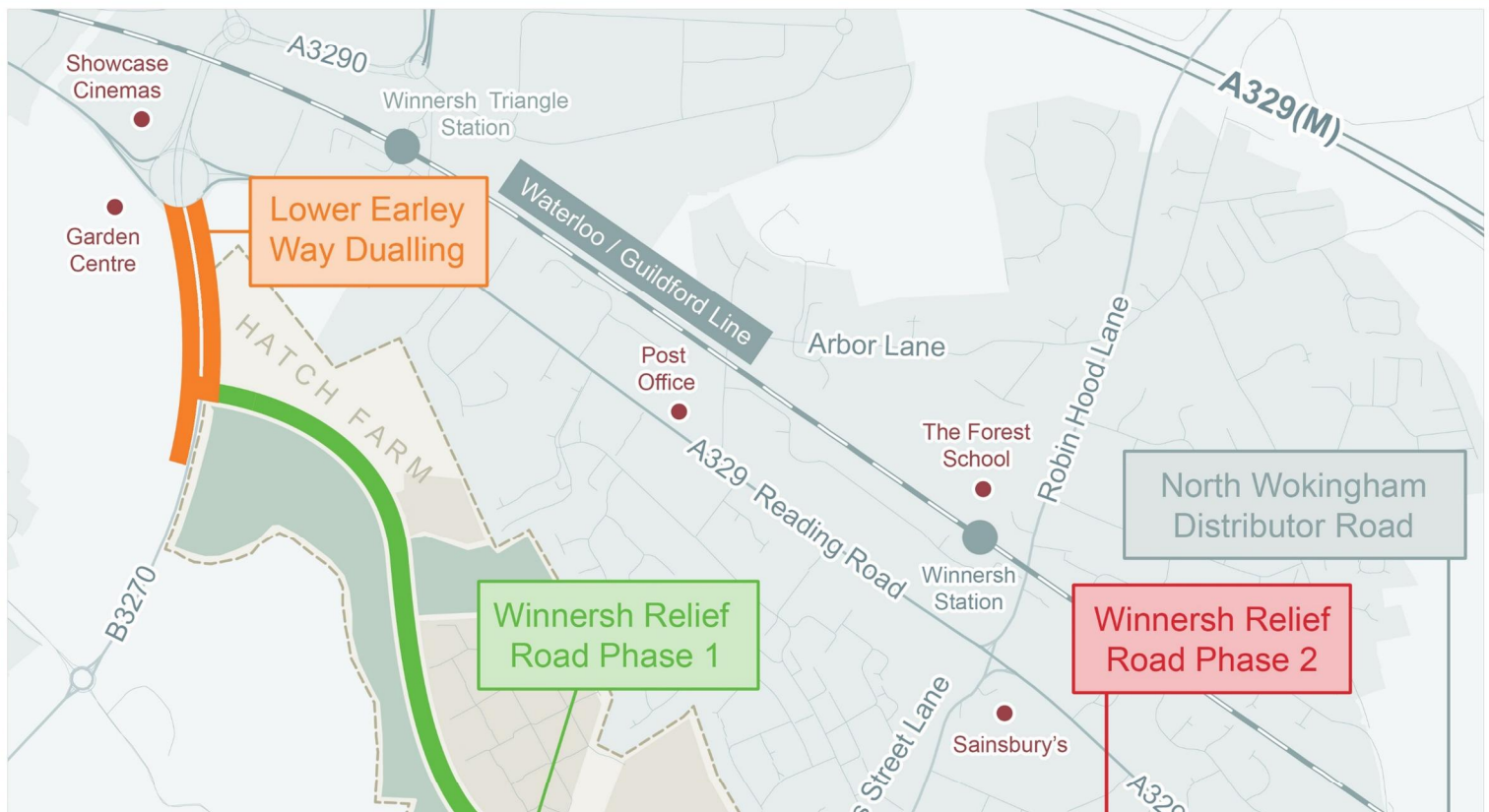




Thames Valley Berkshire Local Transport Body

WINNERSH RELIEF ROAD

Business Case





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Thames Valley Berkshire Local Transport Body

WINNERSH RELIEF ROAD

Business Case

WSP

2 London Square

Cross Lanes

Guildford, Surrey

GU1 1UN

Phone: +44 148 352 8400

WSP.com

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Prepared by	Rajat Bose	Lucy-Burton-Brown		
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Checked by	Ratnam Rajah	Ratnam Rajah		
Signature				
Authorised by	Craig Drennan	Craig Drennan		
Signature				
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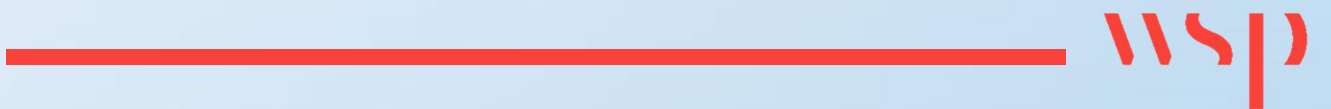
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INTRODUCTION



1. INTRODUCTION

1.1. INTRODUCTION

- 1.1.1. This report sets out the Final Transport Business Case for the proposed Winnersh Relief Road which connects the B3270 Lower Earley Way to the A329 Reading Road in Winnersh, Wokingham. WSP has produced this business case on behalf of Wokingham Borough Council (WBC), for submission to the Thames Valley Berkshire Local Transport Body and their independent advisors Hatch Regeneris.
- 1.1.2. The report sets out the evidence base in favour of the scheme, following the Department for Transport's (DfT) guidance on The Transport Business Cases by considering each of the five business cases in turn:
- Strategic Case
 - Economic Case
 - Financial Case
 - Commercial Case
 - Management Case.
- 1.1.3. In line with the Department of Transport five-case business case model, this report provides the required information on each of the five cases:
- The Strategic Case: This gives a description of the scheme and sets out the problems and objectives of the scheme and why the scheme is the preferred option for meeting the stated objectives
 - The Economic Case: This assesses the options to identify all their impacts to fulfil the treasury's requirements for appraisal and demonstrating value for money in the use of taxpayers' money
 - The Financial Case: This sets out the outturn costs of the proposals outlining the scheme's affordability and funding arrangements over the lifespan of the project
 - The Commercial Case: This sets out why the scheme is commercially viable, in terms of structure, content and nature of the proposed investment deal and provides details on the scheme procurement process
 - The Management Case: This confirms how the scheme promoter aims to deliver the proposals effectively and the quality of the authorities' project management at various stages of implementation ensuring that the proposals that can be delivered and offer the best value for money.
- 1.1.4. This document identifies the economic benefits of the Winnersh Relief Road scheme which include:
- A new relief road between B3270 Lower Earley Way and the A329 Reading Road
 - An extension to the existing Longdon Road and a new roundabout junction location on the A329 Reading Road, north of the M4 overbridge
 - New or modified traffic signals along the length of the Relief Road
 - Enhanced pedestrian and cycle facilities.
- 1.1.5. This Business Case therefore documents that the proposed Winnersh Relief Road scheme is financial advantageous and offers value for money.

