsefair, Chipping Norton, Oxfordshire, OX7 5AJ
Large Housing	10	Completions and Commitments	Churchill Farm, Kingham Road, Churchill, Chipping Norton, Oxfordshire, OX7 6NE
Large Housing	37	More Than Likely	Forest Road, Charlbury
Large Housing	11	Completions and Commitments	Garden Centre, Park Road, North Leigh, Witney, Oxfordshire, OX29 6RZ
Large Housing	62	Completions and Commitments	Land (E) 432878 (N) 209265 Downs Road, Witney, Oxfordshire
Large Housing	40	Completions and Commitments	Land At Butts Piece Main Road Stanton Harcourt Oxfordshire



Status	Housing	Level of Uncertainty	Site Name
Large Housing	66	Completions and Commitments	Land At Former Stanton Harcourt Airfield Main Road, Stanton Harcourt, Oxfordshire
Large Housing	80	Completions and Commitments	Land At London Road And Russell Way, Chipping Norton, Oxfordshire
Large Housing	73	Completions and Commitments	Land At London Road And Trinity Road, Chipping Norton, Oxfordshire
Large Housing	13	Completions and Commitments	Land at Newland Street, Eynsham, Eynsham
Large Housing	74	Completions and Commitments	Land at Swinbrook Road, Carterton, Oxfordshire
Large Housing	10	Completions and Commitments	Land at Thorney Leys, Thorney Leys, Witney, Witney, OX28 5PJ
Large Housing	600	Completions and Commitments	Land At West Witney Downs Road Curbridge Witney Oxfordshire
Large Housing	87	Completions and Commitments	Land At West Witney Downs Road, Curbridge, Witney, Oxfordshire
Large Housing	276	Completions and Commitments	Land At Downs Road Curbridge Witney Oxfordshire
Large Housing	741	Near Certain	Land Between Monaghan Way, Carterton Road And Burford Road, Carterton
Large Housing	37	Completions and Commitments	Land between Saxel Close and Aston Village Hall and recreation ground, Aston
Large Housing	41	Completions and Commitments	Land Between Wychwood House And Malvern Villas Witney Road Freeland Oxfordshire
Large Housing	180	More Than Likely	Land East Of Hill Rise Woodstock Oxfordshire
Large Housing	160	Completions and Commitments	Land east of Mount Owen Road, mount Owen Road, Bampton, Bampton
Large Housing	301	Near Certain	Land east of Woodstock, Oxford Road, Woodstock, Woodstock
Large Housing	39	More Than Likely	Land East Of Isabelle Spencer Way Witney Oxfordshire
Large Housing	70	Completions and Commitments	Land East Of Nethercote Road Tackley Oxfordshire
Large Housing	72	Near Certain	Land East Of Swinbrook Road Carterton Oxfordshire



Status	Housing	Level of Uncertainty	Site Name
Large Housing	50	Completions and Commitments	Land North And West And East Of Belclose Cottage Witney Road North Leigh Oxfordshire
Large Housing	235	More Than Likely	Land North Of Banbury Road Woodstock Oxfordshire
Large Housing	41	Completions and Commitments	Land North Of Cote Road Cote Road Aston Bampton Oxfordshire
Large Housing	40	Near Certain	Land North Of Foxwood Close, Aston, Bampton
Large Housing	22	Completions and Commitments	Land North of Little Lees, Charlbury
Large Housing	269	Completions and Commitments	Land North Of Burford Road, Witney, Oxfordshire
Large Housing	40	Completions and Commitments	Land North Of New Yatt Road, North Leigh, Oxfordshire
Large Housing	150	More Than Likely	Land North Of Witney Road, Long Hanborough, Oxfordshire
Large Housing	24	Completions and Commitments	Land North Of Standlake Road Ducklington Witney Oxfordshire
Large Housing	14	Completions and Commitments	Land Off Well Lane Curbridge Witney Oxfordshire
Large Housing	11	Completions and Commitments	Land Rear Of 15 And 16 Woodstock Road, Charlbury, Oxfordshire
Large Housing	86	More Than Likely	Land South Of Hit Or Miss Farm Banbury Road Chipping Norton Oxfordshire
Large Housing	68	Completions and Commitments	Land South And East Of Walterbush Road Walterbush Road Chipping Norton, Chipping Norton, OX7 5DP
Large Housing	10	Completions and Commitments	Land South East Of 84 – 86 Grove Road Bladon Oxfordshire
Large Housing	450	More Than Likely	Land South East Of Oxford Hill Witney Oxfordshire
Large Housing	120	Completions and Commitments	Land South East Of Pinsley Farm, Main Road, Long Hanborough, Oxfordshire
Large Housing	43	More Than Likely	Land South Of 1 New Yatt Road North Leigh Oxfordshire
Large Housing	134	More Than Likely	Land South Of Burford Road Minster Lovell Oxfordshire
Large Housing	16	Completions and Commitments	Land south of Church Street, Kingham, Chipping Norton, Oxfordshire, OX7 6YA



Status	Housing	Level of Uncertainty	Site Name
Large Housing	44	Completions and Commitments	Land south of Milton Road, Milton Road, Shipton under Wychwood, Shipton under Wychwood
Large Housing	29	Completions and Commitments	Land South Of Oxford Road Oxford Road Enstone Oxfordshire
Large Housing	99	Completions and Commitments	Land South Of Banbury Road, Chipping Norton, Oxfordshire
Large Housing	76	Completions and Commitments	Land South Of New Yatt Road, North Leigh, Oxfordshire
Large Housing	22	Completions and Commitments	Land South Of Giernalls Road Hailey Oxfordshire
Large Housing	64	Completions and Commitments	Land South Of High Street Milton Under Wychwood Oxfordshire
Large Housing	200	Near Certain	Land South Of Milestone Road Carterton Oxfordshire
Large Housing	81	Completions and Commitments	Land South Of Stanmore Crescent Carterton Oxfordshire
Large Housing	75	More Than Likely	Land South West Of Downs Road, Curbridge Business Park, Witney
Large Housing	50	Completions and Commitments	Land To East Of Church Road Long Hanborough, Long Hanborough
Large Housing	10	Near Certain	Land To The Rear Of 65, High Street, Standlake, Oxfordshire
Large Housing	126	Completions and Commitments	Land west of Minster Lovell, Burford Road, Minster Lovell, Minster Lovell
Large Housing	18	Completions and Commitments	Land West Of Quarhill Close, Quarhill Close, Over Norton, Oxfordshire
Large Housing	74	Near Certain	Land West Of Witney North Of A40 And East Of Downs Road Curb
Large Housing	150	Near Certain	Land West Of Shilton Road, Burford, Oxfordshire
Large Housing	160	Completions and Commitments	Land West Of Thornbury Road, Eynsham, Oxfordshire
Large Housing	31	Completions and Commitments	Linden House, Kilkenny Lane, Brize Norton, Carterton, Oxfordshire, OX18 3NU
Large Housing	169	Completions and Commitments	Land south of Witney Road, Long Hanborough, Long Hanborough
Large Housing	99	More Than Likely	Monahan Way Carterton Oxfordshire



Status	Housing	Level of Uncertainty	Site Name
Large Housing	22	More Than Likely	Olivers Garage, 80 - 82 Main Road, Long Hanborough, Witney, Oxfordshire, OX29 8JY
Large Housing	15	Completions and Commitments	Park Farm, Standlake Road, Northmoor, Northmoor, OX29 5AZ
Large Housing	20	Completions and Commitments	Phase 3B Land At West Witney, Downs Road, Curbridge, Witney, Oxfordshire
Large Housing	37	Completions and Commitments	Phase P1B Land At West Witney, Downs Road, Curbridge, Witney, Oxfordshire
Large Housing	115	Completions and Commitments	Phase P1C Land At West Witney, Downs Road, Curbridge, Witney, Oxfordshire
Large Housing	37	Completions and Commitments	Phase P1E Land At West Witney, Downs Road, Curbridge, Witney, Oxfordshire
Large Housing	265	More Than Likely	REEMA North, Northwood Crescent, Carterton
Large Housing	10	Completions and Commitments	Site Of Former 19 Burford Road, Carterton, Oxfordshire
Large Housing	10	More Than Likely	Station Garage, Station Road, Kingham, Chipping Norton, Oxfordshire, OX7 6UP
Large Housing	26	Completions and Commitments	Street Farm, 22 Nethercote Road, Tackley, Tackley, OX5 3AW
Large Housing	46	Completions and Commitments	The Osprey, Upavon Way, Carterton, Oxfordshire
Large Housing	26	More Than Likely	Woodstock Road, Charlbury
Large Housing	60	More Than Likely	Wroslyn Road, Freeland
Existing Allocations	750	Reasonably foreseeable	East Chipping Norton SDA
Existing Allocations	1250	Reasonably foreseeable	North Witney SDA
Existing Allocations	2125	Reasonably foreseeable	Oxfordshire Cotswolds Garden Village SLG
Existing Allocations	763	Reasonably foreseeable	West Eynsham SDA
Existing Allocations	75	Reasonably foreseeable	Woodford Way Car Park
Total	16089		



Table B-6 – Commercial – West Oxfordshire

Level of Uncertainty	Area (sqm/beds)	Site Name
Completions and Commitments	31	10 Millins Yard 99B High Street Witney Oxfordshire OX28 6HY
Completions and Commitments	-22	113 High Street Burford Oxfordshire OX18 4RG
Completions and Commitments	-38	24 - 26 High Street, Witney, OX28 6HB
Completions and Commitments	36	68 High Street Witney Oxfordshire X28 6HJ
Completions and Commitments	17	8 West Street Chipping Norton Oxfordshire OX7 5AA
Completions and Commitments	475	Abbott Diabetes Care Range Road Windrush Industrial Park Witney Oxfordshire OX29 0YL
Completions and Commitments	9	Aldi Foodstore Alvescot Road Carterton Oxfordshire OX18 3JH
Completions and Commitments	8	Alvescot Lodge Main Road Alvescot Bampton Oxfordshire OX18 2PY
Completions and Commitments	1524	Bampton Design Avenue One Witney Oxfordshire OX28 4XZ
Completions and Commitments	14	Bladon Church Of England Primary School, Park Street, Bladon, Bladon, OX20 1RW
Completions and Commitments	573	Burford Garden Centre Shilton Road Burford Oxfordshire OX18 4PA
Completions and Commitments	3064	Carterton Leisure Centre Broadshires Way Carterton Oxfordshire OX18 1AA
Completions and Commitments	45	Churchill Court Hotel Main Road Long Hanborough Witney Oxfordshire OX29 8LA
Completions and Commitments	162	Clubhouse Spendlove Centre Enstone Road Charlbury Oxfordshire
Completions and Commitments	76	Cogges Manor Farm Church LaneWitneyOxfordshireOX28 3LA
Completions and Commitments	1638	Cokethorpe School Cokethorpe Park Ducklington Witney Oxfordshire OX29 7PU
Completions and Commitments	1484	Common Leys Farm Whitings Lane Hailey Witney Oxfordshire OX29 9UY
Completions and Commitments	238	Cotswold Club Chipping Norton, London Road, Southcombe, Chipping Norton, OX7 5QH
Completions and Commitments	645	Cotswolds Hotel And Spa Southcombe Chipping Norton Oxfordshire OX7 5QH