1.2. AREA DESCRIPTION

- 1.2.1. Winnersh is a civil parish and a large village in the Borough of Wokingham in the county of Berkshire. Winnersh is bounded by the M4 Motorway to the south, with an existing residential area and development in the north, King Street Lane to the west and the A329 Reading Road to the east. Figure 1 shows the location and parish boundary.
- 1.2.2. Winnersh is 38 miles west of London, about 2 miles north-west of Wokingham and 6 miles south-east of Reading.

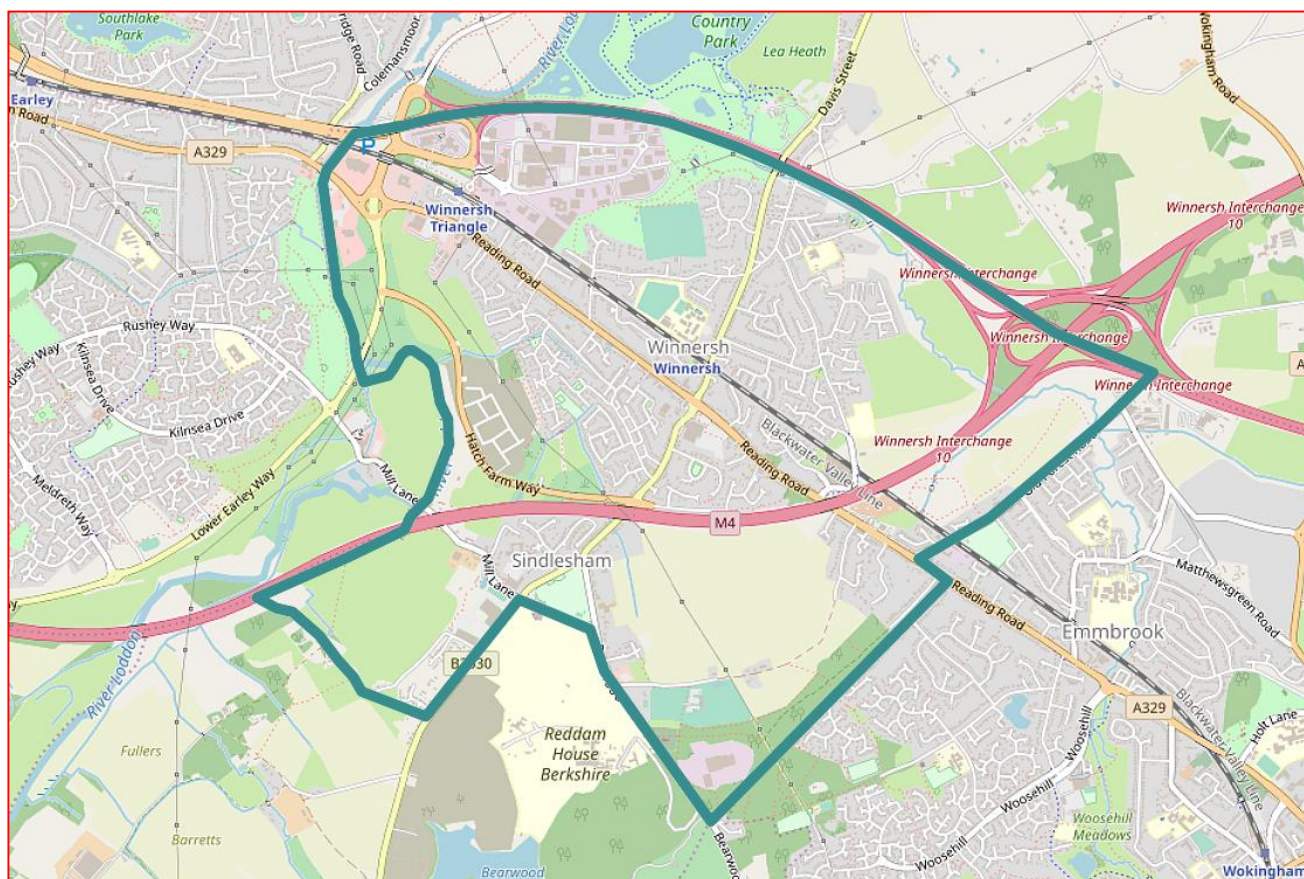


Figure 1 – Winnersh Location Plan and Parish Boundary

1.3. SITE DESCRIPTION

- 1.3.1. The Proposed Development Site (the 'Site') on which the Relief Road is to be built is currently mixed Greenfield and brownfield land, comprising open grassland and woodland. The site is predominately undeveloped land between Longdon Road and the M4. Figure 2 shows Winnersh with the scheme and nearby significant roads highlighted.

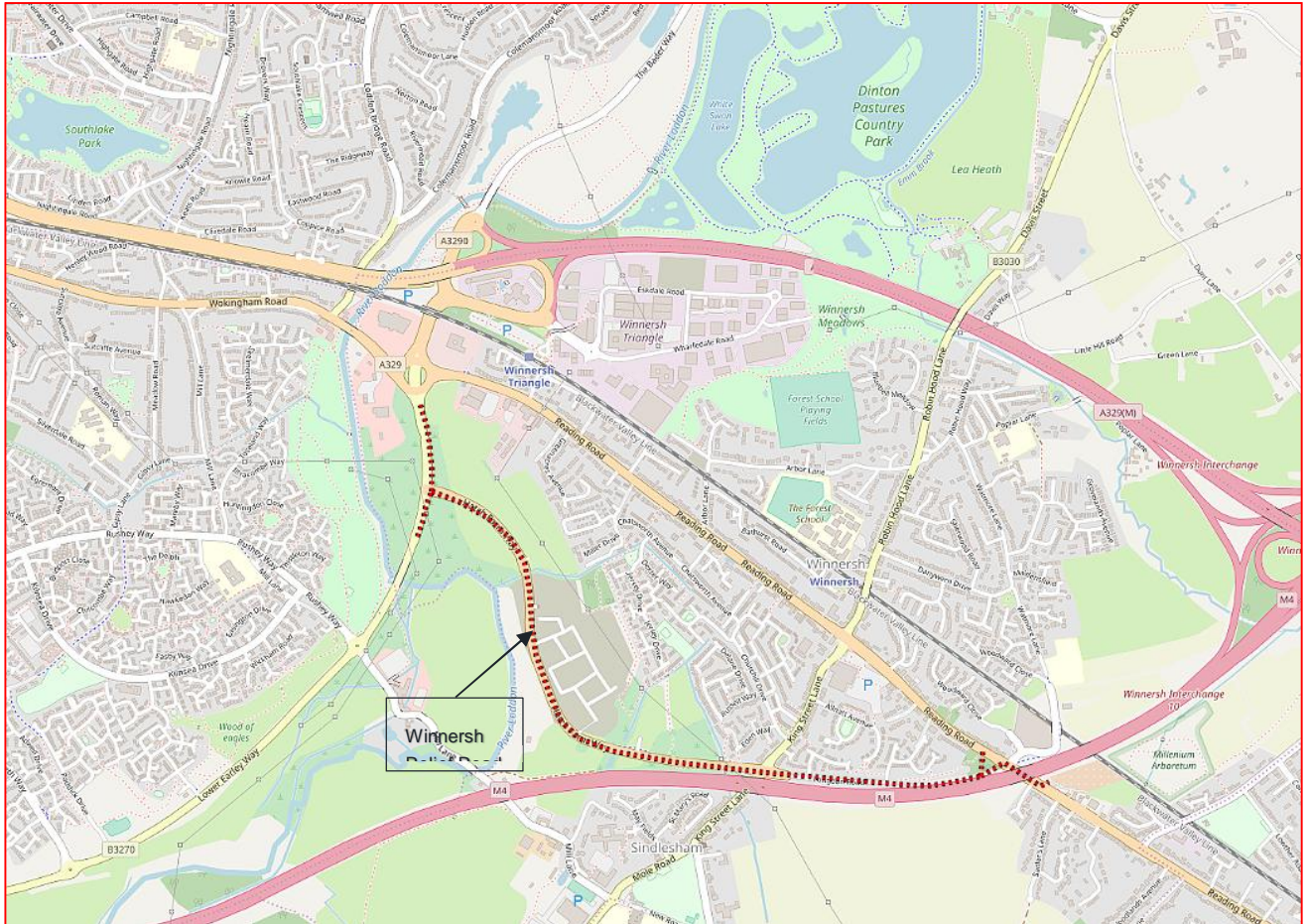


Figure 2 – Scheme location, and Surrounding Area

- 1.3.2. The Site covers an area of approximately 4.83 hectares (Refer to Figure 2 above). The site is bounded by the M4 Motorway to the south, existing residential development to the north, King Street Lane to the west, and the A329 Reading Road to the east. The area of the proposed route has levels ranging from approximately 55m Above Ordnance Datum (AOD) at the eastern end of the A329 Reading Road southern roundabout, to 50m AOD at the lowest point approximately 100m from the King Street Lane end to the west.
- 1.3.3. Much of the site is covered with clay to silt pre-quaternary marine/estuarine sand and silt, with clay to sandy loam Riverine Clay and Floodplain Sands and Gravel. The River Loddon (Main River) is located approximately 800m west of the Kings Street Lane end, and the Emm Brook (Main River) is located approximately 850m northeast of the A329 Reading Road end of the Site.

- 1.3.4. A stretch of the M4 Motorway (between Junction 10 to 11) is located approximately 50m south of Longdon Road and crosses Reading Road on overbridge. The M4 is raised on embankments which are well-vegetated and thus represents a physical and visual barrier between the Site and predominantly agricultural land to the south. To the north of the Site is the southern extents of Winnersh, comprised largely of mid to late 20th century detached and semi-detached housing set within private garden space.
- 1.3.5. It is noted that the Site is not situated within any landscape designations (e.g. National Parks or Areas of Outstanding Natural Beauty (AONB)). However, at the national landscape character level the site sits entirely within National Character Area (NCA) 115: Thames Valley. The Thames Valley is a wedge-shaped area widening from Reading to include the Bracknell, Slough, Windsor areas, the Colne Valley and the south-west London fringes. The River Thames provides a unifying feature through a very diverse landscape of urban and suburban settlements, infrastructure networks, fragmented agricultural land, historic parks, commons, woodland, reservoirs and extensive minerals workings.
- 1.3.6. There are no listed buildings located within the Site although there are four Grade II listed buildings located within the 500m study area. There are no Registered Parks and Gardens (RPG) located within the Site or 500m study area. However, the Grade II* Beardwood College RPG is located approximately 550m to the south-west.
- 1.3.7. There is no conservation area within the Site but there is one within the 500m study area – namely Sindlesham Conservation Area located approximately 250m to the south-west of the Site. There are four trees protected by Tree Preservation Orders (TPO 270 1984) located within the Site to the east lining Reading Road, south of the M4.
- 1.3.8. There are known finds or features located within the Site's footprint dating back to the Palaeolithic period, through to the early Medieval Period. Finds include gullies, pottery, ditches and pits. There are no statutorily designated heritage assets within the Site. The Site has low to moderate potential for prehistoric remains, low to moderate potential for Roman remains, low potential for early medieval remains, low to moderate potential for later medieval remains and low potential for post-medieval remains.
- 1.3.9. The Site is partially situated within an Air Quality Management Area (Wokingham AQMA) under the UK Air Quality Strategy 2007.
- 1.3.10. The Site is classified as a mixture of Greenfield site consisting of open green space and wooded areas, and the existing A329 Reading Road. It currently drains via natural overland runoff and Highways England private drainage networks toward ditches and the River Loddon and its tributaries. The Site is located in Flood Zone 1 (as shown on the Environment Agency Flood Maps for Planning), which means it has a less than 0.1% annual probability of river or sea flooding, and is therefore not considered to be at risk from tidal or fluvial flooding.

1.4. SCHEME DESCRIPTION

- 1.4.1. The route of the proposed Winnersh Relief Road is illustrated diagrammatically in Figure 3. It serves new development north of the M4 motorway, linking the B3270 Lower Earley Way in the west with the A329 in the east. The total length of the Relief Road is about 2.8km.