Level of Uncertainty	Area (sqm/beds)	Site Name
Completions and Commitments	1188	East Plot Of Land At Book End Witney Oxfordshire
Completions and Commitments	277	Eastnor House Ducklington Lane Witney Oxfordshire OX28 4TJ
Completions and Commitments	2098	Former Art Royal Caravan Site New Close Lane Ducklington Witney Oxfordshire
Completions and Commitments	1464	Former highways depot, Banbury Road, Chipping Norton, Chipping Norton, OX7 5SR
Completions and Commitments	40	Freeland House, Wroslyn Road, Freeland, Oxfordshire, OX29 8AH
Completions and Commitments	10	Heythrop Park Hotel Heythrop Park Heythrop Chipping Norton Oxfordshire OX7 5UE
Completions and Commitments	140	Holywell Filling Station Banbury Road Chipping Norton Oxfordshire OX7 5SX
Completions and Commitments	66	JSP Ltd., Worsham Mill, Worsham, Witney, Witney, OX29 0TA
Completions and Commitments	135	Kelmscott Manor Kelmscott Lechlade Oxfordshire GL7 3HJ
Completions and Commitments	986	Land And Buildings For Soho House Property, Great Tew, Great Tew
Completions and Commitments	66	Land At Grid Reference 428950 207707 Monahan Way Carterton Oxfordshire
Completions and Commitments	17983	Land at West Oxfordshire Business Park, Wavers Ground, Carterton, OX18 3YJ
Completions and Commitments	37890	Land At West Witney Downs Road Curbridge Witney Oxfordshire
Completions and Commitments	5374	Land At Windrush Park Windrush Park Road Windrush Industrial Park Witney Oxfordshire
Completions and Commitments	96	Land At Church End Swerford Chipping Norton Oxfordshire
Completions and Commitments	17722	Land On Stanton Harcourt Road Old Station Way Eynsham Oxfordshire
Completions and Commitments	292	Land South And East Of Walterbush Road Walterbush Road Chipping Norton, Chipping Norton, OX7 5DP
Completions and Commitments	3922	Land South Of Burford Road And East Of Downs Road, Witney, Witney
Completions and Commitments	4417	Land South Of Burford Road Witney Oxfordshire



Level of Uncertainty	Area (sqm/beds)	Site Name
Completions and Commitments	1868	Land South Of London Road Chipping Norton Oxfordshire
Completions and Commitments	7	Land West Of Witney Road Finstock Oxfordshire
Completions and Commitments	740	Land south of Witney Road, Long Hanborough, Long Hanborough
Completions and Commitments	250	Managers Accommodation Woodstock Social Club 44 Oxford Street Woodstock Oxfordshire OX20 1TT
Completions and Commitments	60	Morrisons 20 Black Bourton Road Carterton Oxfordshire OX18 3HA
Completions and Commitments	29	New Mill New Mill LaneWitneyOxfordshireOX29 9SX
Completions and Commitments	95	North Leigh Church Of England School Park Road North Leigh Witney Oxfordshire OX29 6SS
Completions and Commitments	50	Oakey Automotive Services Ltd Carterton Industrial Estate Carterton Oxfordshire OX18 3EZ
Completions and Commitments	39	Oxford Witney Hotel Ducklington Lane Witney Oxfordshire OX28 4EX
Completions and Commitments	5	Oxfordshire Social Services Moorland Centre24 Dark LaneWitneyOxfordshireOX28 6LE
Completions and Commitments	671	Park Farm House Blenheim Park Woodstock Oxfordshire OX20 1HD
Completions and Commitments	90	Park View Service Station Burford Road Minster Lovell Witney Oxfordshire OX29 0RD
Completions and Commitments	40	Priory Tea Rooms35 - 37 High StreetBurfordOxfordshireOX18 4QA
Completions and Commitments	-136	Renault Formula 1 Whiteways Technical Centre Enstone Chipping Norton Oxfordshire OX7 4EE
Completions and Commitments	1178	Signal Court, Old Station Way, Eynsham, Eynsham, OX29 4TL
Completions and Commitments	2388	Soho Farmhouse Great Tew Chipping Norton Oxfordshire OX7 4JS
Completions and Commitments	70	St Christopher's Church Of England School Lechlade Road Langford Lechlade Oxfordshire GL7 3LA



Level of Uncertainty	Area (sqm/beds)	Site Name
Completions and Commitments	204	Stanton Harcourt Church Of England Primary School Main Road Stanton Harcourt Witney Oxfordshire OX29 5RJ
Completions and Commitments	4540	Storage Yard Downs Road Curbridge Business Park Witney Oxfordshire OX29 7WJ
Completions and Commitments	320	Tew Farmhouse And Barns Enstone Road Great Tew Chipping Norton Oxfordshire OX7 4AB
Completions and Commitments	6	The Bell Inn Langford Lechlade Oxfordshire GL7 3LF
Completions and Commitments	51	The Black Horse81 High StreetStandlakeWitneyOxfordshireOX29 7RH
Completions and Commitments	567	The Blue Cross Shilton Road Burford Oxfordshire OX18 4PF
Completions and Commitments	17	The Evenlode Old Witney RoadEynshamWitneyOxfordshireOX29 4PS
Completions and Commitments	560	The Old Coal Yard Gagingwell Chipping NortonOxfordshireOX7 4EF
Completions and Commitments	10	The Old Mill Restaurant 7 West Street Chipping Norton Oxfordshire OX7 5LH
Completions and Commitments	8990	Unit 2-3 Stanton Harcourt Road Eynsham Witney Oxfordshire OX29 4JB
Completions and Commitments	193	Unit 3-4 Woolgate Shopping Centre Witney Oxfordshire OX28 6AP
Completions and Commitments	584	Unit B-C Carterton Industrial Estate Carterton Oxfordshire OX18 3HJ
Completions and Commitments	1866	Unit E Ventura Park Broadshires Way Carterton Oxfordshire OX18 1AD
Completions and Commitments	370	Warehouse Nursery Road North Leigh Business Park North Leigh Witney Oxfordshire OX29 6SN
Completions and Commitments	195	Whitehill Satellite Earth Station, Old Whitehill, Tackley, Tackley, OX5 3AU
Completions and Commitments	474	Woodstock Lodge Blenheim ParkWoodstockOxfordshireOX20 1PP
Completions and Commitments	397	Worsham Mill, Worsham, Minster Lovell, Witney, Oxfordshire, Minster Lovell, OX29 0TA
More Than Likely	714	1 Cuckoo Wood Caravan Park Eynsham Road Freeland Witney Oxfordshire OX29 8AD



Level of Uncertainty	Area (sqm/beds)	Site Name
More Than Likely	240	11 Ventura Park Broadshires Way Carterton Oxfordshire OX18 1AD
More Than Likely	13	19 Arlington Close Carterton Oxfordshire OX18 3HH
More Than Likely	18	29 Mott Close Witney Oxfordshire OX29 7AH
More Than Likely	432	3 Cuckoo Wood Caravan Park Eynsham Road Freeland Witney Oxfordshire OX29 8AD
More Than Likely	102	91 Corn Street Witney Oxfordshire OX28 6AS
More Than Likely	2	Abbott Diabetes Care Range Road Windrush Industrial Park Witney Oxfordshire OX29 0YL
More Than Likely	3881	Abbott Diabetes Care Range Road Windrush Industrial Park Witney Oxfordshire OX29 0YL
More Than Likely	780	AirSea Packaging Range Road Windrush Industrial Park Witney Oxfordshire OX29 0YD
More Than Likely	26	Beekeepers 18 - 22 Market Square Witney Oxfordshire OX28 6BB
More Than Likely	36	Building 1x - 4x Windrush Park Road Windrush Industrial Park Witney Oxfordshire OX29 7EX
More Than Likely	168	Calais Farm Building Buckland Road Bampton Oxfordshire OX18 2AA
More Than Likely	10	Caravan Park Merryweather Farm Hook Norton Road Chipping Norton Oxfordshire OX7 5TE
More Than Likely	540	Colletts Yard Bushey Ground Minster Lovell Oxfordshire OX29 0SW
More Than Likely	57000	Cotswold Garden village - Salt Cross
More Than Likely	1	Delly End Farm Delly End Hailey Witney Oxfordshire OX29 9XD
More Than Likely	3	Eynsham Hall North Leigh Witney Oxfordshire OX29 6PN
More Than Likely	10	Greedy Goose Camp Site Chastleton Moreton-In-Marsh Oxfordshire GL56 0SP
More Than Likely	12167	Lakeside Industrial Park Cotswold Dene Standlake Oxfordshire OX29 7PL
More Than Likely	3	Land Adjoining Dunlaoghaire Primrose Lane Weald Bampton Oxfordshire



Level of Uncertainty	Area (sqm/beds)	Site Name
More Than Likely	860	Land East Of Isabelle Spencer Way Witney Oxfordshire
More Than Likely	2268	Land Opposite Penrycae Carrick Road Curbridge Business Park Witney Oxfordshire
More Than Likely	625	Land Southwest Of West Witney Sports Ground Burford Road Witney Oxfordshire
More Than Likely	10	Land West Of Colt House Aston Road Bampton Oxfordshire
More Than Likely	65	Land West Of Witney North Of A40 And East Of Downs Road Curbridge Witney Oxfordshire
More Than Likely	40	Little Manor Church Hill Tackley Kidlington Oxfordshire OX5 3AE
More Than Likely	37	Lyneham Heath Farm Lyneham Chipping Norton Oxfordshire OX7 6
More Than Likely	3	Merryweather Farm Hook Norton Road Chipping Norton Oxfordshire OX7 5TE
More Than Likely	38	Mill House Hotel Station Road Kingham Chipping Norton Oxford
More Than Likely	144	Mystore Self Storage Book End Witney Oxfordshire OX29 0YE
More Than Likely	43	New Village Hall Lower End Leafield Witney Oxfordshire OX29 9QJ
More Than Likely	766	Newland Industrial Estate 154 NewlandWitneyOxfordshireOX28 3JH
More Than Likely	3	Old Chalford Estate Chalford Grange Oxford Road Old Chalford Chipping Norton Oxfordshire
More Than Likely	225	Orchard Works Carterton Industrial Estate Carterton Oxfordshire OX18 3EZ
More Than Likely	14	Ramsden Playing Field Akeman Street Ramsden Oxfordshire
More Than Likely	27	Recreation Hall Witney Road Long Hanborough Witney Oxfordshire OX29 8BJ
More Than Likely	349	Side Farm Witney Lane Leafield Witney Oxfordshire OX29 9PG
More Than Likely	38	Tennis Courts Rack End Standlake Oxfordshire
More Than Likely	28	The Driving Centre Enstone Airfield Enstone Chipping NortonOxfordshireOX7 4DR



Level of Uncertainty	Area (sqm/beds)	Site Name
More Than Likely	11	The Griffin Inn 166 Newland Witney Oxfordshire OX28 3JH
More Than Likely	8	The Horse And Radish Burford Road Minster Lovell Witney Oxfordshire OX29 0RZ
More Than Likely	20	The Old Coal Yard Gagingwell Chipping Norton Oxfordshire OX7 4EF
More Than Likely	1	The Old Great Barn Goodfellows Yard Filkins Lechlade Oxfordshire GL7 3JG
More Than Likely	36	The Red Lion Church Road Northmoor Witney Oxfordshire OX29 5SX
More Than Likely	10316	Unit 4-5 Windrush Park Road Windrush Industrial Park Witney
More Than Likely	1269	Units 9-12 Eagle Industrial Estate Witney Oxfordshire OX28
More Than Likely	160	Watermans Lodge Cornbury Park Charlbury Chipping Norton Oxfordshire OX7 3HN
More Than Likely	2518	Whiteways Technical Centre Enstone Chipping Norton Oxfordshire OX7 4EE
More Than Likely	2	Witney Community Hospital Welch Way Witney Oxfordshire OX28 6JJ
More Than Likely	93	Witney Lakes Golf Centre Downs Road Witney Oxfordshire OX29 0SY
More Than Likely	60	Witney Pony Partners Crawley RoadWitneyOxfordshireOX29 9TG
Near Certain	399	30 New Street Chipping NortonOxfordshireOX7 5LJ
Near Certain	220	Site Of Former 19 Burford Road Carterton Oxfordshire
Total	227775	



Appendix C. Local Plan Sites

Local plan development sites are shown in Figure C-1 and Figure C-2. The quantum of development for each site is presented in Table 5-2.

Figure C-1 – New Local Plan Sites in West Oxfordshire (Focused on Northern West Oxfordshire)

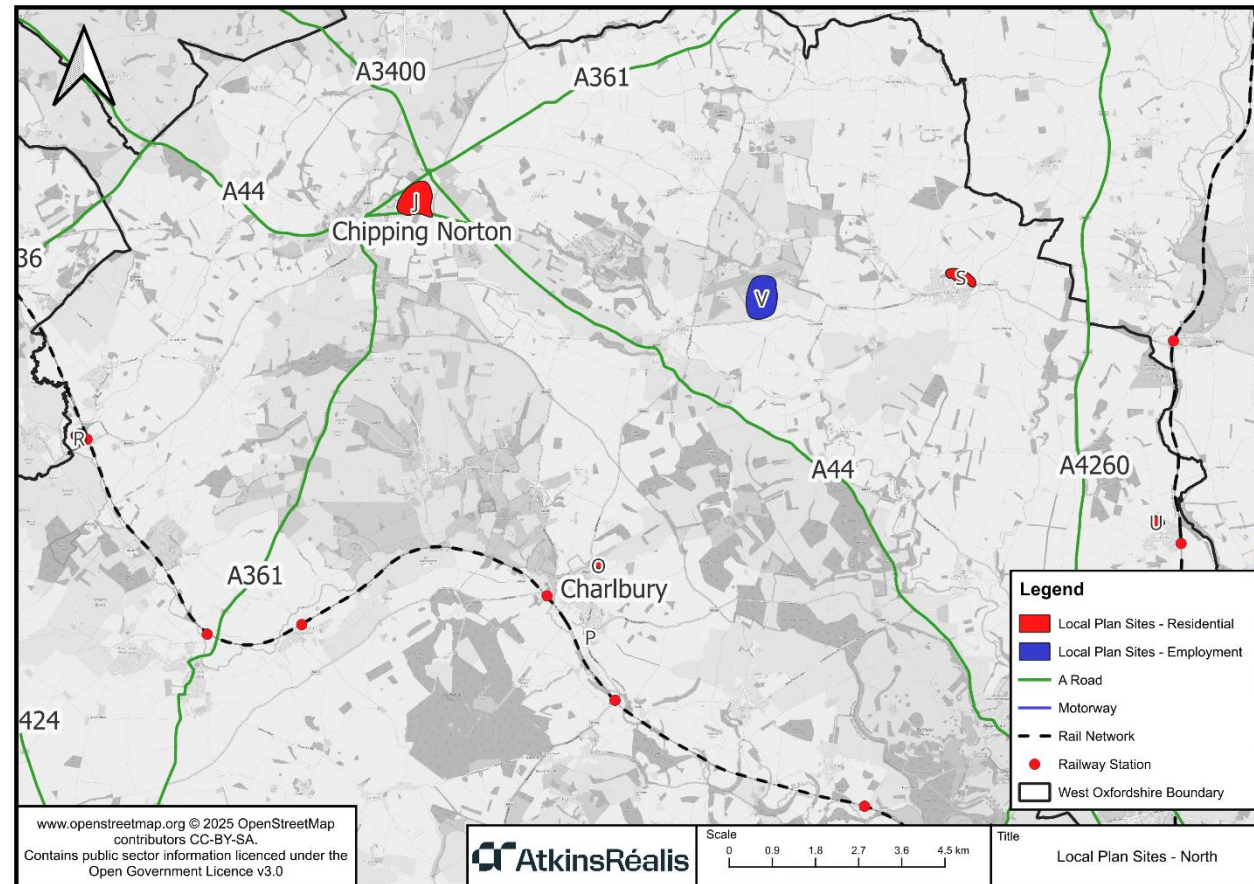
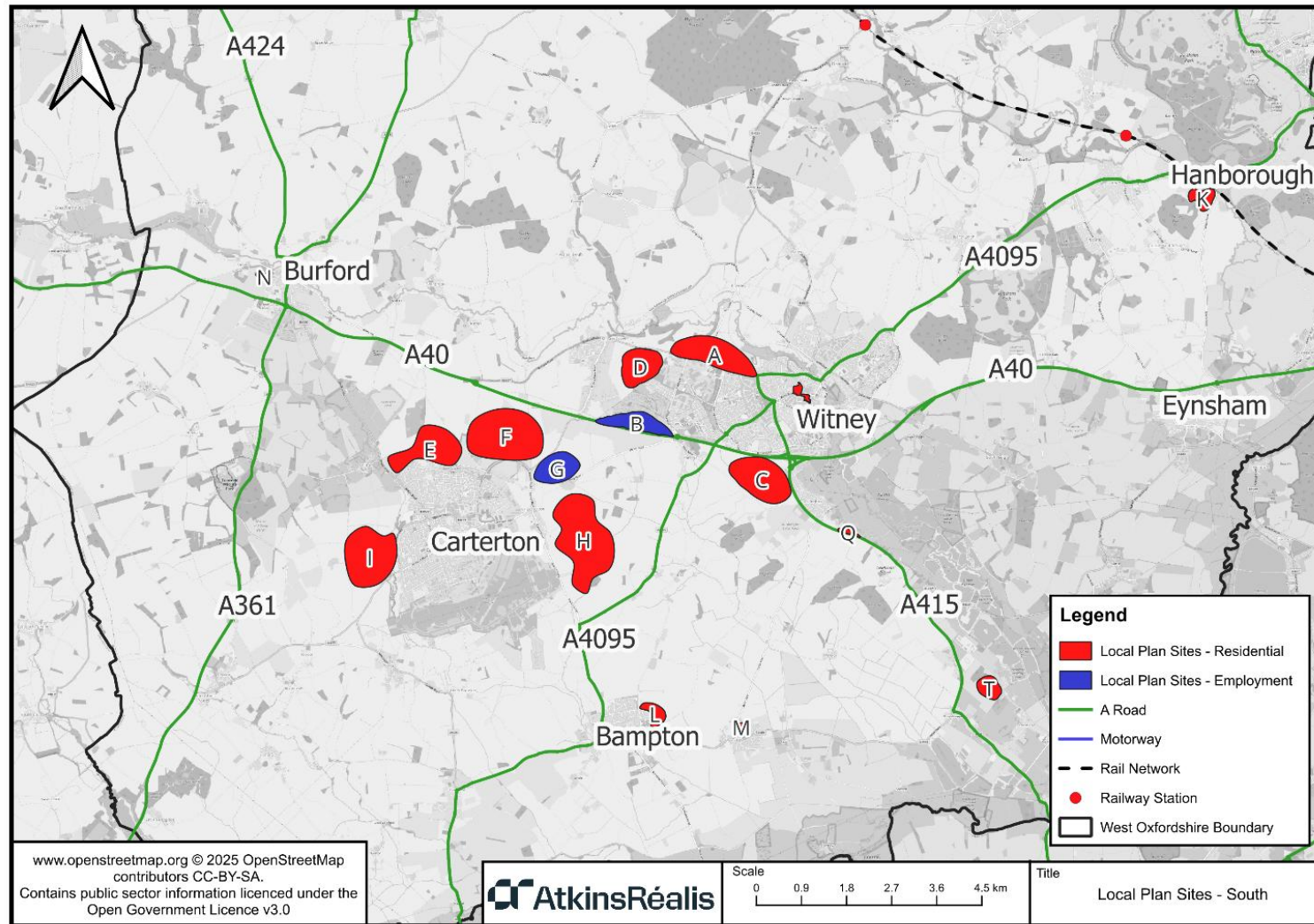


Figure C-2 – New Local Plan Sites in West Oxfordshire (Focused on Southern West Oxfordshire)



Appendix D. Development Zones Volume Line Plots

Figure D-1 – AM Peak – highway volume lines, Eynsham development zones, Local Plan DS1 Scenario: Do Minimum Mitigation