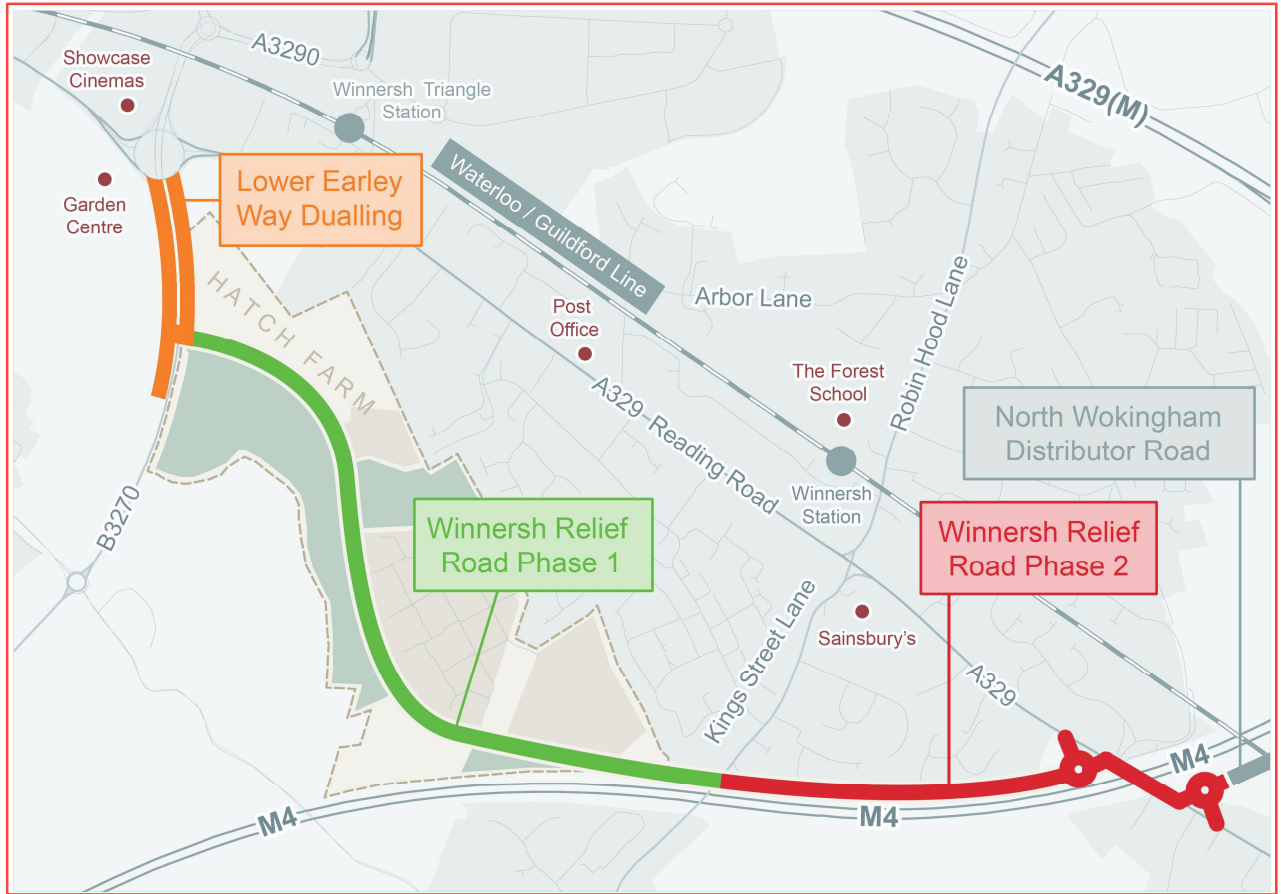


Figure 3 – Relief Road Scheme

1.4.2. The Relief Road is being delivered in two main phases:

- Phase 1: Western section, links the B3270 Lower Earley Way with B3030 King Street Lane
- Phase 2: Eastern section, will link King Street Lane to the A329 Reading Road at the M4 overbridge.

1.4.3. The scheme also includes:

- Lower Earley Way dualling.

WINNERSH RELIEF ROAD PHASE 1

1.4.4. Phase 1, the western section of the Relief Road, has already been constructed by developer Bovis Homes and Persimmon, and provides access to the Hatch Farm Dairies housing development. Phase 1 was opened to traffic in June 2018. It runs from a new signal-controlled junction on the B3270 Lower Earley Way to a new signal controlled junction on B3030 King Street Lane. It is a single carriageway road with a speed limit of 40mph.

HATCH FARM DAIRIES SITE

1.4.5. The Hatch Farm Dairies site is a permitted housing development located adjacent to the western boundary of the urban settlement of Winnersh and Winnersh Relief Road Phase 1. The 433 dwelling development (now known as Hatchwood Mill) lies between the built up area of Winnersh (to the north and east) and a broad loop of the River Loddon (to the west) and is shown on Figure 4.



Figure 4 – Location of Hatch Farm Dairies (Hatchwood Mill) site.

- 1.4.6. Wokingham's Planning Committee resolved to approve the housing scheme and the associated Phase 1 Relief Road on 16 November 2011 (Ref O/2006/8687). The S106 (legal agreement) was agreed and planning consent issued on the 19 November 2014. Whilst the Phase 1 road scheme has been completed, the housing development continues to be built out and completed in phases.

WINNERSH RELIEF ROAD PHASE 2

- 1.4.7. Phase 2 will be a 750m long single carriageway with a speed limit of 40mph, linking the new junction on B3030 King Street Lane to a new junction on the A329 Reading Road. It will be created by widening a 400m long section of the existing Longdon Road and extending it by 350m to join the A329. The existing priority junctions with Sandstone Close and Laburnum Road will be retained, serving the residential area north of Longdon Road. A shared footway/cycle way will be provided on the Relief Road, with uncontrolled crossings for pedestrians and cyclists at these junctions.
- 1.4.8. The scheme will include:
- a new roundabout junction located on the A329 Reading Road, north of the M4 overbridge
 - a further roundabout located south of the M4 overbridge providing a connection to the proposed West of Old Forest Road scheme
 - a modified set of traffic signals at Kings Street Lane
 - a new set of traffic signals on the Reading Road east bound approach at the southern roundabout
 - one modified toucan crossing on Reading Road between the two roundabouts close to Woodward Close.

- 1.4.9. The A329 Reading Road will be lowered where it passes under the M4 bridge, and the traffic signals at the Reading Road/Woodward Road junction will be replaced with a left-in left-out arrangement. The proposed A329 junctions are shown in more detail in Figure 5.
- 1.4.10. Including the A329 junctions, the total length of new or improved road in Phase 2 will be 1.1km.
- 1.4.11. Phase 2 obtained full planning permission (Ref: 180760) at Wokingham Borough Council's October 2018 Planning Committee.

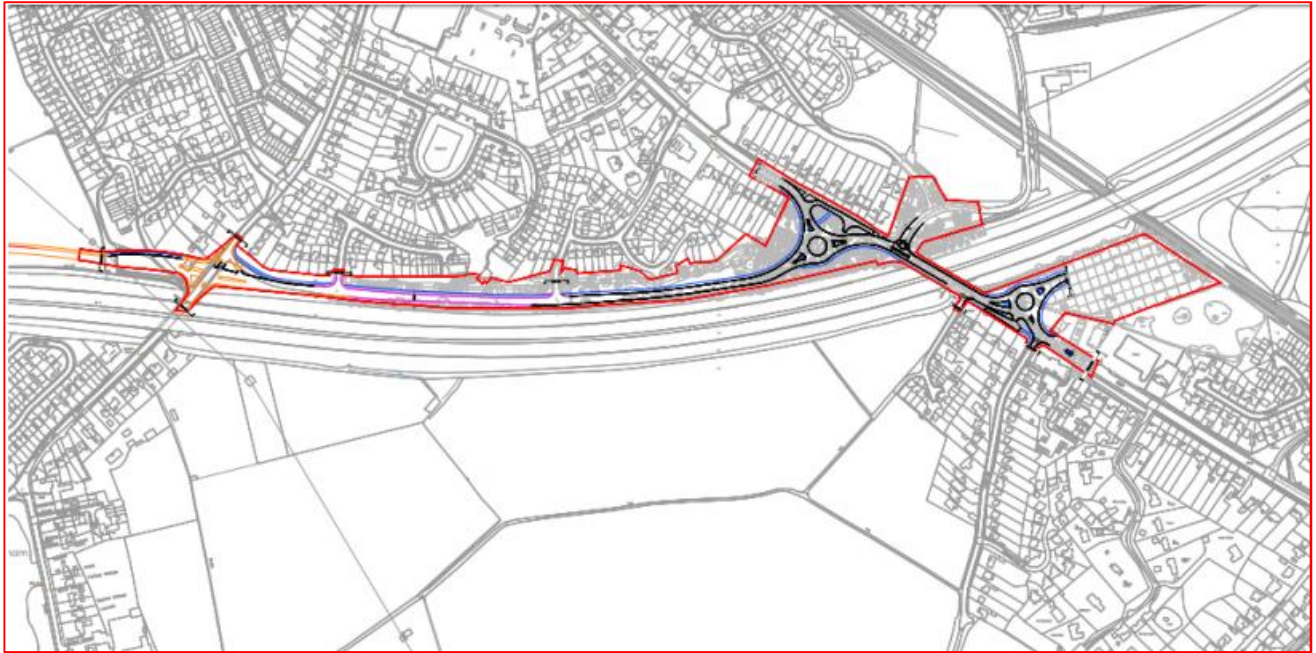


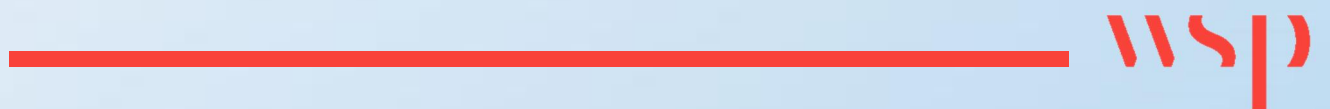
Figure 5 – Proposed A329 Junction with M43