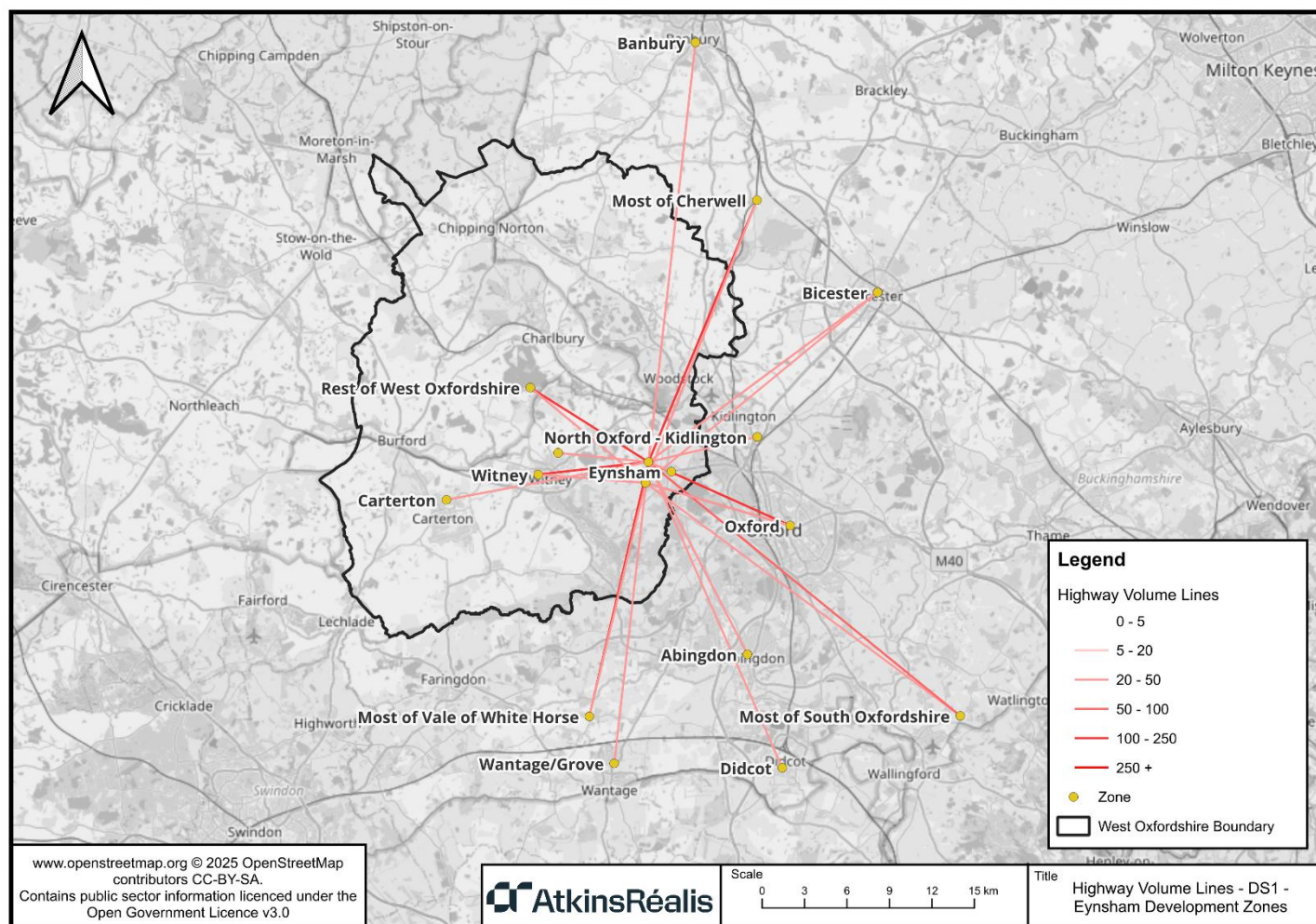


Figure D-2 – AM Peak – highway volume lines, Witney development zones, Local Plan DS1 Scenario: Do Minimum Mitigation

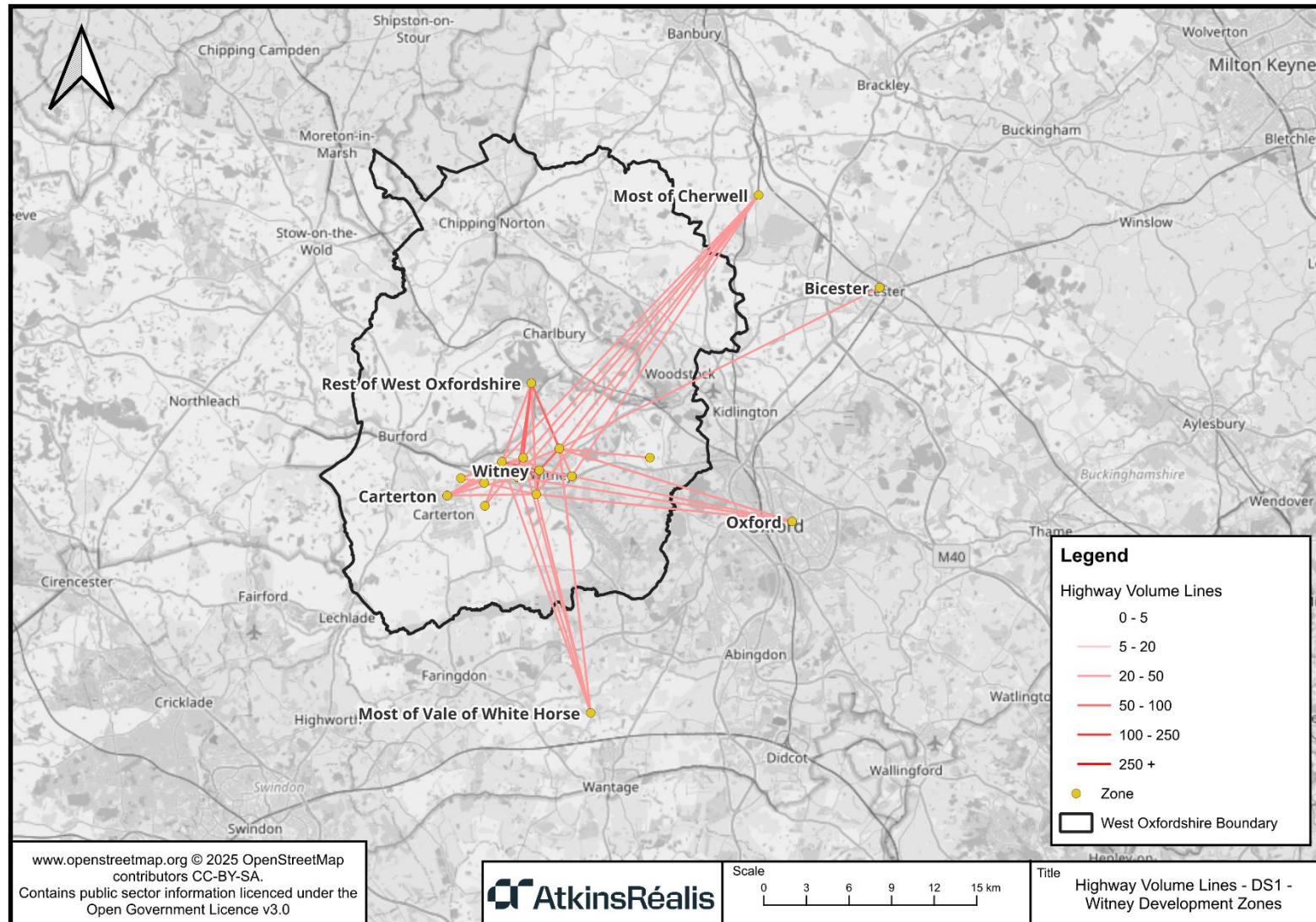
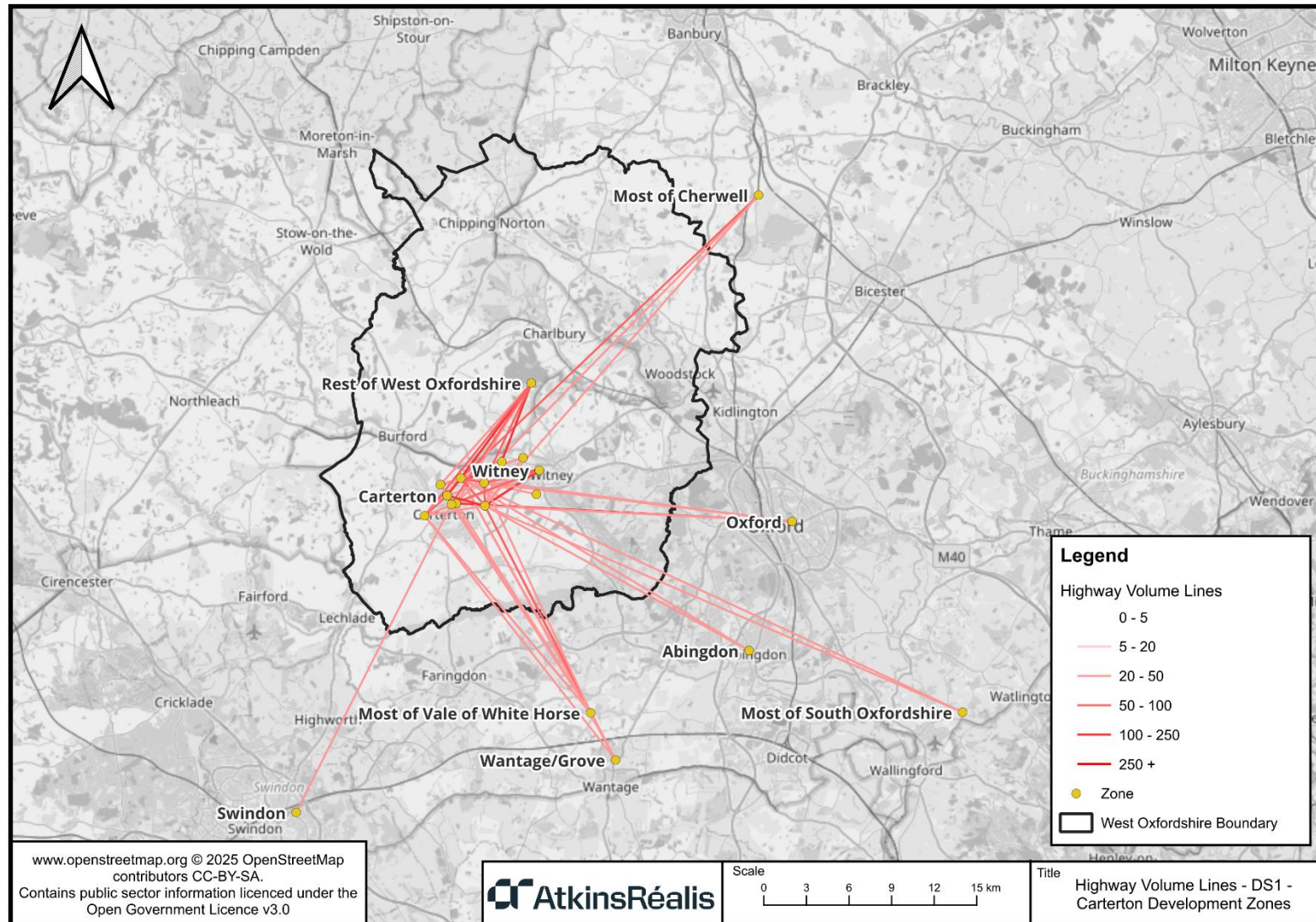


Figure D-3 – AM Peak – highway volume lines, Carterton development zones, Local Plan DS1 Scenario: Do Minimum Mitigation



Appendix E. Junction Metrics

Junction performance has been assessed for key locations across West Oxfordshire. Performance is reported in terms of average delay and volume-to-capacity (V/C) ratio. Delay represents the flow-weighted average delay across all turning movements, while the V/C ratio indicates the proportion of total demand relative to the combined capacity of the junction entry arms.

The assessment includes junctions along the A40 corridor between Burford and Wolvercote Roundabout, as well as locations with higher delay and/or V/C ratios within key settlements, including Witney, Eynsham and Carterton. Table E-1 and Table E-2 present these metrics, for delay and V/C respectively, for the Reference Case and the three do-something scenarios (DS1, DS2 and DS3) across all modelled time periods.