LOWER EARLEY WAY DUALLING

- 1.4.12. To accommodate traffic associated with the relief road and housing development, a 520m length of the B3270 Lower Earley Way will be improved to a dual carriageway standard. The road will be widened to provide two lanes in each direction between the Loddon roundabout, near the Showcase Cinema at Winnersh Triangle, and the junction with the Winnersh Relief Road. A new footway/cycleway will also be provided.
- 1.4.13. Lower Earley Dualling is being progressed through permitted development rights under the town and Country Planning Act 1990 as the proposed works are on Public Highway or immediately adjoining Public Highway. A certificate of Lawful Development under Section 191 of the Act was provided in June 2016. Details of the decision can be found on the planning portal under planning reference 162639.

2

STRATEGIC CASE



2. STRATEGIC CASE

2.1. INTRODUCTION

- 2.1.1. Phase 1 of the Winnersh Relief Road, which connects the Lower Earley Way to King Street Lane, has been completed and is now open to general traffic. The road provides access to Bovis Homes and Persimmon housing development on the former Hatch Farm Dairies site. Wokingham Borough Council intends to now complete the construction of the remaining phases (Phase 2 and Lower Earley Way dualling) of the Winnersh Relief Road which will connect B3030 King Street Lane to A329 Reading Road.
- 2.1.2. Completion of the Winnersh Relief Road is vital to obtaining the full transport benefits of the scheme, reducing existing and future congestion through both Winnersh village and the wider road network, improving network resilience and to provide the needed additional highway capacity to facilitate the Council's wider objectives for housing growth, economic growth and job creation across the Borough. The full scheme benefits will not be realised until Phase 2 is completed, as Phase 1 ends at Kings Street Lane at its southern end - meaning vehicles still need to travel through the centre of Winnersh along the Reading Road.
- 2.1.3. This section demonstrates that the overall purpose of the investment is to reduce congestion and facilitate housing and economic growth and at the same confirm that the scheme is delivered with due regard to the relevant policies within the Council's Core Strategy.

2.2. BUSINESS STRATEGY

- 2.2.1. The main aim of the LEP is to contribute to the sustainable economic growth of the Thames Valley Berkshire through the implementation of a Strategic Economic Plan, which has four programmes¹:
- Enterprise and Innovation
 - Employability and Skills
 - International
 - Infrastructure.
- 2.2.2. As part of the last programme the LEP prioritises infrastructure that supports growth through investment in transport improvements to enhance connectivity.
- 2.2.3. The Thames Valley Berkshire Strategic Economic Plan² recognises the importance of connectivity to the continued growth of the region. Connections between residential areas to town centres and associated facilities are of particular importance.

¹ <http://www.thamesvalleyberkshire.co.uk/about?>

² <http://www.thamesvalleyberkshire.co.uk/documents?view=files&folder=192>

NATIONAL PLANNING POLICY FRAMEWORK (2018)

- 2.2.4. The Government's National Infrastructure Plan outlines the Government's approach to identifying and delivering infrastructure that is required. The plan states that investment will drive economic benefits including supporting growth and creating jobs, raising the productive capacity of the economy, driving efficiency and boosting international competitiveness i.e. there is a strong economic case for infrastructure investment as it is shown to have a significant positive effect on output, productivity and growth rates.
- 2.2.5. The National Planning Policy Framework (NPPF) states that plans should help to build a strong and competitive economy through the creation of jobs and prosperity. The NPPF makes reference to the importance of supporting business growth and improved productivity, in a way that links to key aspects of the Government's Industrial Strategy.
- 2.2.6. Winnersh Relief Road would improve access into and out of Wokingham therefore in accordance with the NPPF, to help achieve economic growth and bring forward planned developments the Borough is working proactively, to help support an economy fit for the 21st century.

CORE STRATEGY DEVELOPMENT PLAN DOCUMENT (2010)

- 2.2.7. The Council's Core Strategy Development Plan Document (referred to as 'the Core Strategy') was adopted in 2010 and seeks to provide a broad spatial vision and accompanying policies to guide development in the Borough to 2026. It provides a material consideration for promoting developments and transport schemes within the Borough.
- 2.2.8. Chapter 3 of the Core Strategy sets out the spatial vision for the Borough. The spatial vision explicitly recognises that in light of the high car ownership trend in the Borough and high levels of congestion experienced, a key component of the Core Strategy is the provision of a good transport system. It also recognises the contribution that an increase in the availability and use of non-car based transport will make toward addressing the causes of climate change.
- 2.2.9. Chapter 4 of the Core Strategy contains a suite of policies which seek to achieve the spatial vision established in Chapter 3. These policies range from high-level policies targeting broad themes which apply to the whole Borough, through to more issue and location specific policies. The Core Strategy identifies a requirement to improve transport capacity in order to support existing employment centres like Winnersh Triangle Industrial Estate and planned residential growth in the area, including the development of around 400 dwellings, a primary school and relief road to the south-west of Winnersh. Chapter 4 of the Core Strategy also defines the four Strategic Development Locations (SDL), i.e. North and South Wokingham, Arborfield and Shinfield, needed to deliver over 10,000 new dwellings across borough.
- 2.2.10. The Council has defined the new distributor roads needed within the Borough in order to open up and support the proposed four SDL. The SDL are located only 3-4 miles apart within Wokingham and the concentration of development is placing a significant strain on local infrastructure, particularly the road network, and all are being planned to include a range of facilities including schools and community facilities. To mitigate the traffic impacts Wokingham has planned local distributor roads, associated with each SDL, to take the additional traffic (Figure 6).