Table E-1 – Junction performance: Delay (seconds)

Area	Junction	Reference Case			DS1			DS2			DS3		
		AM	IP	PM	AM	IP	PM	AM	IP	PM	AM	IP	PM
A40	A40 / Wolvercote Roundabout (West)	16	17	16	16	17	15	16	17	16	16	17	16
A40	A40 / Canalside Quarter Junction	49	62	91	94	63	71	60	47	48	61	47	45
A40	A40 / Eynsham Road	14	9	19	14	9	18	14	9	22	14	9	22
A40	A40 / Cassington Road	7	4	10	7	4	11	7	4	11	7	4	11
A40	A40 / Approach to Cassington Road	12	0	0	28	0	0	17	0	0	25	0	0
A40	A40 / Eynsham Roundabout	22	15	25	25	15	41	24	16	26	23	16	27
A40	A40 / Witney Road	27	7	12	21	8	25	19	8	25	19	8	25
A40	A40 / Eynsham P&R	9	10	21	9	9	20	10	10	20	10	10	20
A40	A40 / West Eynsham / Salt Cross (New junction)	33	19	23	33	19	23	45	19	23	34	19	23
A40	A40 / Shores Green (EB on-slip)	1	1	1	1	1	1	1	1	1	1	1	1
A40	A40 / Shores Green (WB off-slip)	0	0	0	0	0	0	0	0	0	0	0	0
A40	A40 / Shores Green (WB on-slip)	5	1	2	4	1	2	2	1	7	5	1	5
A40	A40 / Shores Green (EB off-slip)	0	0	0	0	0	0	0	0	0	0	0	0
A40	Shores Green (EB off-slip) / B4022	18	15	22	18	16	19	18	16	18	18	16	18
A40	Shores Green (WB on-slip) / B4022	23	9	27	24	9	28	23	9	31	23	9	29
A40	A40 / Ducklington Lane (WB on-slip)	1	1	1	1	1	1	1	1	1	1	1	1
A40	A40 / Downs Road	56	4	7	71	4	7	64	4	6	64	4	6
A40	A40 / Brize Norton Road	1	1	1	11	11	11	11	11	11	11	11	11



Area	Junction	Reference Case			DS1			DS2			DS3		
		AM	IP	PM	AM	IP	PM	AM	IP	PM	AM	IP	PM
A40	New A40 Roundabout (Carterton Site F)	N/A	N/A	N/A	10	11	11	10	11	11	10	11	11
A40	A40 / Asthall Barrow Roundabout	15	14	15	15	15	15	15	15	15	15	15	15
Eynsham*	Stanton Harcourt Road / West Eynsham (New junction)	3	3	3	3	3	4	3	3	4	3	3	3
Witney	Jubilee Way / Cogges Hill Road / Oxford Hill	73	49	79	77	46	88	74	46	79	74	46	78
Witney	Jubilee Way / A4095	30	25	31	34	25	31	35	26	29	33	26	28
Witney	Bridge Street / Newland / Woodgreen Hill	10	10	14	10	11	13	9	11	13	9	11	13
Witney	West End / Bridge Street	45	8	61	59	9	75	59	9	67	58	9	66
Witney	Bridge Street / High Street / Mill Street	54	7	7	75	7	7	55	7	7	56	7	7
Witney	Burford Road / Deer Park Road	33	25	35	36	34	54	36	29	46	36	30	46
Witney	Deer Park Road / Curbridge Road / Thorney Leys	39	9	22	45	10	35	43	10	30	44	10	29
Witney	Ducklington Lane / Station Lane / Thorney Leys	40	33	49	41	33	57	40	33	48	40	33	48
Carterton	Burford Road / Alvescot Road / Brize Norton Road / Black Bourton Road	21	21	25	21	21	26	21	21	26	21	21	26
Carterton	Monahan Way / Upavon Way	22	26	28	22	26	28	22	27	28	22	26	28
Brize Norton	B4477 / Burford Road	1	0	1	1	1	1	1	1	1	1	1	1
Brize Norton	B4477 / Minster Road / Brize Norton Road	8	8	9	9	9	10	9	9	10	9	9	10
Chipping Norton	Horsefair / London Road / Banbury Road / Over Norton Road	72	9	128	100	9	138	98	9	138	99	9	138
Chipping Norton	Market Place / West Street / New Street	9	4	29	14	5	34	14	5	34	15	6	34

***Stub Connector Delay Methodology and Rationale**

The Stanton Harcourt Road / Eynsham junction also has a stub connector loading traffic to the network at the same point. Delays reported on the stub connector at this junction have been excluded from the junction performance assessment as they are a modelling artefact rather than a reflection of actual junction operation. The connector represents a wider industrial estate area coded through a single access point, which creates an artificial opposing flow and consequently generates unrealistically high delays. Sensitivity testing, including relocating the connector, demonstrated that the reported delays are primarily a function of the connector coding rather than a genuine capacity constraint, with minimal impact on surrounding network performance. Furthermore, demand and flow on the connector remain aligned across all scenarios, indicating that traffic is not being suppressed by the reported delays.



Table E-2 – Junction performance metrics: Volume/Capacity (%)

Area	Junction	Reference Case			DS1			DS2			DS3		
		AM	IP	PM	AM	IP	PM	AM	IP	PM	AM	IP	PM
A40	A40 / Wolvercote Roundabout (West)	74	71	69	73	71	70	72	70	69	72	70	69
A40	A40 / Canalside Quarter Junction	74	66	69	74	67	72	72	65	70	72	65	70
A40	A40 / Eynsham Road	65	52	64	65	53	67	64	52	66	63	52	67
A40	A40 / Cassington Road	59	49	58	58	50	61	57	48	60	57	48	61
A40	A40 / Approach to Cassington Road	88	73	83	88	75	88	87	73	86	87	73	86
A40	A40 / Eynsham Roundabout	83	72	91	84	74	94	82	73	93	84	73	93
A40	A40 / Witney Road	59	59	66	60	60	67	58	60	67	60	60	67
A40	A40 / Eynsham P&R	54	49	53	54	49	52	55	49	53	55	50	53
A40	A40 / West Eynsham / Salt Cross (New junction)	71	56	69	72	56	69	74	57	69	72	57	69
A40	A40 / Shores Green (EB on-slip)	65	57	59	65	56	58	67	57	59	66	57	59
A40	A40 / Shores Green (WB off-slip)	39	35	42	39	36	42	38	35	41	38	35	41
A40	A40 / Shores Green (WB on-slip)	88	65	87	88	65	88	85	64	87	86	64	87
A40	A40 / Shores Green (EB off-slip)	53	39	54	53	38	52	53	38	51	52	38	51
A40	Shores Green (EB off-slip) / B4022	43	37	52	43	35	51	42	34	50	42	34	50
A40	Shores Green (WB on-slip) / B4022	80	57	80	78	56	78	75	53	77	74	53	77
A40	A40 / Ducklington Lane (WB on-slip)	41	30	49	41	32	46	40	31	46	41	31	46
A40	A40 / Downs Road	86	56	82	86	58	80	85	57	78	85	57	79
A40	A40 / Brize Norton Road	38	35	45	45	43	56	46	42	55	45	42	55
A40	New A40 Roundabout (Carterton Site F)	N/A	N/A	N/A	27	23	33	26	23	32	26	23	32
A40	A40 / Asthall Barrow Roundabout	45	38	47	47	35	49	47	35	49	47	35	49
Eynsham*	Stanton Harcourt Road / West Eynsham (New junction)	57	34	55	60	37	60	61	36	59	59	35	59
Witney	Jubilee Way / Cogges Hill Road / Oxford Hill	71	63	83	72	63	84	71	62	83	71	62	83
Witney	Jubilee Way / A4095	68	45	55	82	51	57	83	51	57	82	52	57
Witney	Bridge Street / Newland / Woodgreen Hill	83	68	85	83	75	84	80	75	84	81	74	83
Witney	West End / Bridge Street	95	73	90	97	82	92	97	81	92	97	80	92
Witney	Bridge Street / High Street / Mill Street	78	60	72	78	67	73	77	66	72	77	66	72
Witney	Burford Road / Deer Park Road	92	51	68	96	64	67	91	63	68	92	63	69
Witney	Deer Park Road / Curbridge Road / Thorney Leys	82	36	83	85	41	91	85	39	90	85	39	90
Witney	Ducklington Lane / Station Lane / Thorney Leys	56	48	75	59	46	73	56	45	71	56	45	71



Area	Junction	Reference Case			DS1			DS2			DS3		
		AM	IP	PM	AM	IP	PM	AM	IP	PM	AM	IP	PM
Carterton	Burford Road / Alvescot Road / Brize Norton Road / Black Bourton Road	54	39	60	62	45	71	59	44	68	59	44	68
Carterton	Monahan Way / Upavon Way	27	19	29	29	18	30	29	18	30	29	18	30
Brize Norton	B4477 / Burford Road	29	22	33	34	27	42	34	27	40	34	27	40
Brize Norton	B4477 / Minster Road / Brize Norton Road	29	22	36	40	34	48	39	33	48	39	33	48
Chipping Norton	Horsefair / London Road / Banbury Road / Over Norton Road	81	69	84	82	72	88	82	72	87	82	73	87
Chipping Norton	Market Place / West Street / New Street	74	66	88	75	69	90	75	69	89	75	69	89



Appendix F. Shift to Cycling Impact

F.1 Local Plan Do-Something 2 Scenario: With Enhanced Active Travel and Bus Mitigation

The results of applying the active mode adjustment across the main development sites and settlements, indicate varying impacts across different areas of West Oxfordshire. Along the A40, between Eynsham and Oxford North, the methodology estimates no material shift from car to cycling. This is primarily due to the application of a 10-mile cut-off for trip length. As a result, trips travelling towards Eastern arc are excluded from the assessment, while the longest distance band (5-10 miles) assumes a very low percentage shift.

This methodology also estimates a shift from car to cycling for the P&R trips using the Eynsham P&R site. This shift affects only the car leg of the journey, with trip continuing by bus between Eynsham and Oxford City. The trips that shift are estimated to originate mainly from the Salt Cross and West Eynsham developments.

The greatest impacts are estimated for trips within Witney and Carterton in all time periods. A significant shift to cycling is also forecast for movements between Carterton and Witney. This shift is incentivised by:

- Bus-only restrictions along Witney Road between Downs Road and Minster Road, which makes the route more attractive to cyclists due to reduced traffic volumes.
- Significant congestion for car traffic within Witney.

Among the larger individual development sites, Carterton Sites E and F are forecast to experience the highest levels of shift to cycling. This applies both to trips to and from Witney and to movements between major development sites within Carterton itself.

Figure F-1 and Figure F-2 illustrate the difference in traffic flows between the DS2 assignment incorporating the active travel mode shift and the original DS2 assignment without the active travel mode shift. In addition to the reduction in flows in the Carterton/Witney area, some rerouting can be observed, resulting from localised reductions in traffic volumes and delays.

Figure F-3 and Figure F-4 show the difference in highway delays with the inclusion of the active travel demand reduction. Reductions are forecasted on the A40 and in Witney at the following locations:

- A40 Eastbound at Downs Road roundabout, Dry Lane Southbound or Bridge Street Southbound in the AM peak.
- Burford Road Westbound, at the roundabout with Tower Hill in the interpeak period.
- Burford Road Westbound, at the roundabout with Tower Hill, Curbridge Road Southbound at the roundabout with Deer Park Road or Bridge Road Northbound in the PM peak.



Figure F-1 – AM Peak – change in highway flow due to active travel shift – DS2

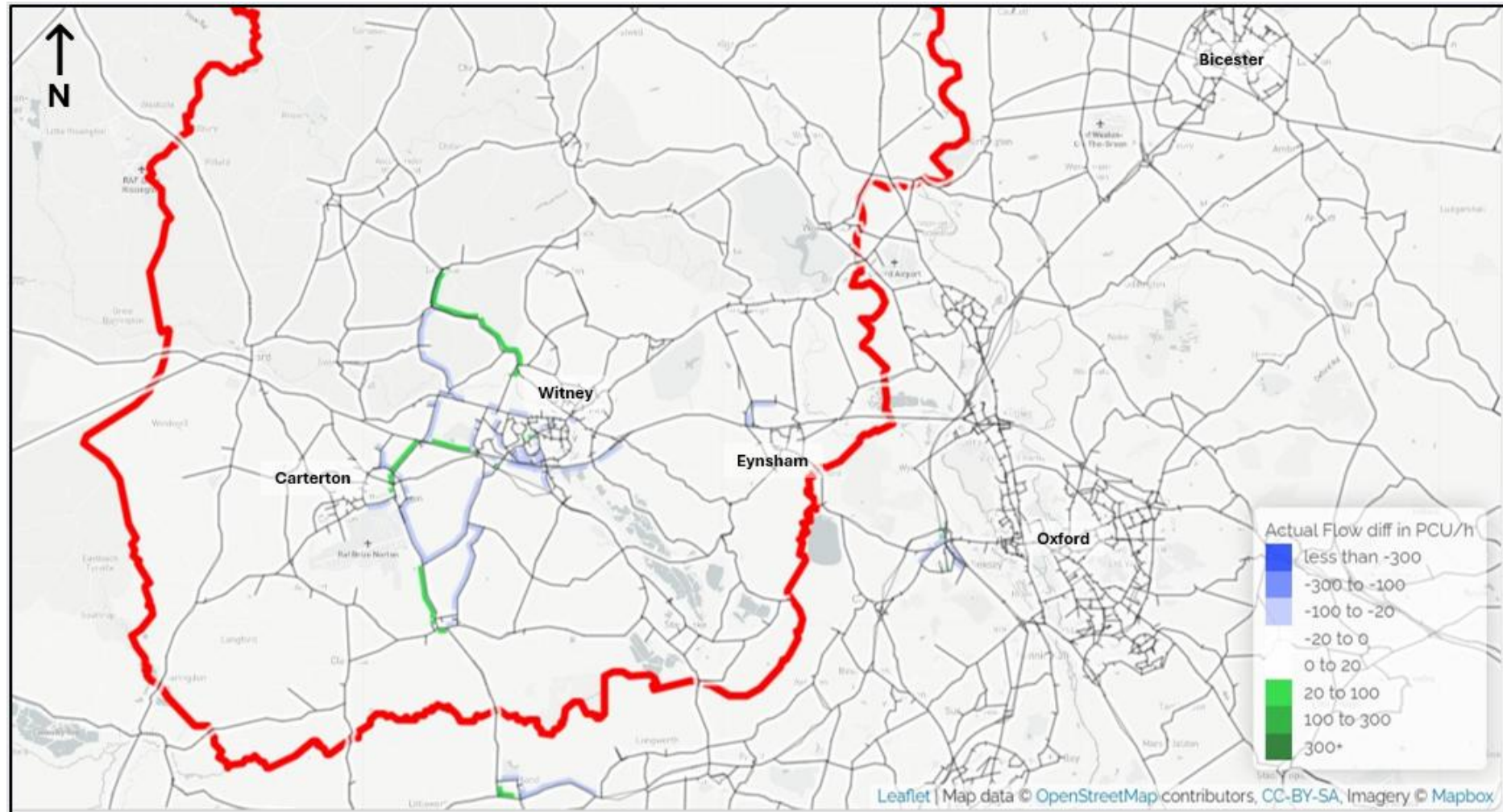


Figure F-2– PM Peak – change in highway flow due to active travel shift – DS2

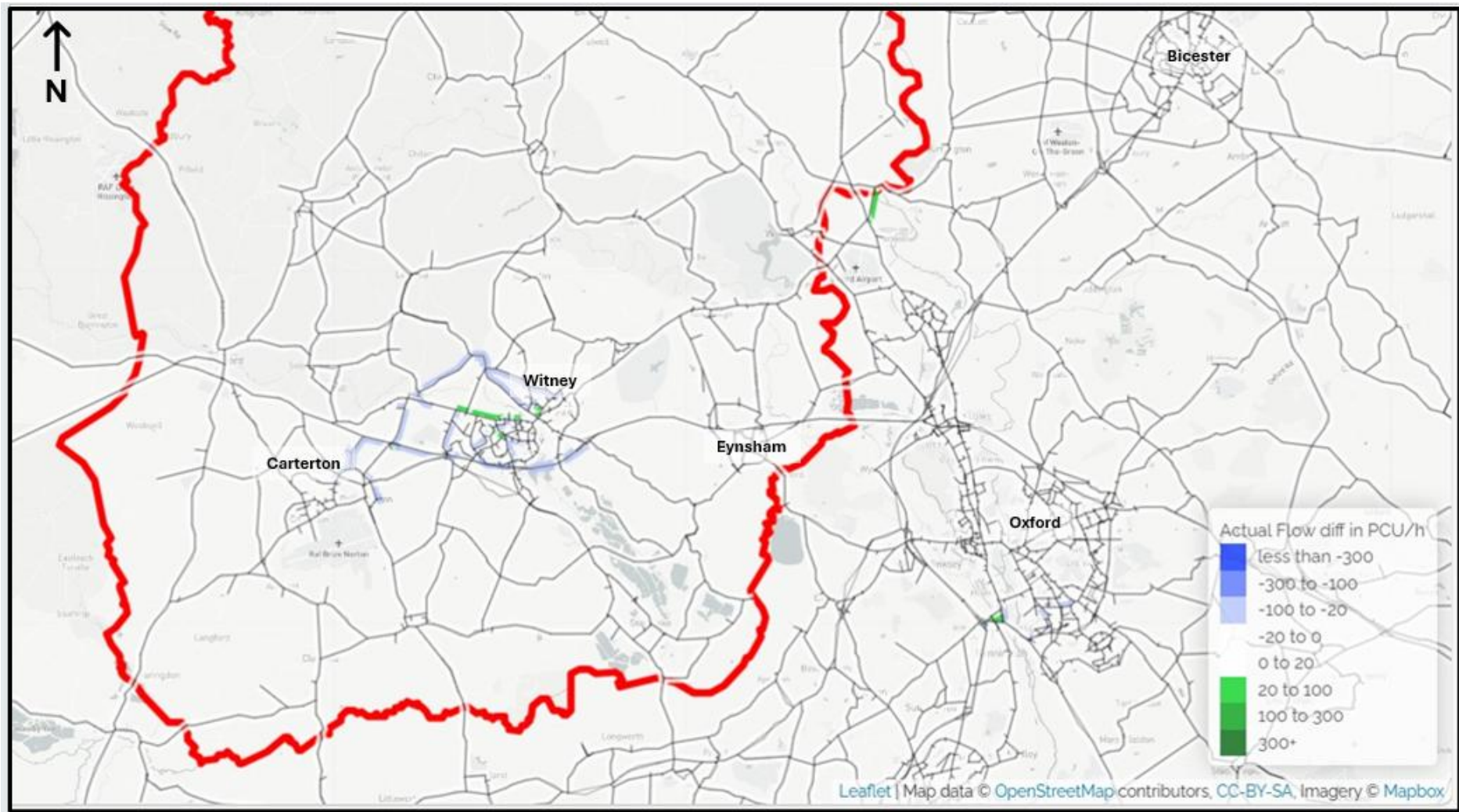


Figure F-3 – AM Peak – change in highway delay due to active travel shift – DS2

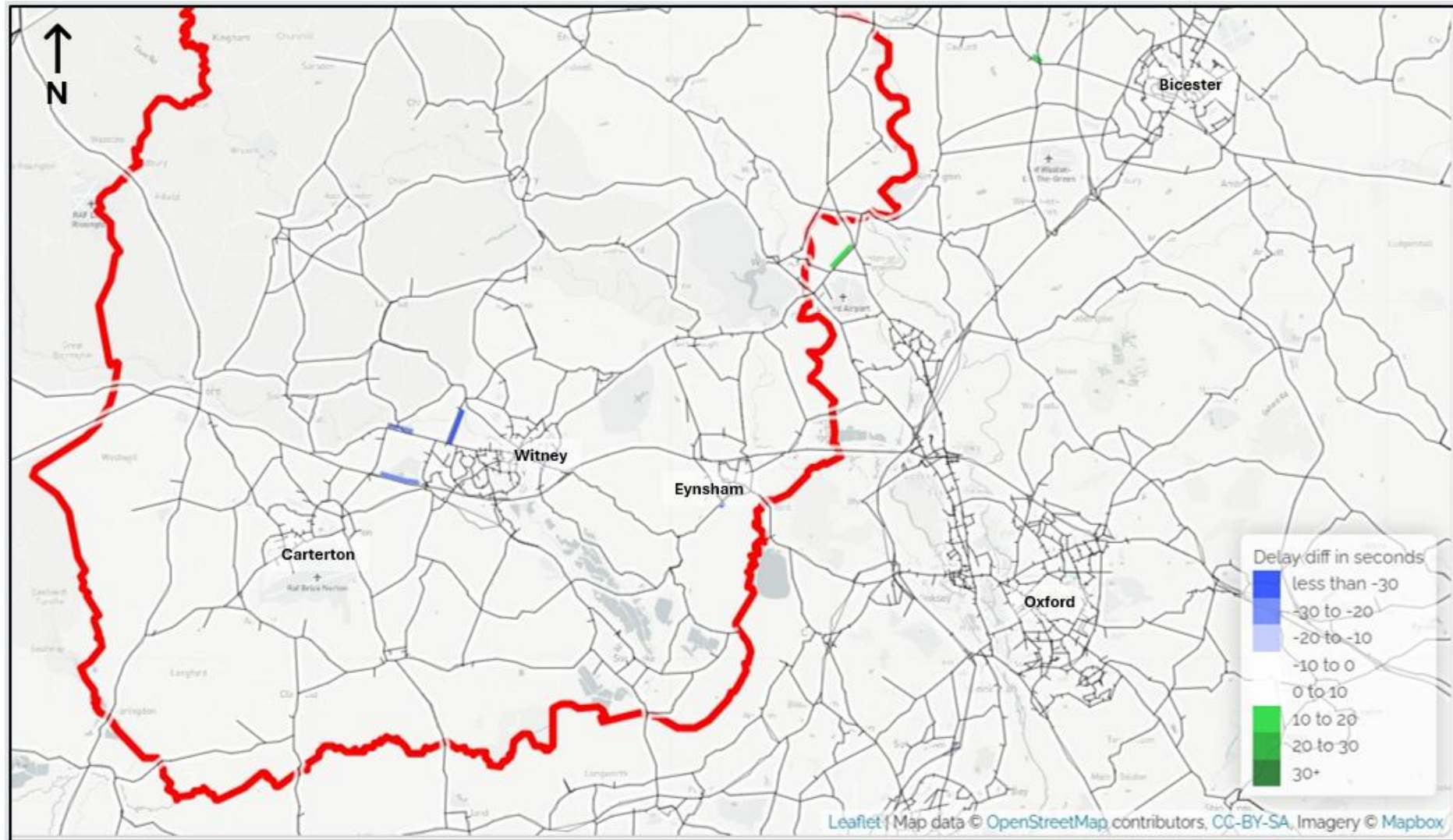
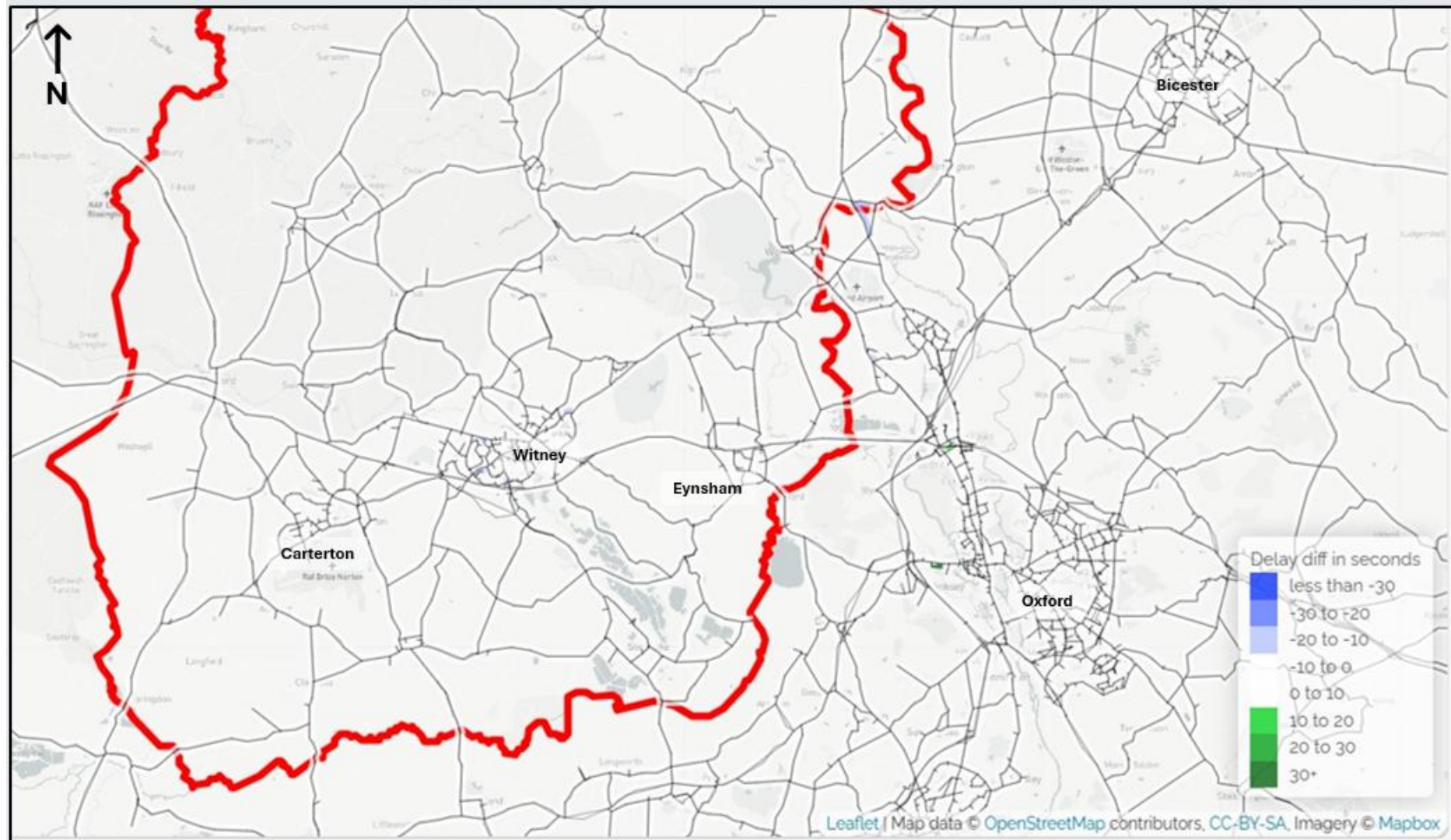


Figure F-4 – PM peak – change in highway delay due to active travel shift – DS2



F.2 Local Plan Do Something 3 Scenario: With Active Travel, Bus and Mass Rapid Transit Mitigation

The forecast shift to cycling in the DS3 scenario is comparable in both magnitude and spatial distribution to that observed in the DS2 scenario. The difference between the two scenarios is estimated to be around 10 person trips per time period and is therefore considered negligible.

Figure F-5 and Figure F-6 show the flow differences between the mode-shift assignment and the original assignment. Consistent with DS2, flows reduce in the Carterton - Witney area and some re-routing occurs as a result of localised reductions in traffic and delay.

Figure F-7 and Figure F-8 show the changes in highway delay resulting from the forecast modal shift from car to cycling. Consistent with DS2, delay reductions are forecast at the following locations:

- A40 Eastbound at Downs Road roundabout, Dry Lane Southbound or Bridge Street Southbound in the AM peak.
- Burford Road Westbound, at the roundabout with Tower Hill in the interpeak period.
- Burford Road Westbound, at the roundabout with Tower Hill, Curbridge Road Southbound at the roundabout with Deer Park Road or Bridge Road Northbound in the PM peak.