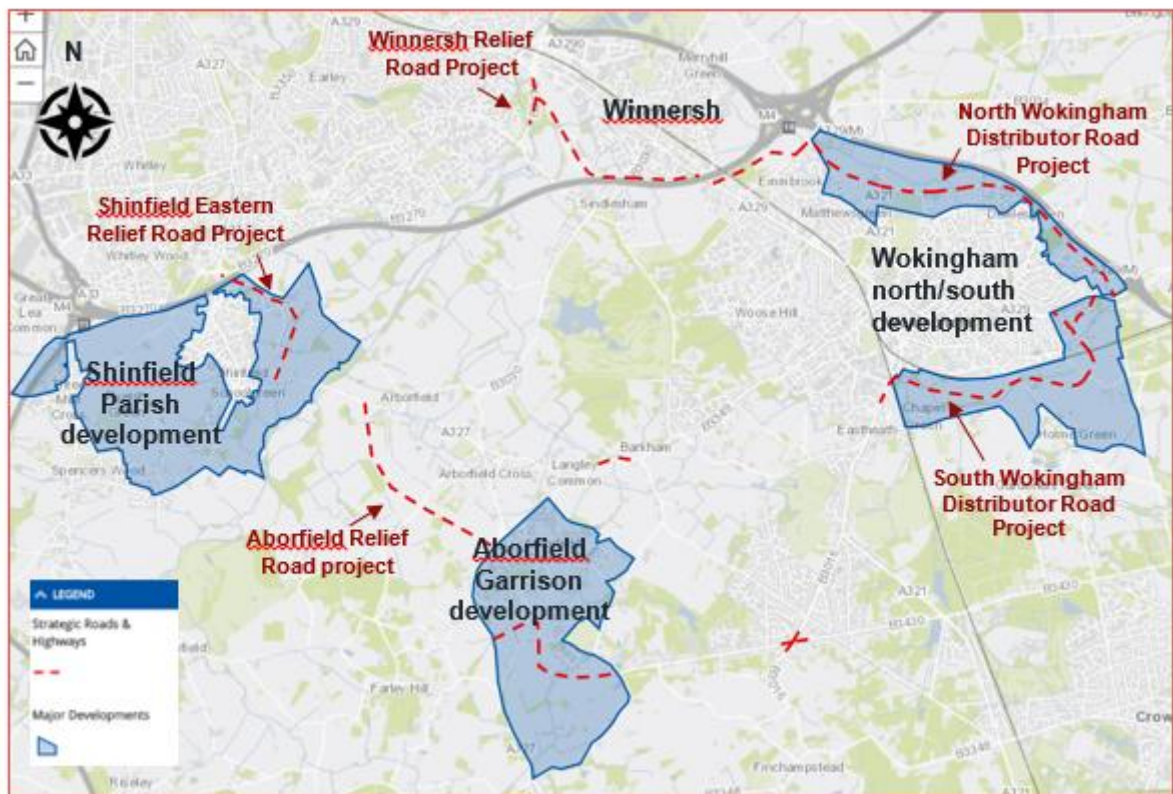


Figure 6 – Strategic Development Locations and planned distributor roads in Wokingham

- 2.2.11. The Winnersh Relief Road is therefore part of a much wider plan to deliver new homes across Wokingham.
- 2.2.12. Winnersh Relief Road is highly complementary to the North Wokingham Distributor Road (NWDR) as shown in Figure 6. NWDR is partially completed with remaining construction to take place in phases, which is expected to unlock 1,500 dwellings in North Wokingham. The NWDR will function as a distributor road for the North Wokingham SDL and provide an alternative route around the Town Centre, thus removing the need for traffic to travel through Wokingham Town.
- 2.2.13. The Core Strategy recognises that the Winnersh Relief Road is material consideration for the improvement of transport capacity in the area. Core Strategy policy CP10 outlines those strategic infrastructure projects that will be required to be delivered during the plan period to ameliorate major environmental or safety problems and to support new development in partnership with other authorities. Winnersh Relief Road (in its entirety) is highlighted within the list provided in the document. It was also contained within the previous Borough Council Local Plan (Adopted 2004) and has been a long-term ambition of the Council.
- 2.2.14. The Winnersh Relief Road scheme is considered to constitute transport infrastructure which will improve the sustainability of Winnersh and the new housing development both on the western edge of Winnersh and across the Borough, and will alleviate predicted congestion by providing an alternative route to the existing route via Winnersh. To sum up, the scheme accords with the policy direction established by the Core Strategy.

- 2.2.15. The North-West Distributor Road (NWDR, stated in Policy CP20 of the Core Strategy) will link into WRR at the new roundabout on the A329 Reading Road (Figure 7). The approach lanes and the size of the roundabout have been designed to accommodate forecast traffic flows in 2026. This includes consideration for and traffic arising from the full SDL development and a connection to the proposed Winnersh Relief Road.

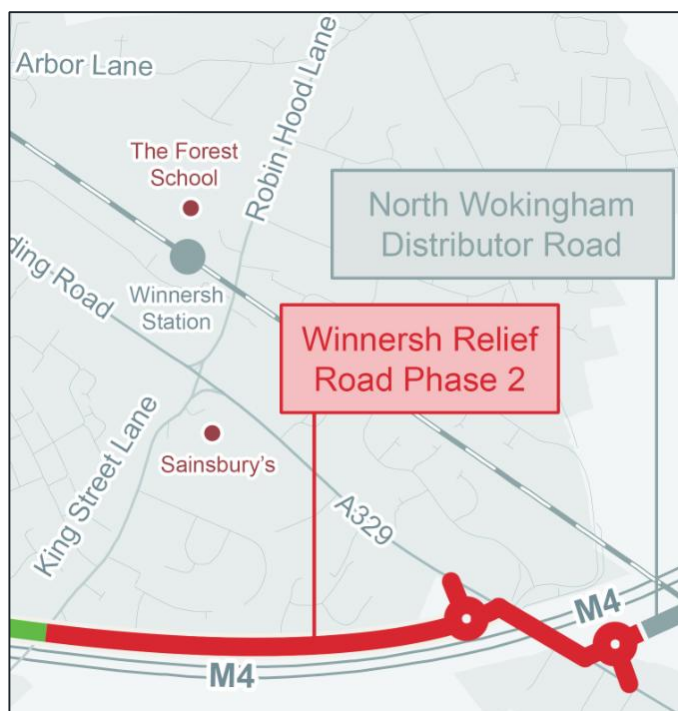


Figure 7 - WRR Phase 2 and NWDR

- 2.2.16. Together the WRR and NWDR will form a highway relief road from A321 London Road (close to Coppid Beech Roundabout and the South West Distributor Road) to the A329 Showcase Roundabout, around the outskirts of both Wokingham and Winnersh.
- 2.2.17. The WRR will function as a distributor road for Winnersh, thus removing the need for traffic to travel through the centre of Winnersh. Similarly, the NWDR will function as a distributor road for the North Wokingham SDL and provide an alternative route around the Town Centre, thus removing the need for traffic to travel through Wokingham Town.
- 2.2.18. To sum up:
- Winnersh Relief Road is complementary to the NWDR and the two routes join at the new roundabout on the A329 Reading Road, although they are standalone committed schemes
 - The two routes provide distributor roads around Winnersh and Wokingham.

MANAGING DEVELOPMENT DELIVERY LOCAL PLAN (2014)

- 2.2.19. The Managing Development Delivery Local Plan ('the MDDLDP') forms part of the Borough's Development Plan alongside the Core Strategy. It adds extra detail to the policies set out in the Core Strategy and sets the direction for development out to 2026. Amongst others, a key objective of the MDDLDP is to promote a transport system that enables access to services by a variety of modes and increase the use of non-car based transport where appropriate.

- 2.2.20. Policy CC08 safeguards an alignment for Winnersh Relief Road as part of Wokingham's vision for improving the Strategic Transport Network and other transport related schemes. See Options Considered section below for further details.

LOCAL TRANSPORT PLAN 3 (2011 TO 2026)

- 2.2.21. The Council, as part of its Local Transport Plan has included for a scheme to improve the infrastructure from the A329 at Woodward Close (Winnersh Farm) to King Street Lane (to complete the full Relief Road) and also to include additional lane widening on Lower Earley Way to improve traffic flows and accommodate additional diverted traffic from the A329 on to the new Relief Road.

2.3. PROBLEM IDENTIFICATION

- 2.3.1. Currently, there is congestion and queuing through Winnersh along the A329 Reading Road, crossroads at the junction of Reading Road, King Street Lane and Robin Hood Lane and this location is one of the borough's worst bottlenecks. Wokingham Borough has had a long-standing aspiration to provide a relief road around Winnersh.
- 2.3.2. Figure 8 and Figure 9 have been produced using traffic data from Google maps. These show indicative speed data for an average Tuesday at 0750 and 1700 hours. The colours indicate the speed of traffic on the road:
- Green means there are no delays and traffic moves freely
 - Yellow represents slower traffic conditions
 - Red indicates congestion and dark red indicates nearly stopped or stop and go traffic.
- 2.3.3. The figures show congestion along the A329 Reading Road, Lower Earley Way North, Mill Lane and King Street Lane.

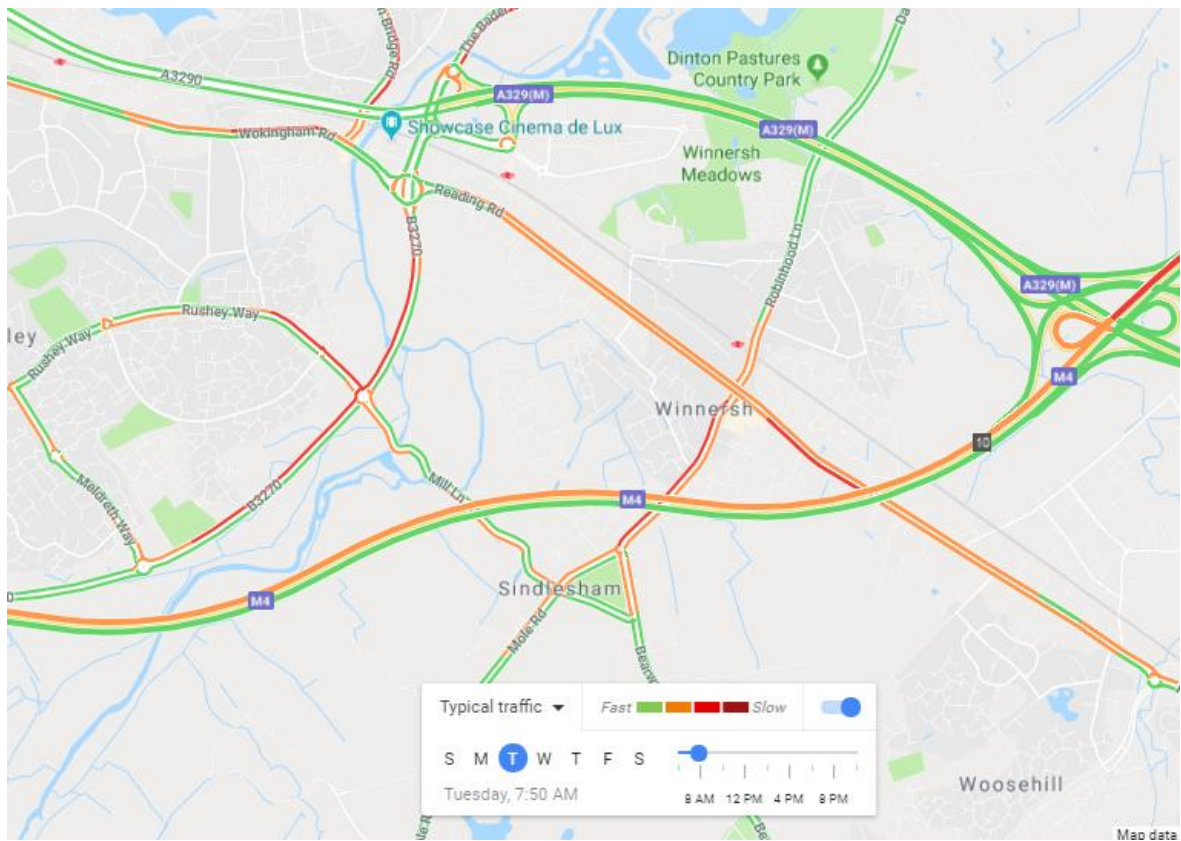


Figure 8 – Morning Peak Journey Times.

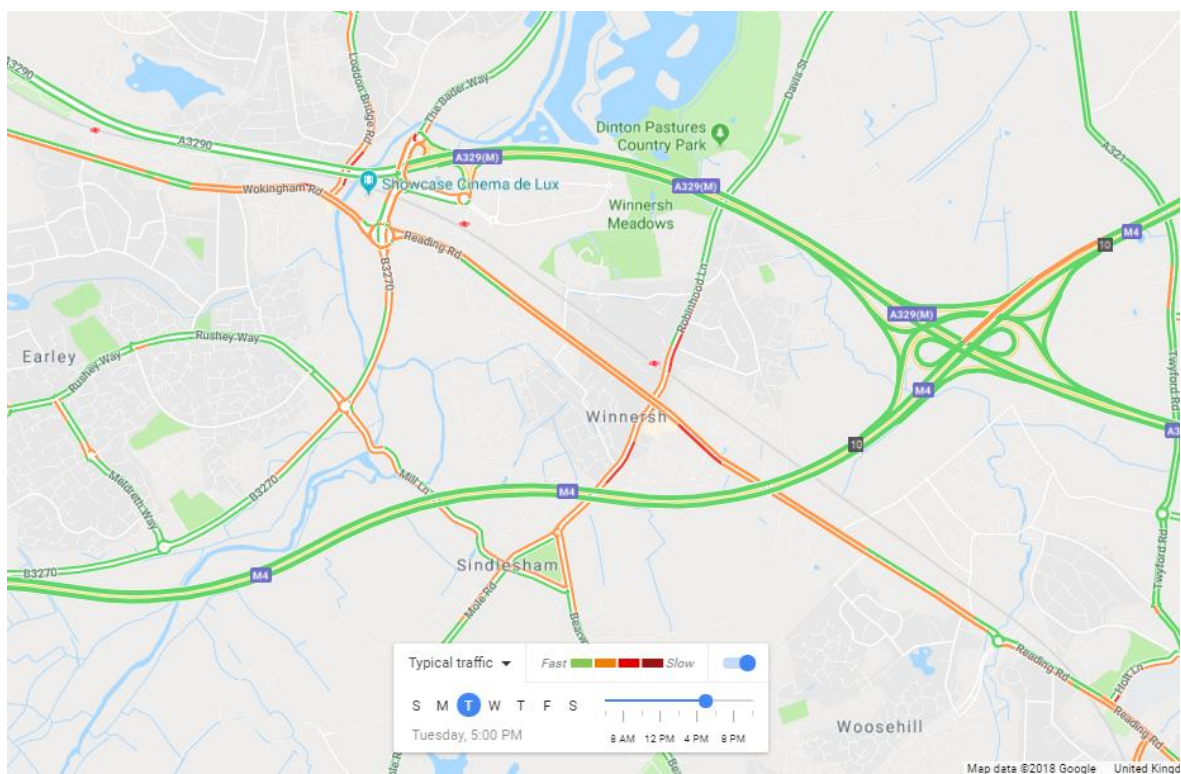


Figure 9 – Evening Peak Journey Times.