Figure F-5 – AM Peak – change in highway flow due to active travel shift – DS3

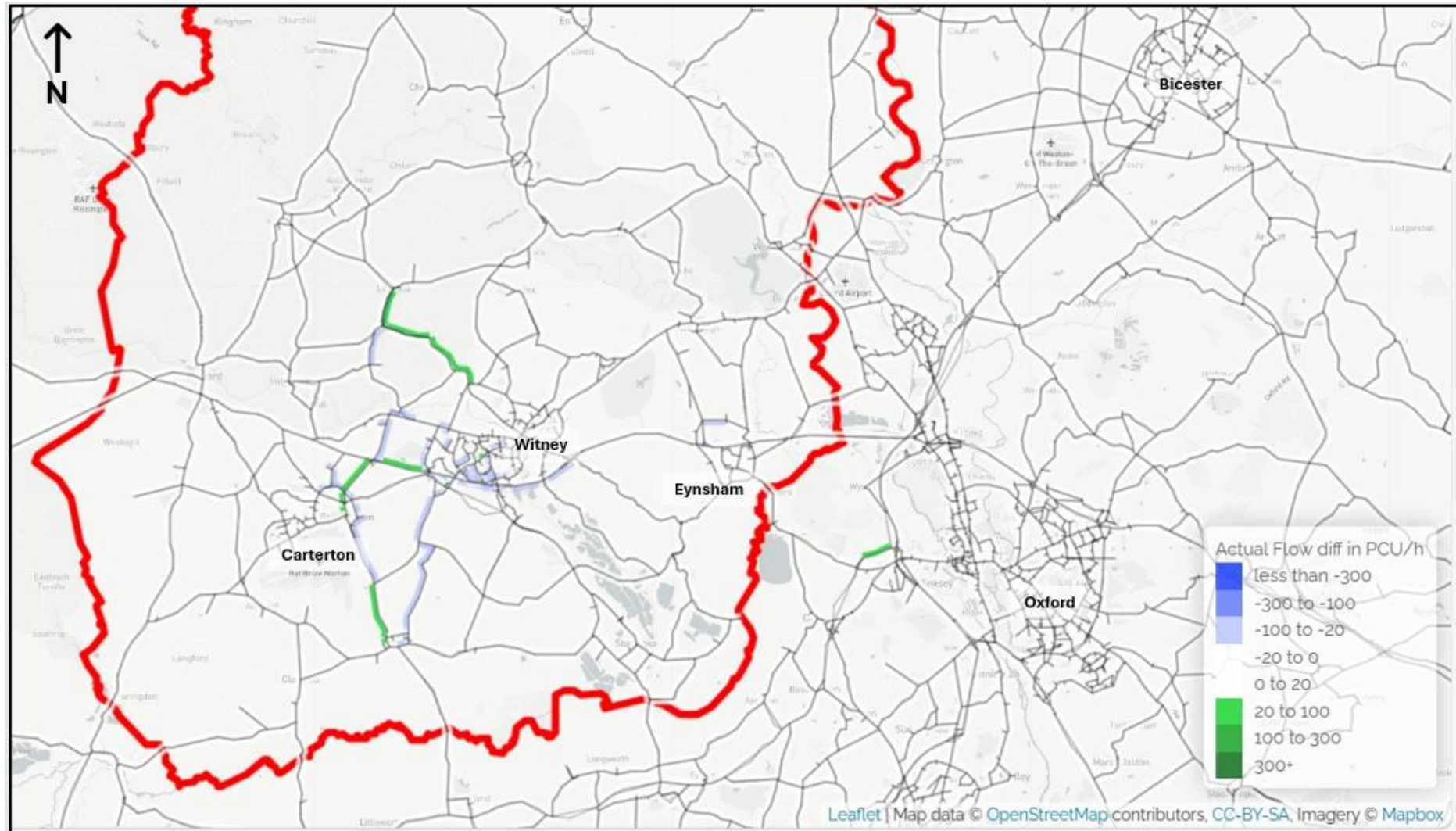


Figure F-6 – PM Peak – change in highway flow due to active travel shift – DS3

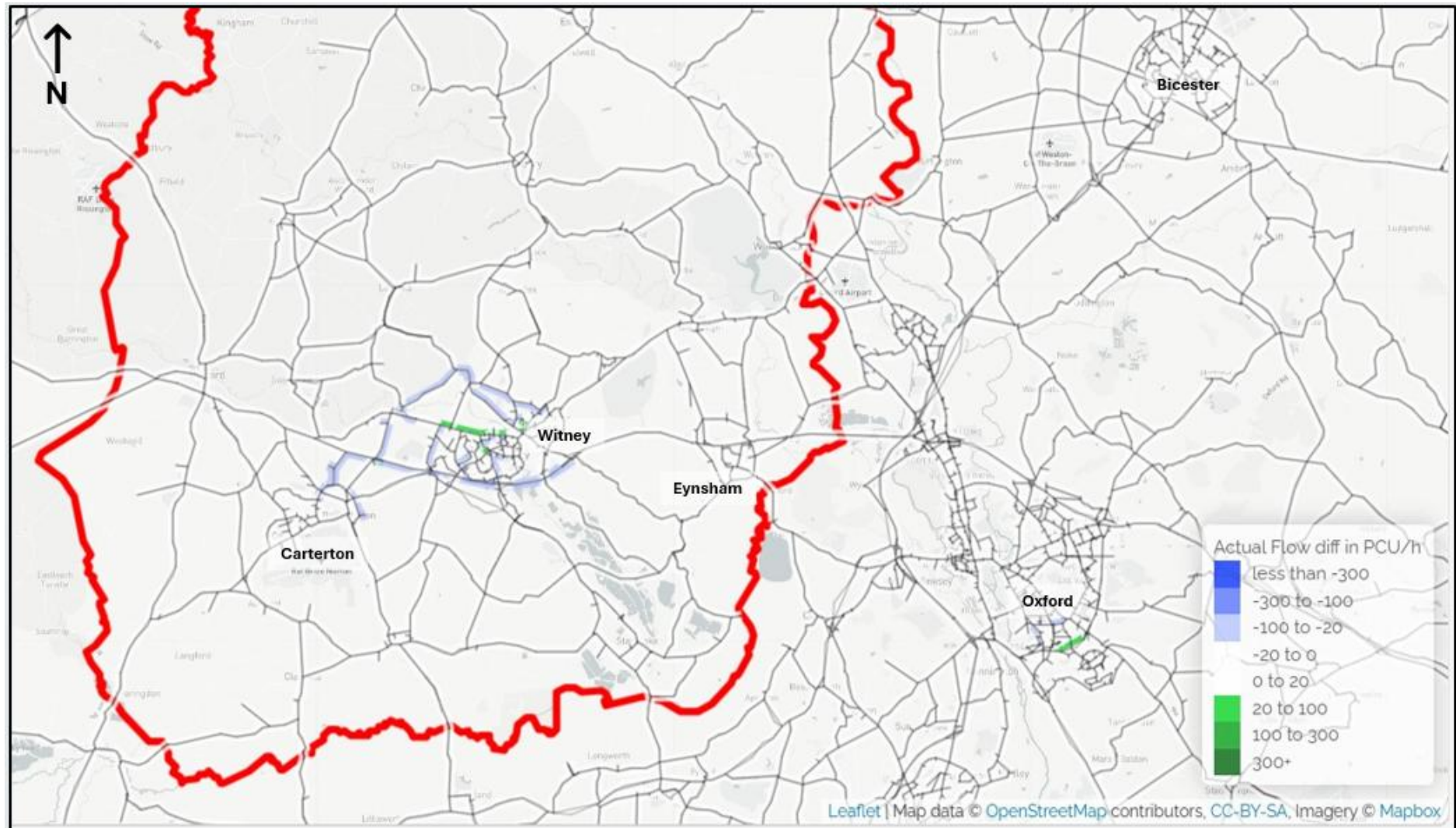


Figure F-7 – AM Peak – change in highway delay due to active travel shift – DS3

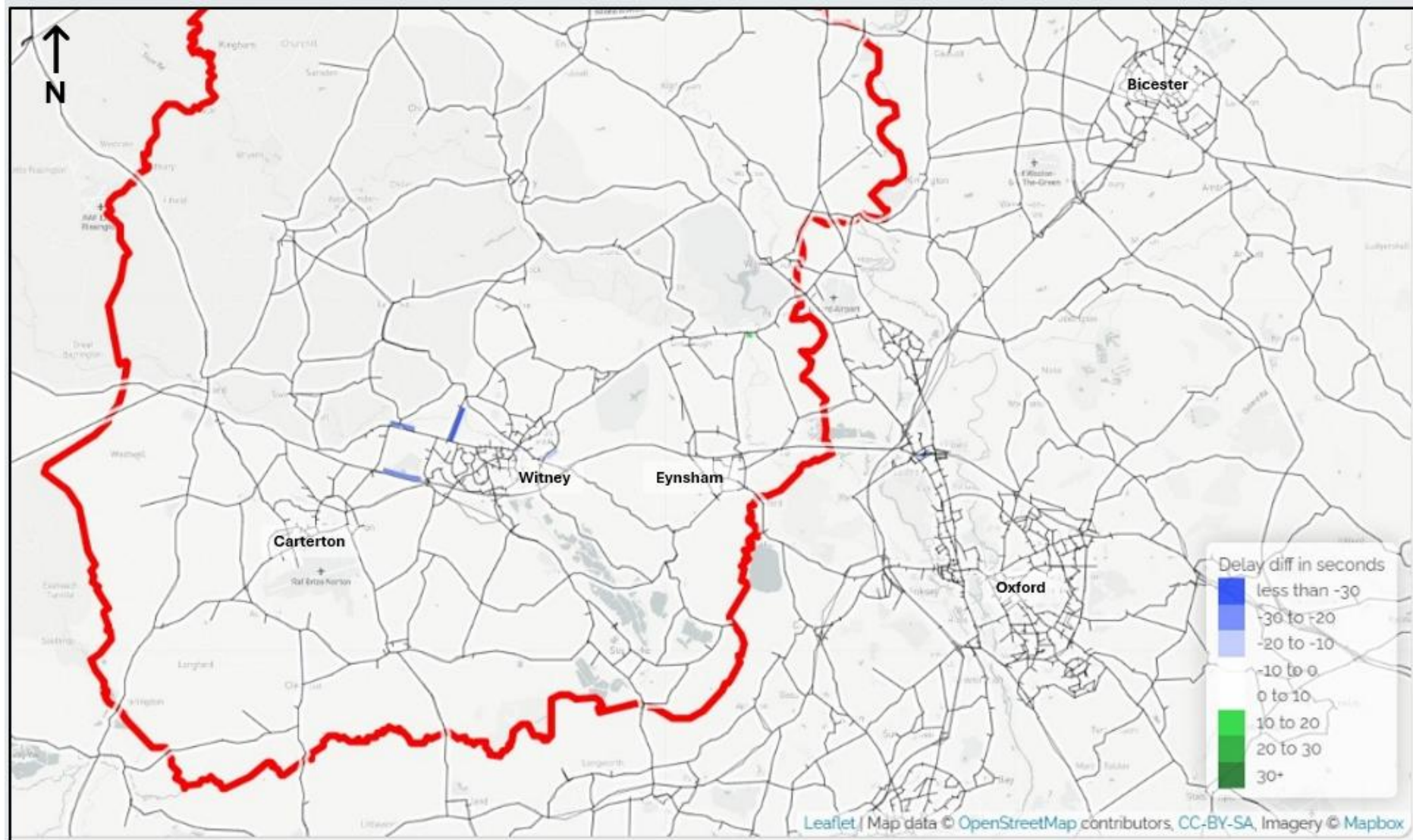
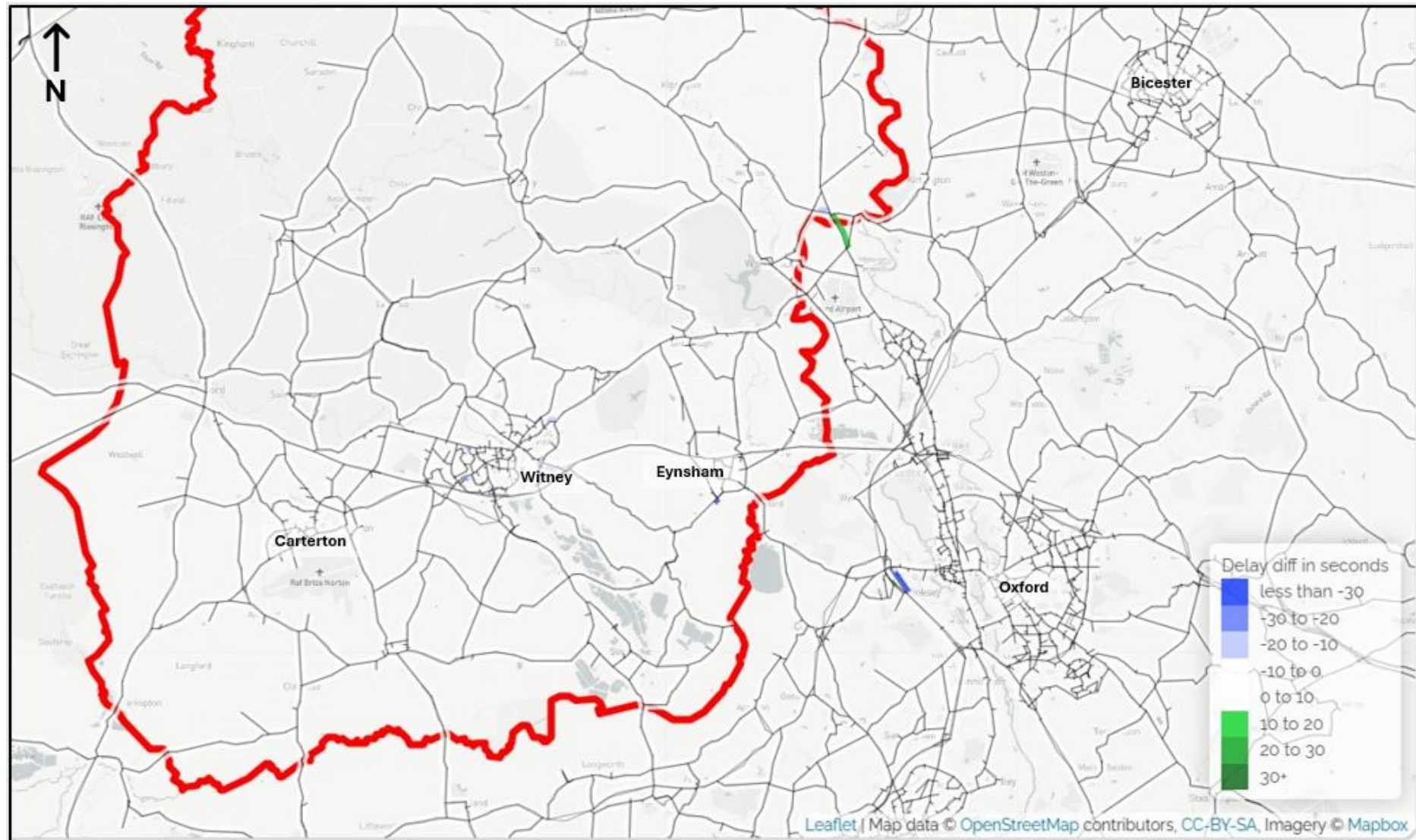


Figure F-8 – PM peak – change in highway delay due to active travel shift – DS3



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