- 2.3.4. Figure 10 shows 2026 Do Minimum AM modelled speeds. The figure shows that the speeds on the A329 Reading Road is less than 30kmph.

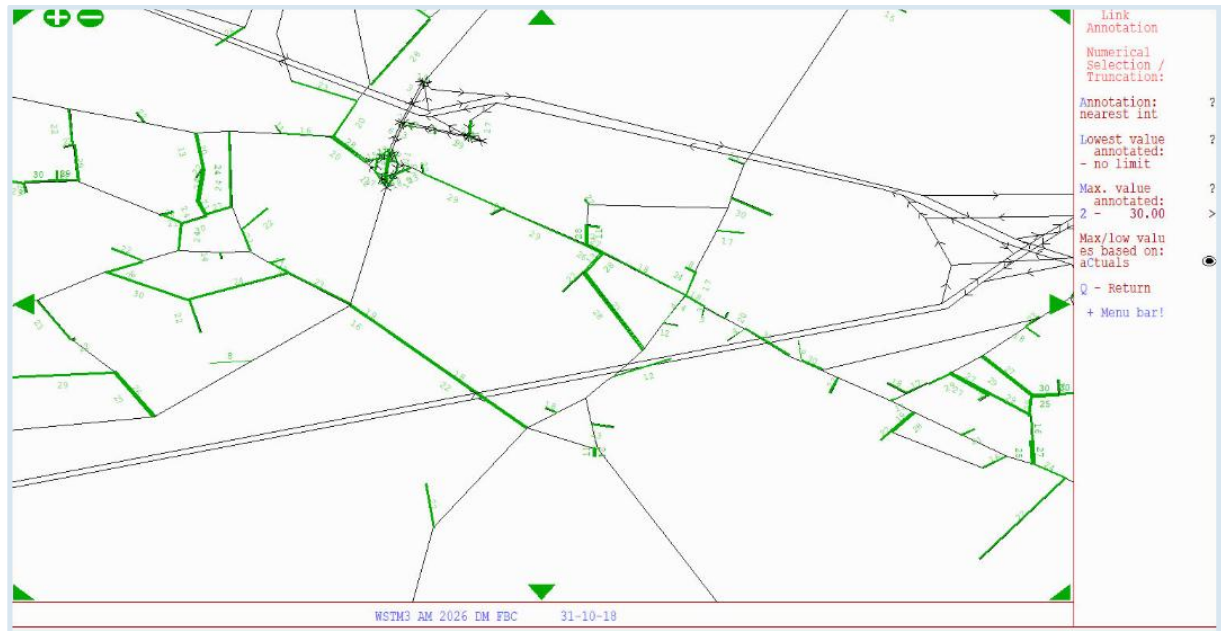


Figure 10 - 2026 Do Minimum AM modelled speeds (kmph)

- 2.3.5. Furthermore, traffic congestion would be further exacerbated, if no additional capacity is provided to cater for the increase in traffic volumes that is expected to be generated from the new Hatch Farm Dairies housing development as well as background traffic growth resulting from the SDLs defined in the Core Strategy.

HATCH MILL FARM SITE JUSTIFICATION FOR HOUSING LOCATION

- 2.3.6. At the Local Plan Inquiry, which took place between 2 February 2000 and 29 November 2000, Bovis Homes made representations to include land to the west of the Chatsworth Avenue (and at Hatch Farm Dairies forming part of the current application site). The Inspector, Mr Hollis, after due consideration, recommended, in his report published in October 2001, that land at Hatch Farm Dairies was appropriate for allocation. The Inspector therefore recommended the site be allocated and that the settlement boundary be adjusted, removing the site from its previous gap/green wedge designation.
- 2.3.7. In terms of other identified requirements for this site, the Inspector recommended the Policy in the Deposit Draft Local Plan regarding Major Road Schemes be amended to once again include the Winnersh Relief Road. In addition, the Inspector recommended specific areas of proposed open space be identified and listed within the Policy.
- 2.3.8. The Inspectors Report following the Public Inquiry into the WDLP confirmed that the site represented a sustainable location for new housing and he commented at paragraph 5.616 that:

“This is a very sustainable urban extension that offers realistic alternatives to the use of the private car. It is near two railway stations, a bus corridor with regular and frequent bus services and a park and ride service to Reading. There are shops, schools, leisure and employment opportunities in the immediate vicinity that could be reached on foot or bicycle.”

- 2.3.9. The sustainability merits of the site were repeated at paragraph 5.628, where the Inspector also recognised the importance of the site to the delivery of the Winnersh Relief Road. Here he stated:
- “This would be a highly sustainable urban extension of the kind envisaged in PPG 3 and the chance for the realisation of the by-pass would offer wider benefits to the community as a whole”*
- 2.3.10. In February 2003, the Council placed on deposit their Proposed Modifications in response to the Local Plan Inspector’s recommendations. The Council also undertook an assessment of the proposed housing sites and concluded land at Hatch Farm Dairies to be sustainable (Wokingham District Council, Housing Site Assessment – Site Details 4/12/02 Executive Supporting Document).
- 2.3.11. Upon the publication of the Proposed Further Modifications to the Local Plan, the overall housing allocation was identified:
- Land at Hatch Farm Dairies, Winnersh (PW138) – 400 dwellings (of which 105 will be completed in the Plan period, the remaining units will be completed after 2006).
- 2.3.12. The site is now allocated in Adopted Wokingham District Local Plan (2004) – Policy WH3 ‘Housing Development – identified Sites’. The Hatch Farm Dairies site has also been granted permission and build out continues by the private developer.
- 2.3.13. The Wokingham Core Strategy was formally adopted in January 2010. Whilst it identifies the scale of housing that will need to be provided within the period to 2026 it only allocates large Strategic Development Locations which range in size between 1,500 and 3,400 dwellings. Smaller sites will be allocated in subsequent Development Plan Documents.
- 2.3.14. It is however noteworthy that the site allocation for Hatch Farm Dairies is referred to at paragraph 3.28 and it is understood that the allocation was relied upon by the Council as a commitment for the purposes of the housing trajectory contained within the Core Strategy. The Core Strategy also carries forward the Winnersh Relief Road scheme through Policy CP10.
- 2.3.15. The site is allocated for development in the adopted Wokingham District Local Plan (2004). The site therefore represents a housing commitment for the purposes of calculating the local housing land supply position. The Council produced a Strategic Housing Land Assessment (SHLAA) in 2008. This was revised with provisional results in April 2009 to inform the Examination into the Core Strategy. At the time of production, without 400 dwellings at Hatch Farm Dairies Wokingham’s total housing supply would have been less than the required 5-year supply (ref. Revised Planning Statement June 2010 Hatch Farm Dairies, Winnersh). To sum up:
- The site is allocated for development in the adopted WDLP and has planning permission and the principle of development versus alternatives has therefore already been established
 - Additionally, the site was needed to meet Wokingham’s 5-year housing supply in 2009, suggesting no suitable alternatives were available at the time to more easily deliver the same amount of housing elsewhere without the associated infrastructure.

NEED FOR A HIGHWAY SCHEME AT THIS LOCATION

- 2.3.16. In Part 2 of the Loddon Area Local Plan (LALP) reference was made to the specific proposals for the Hatch Farm Dairies site (site reference PW1). This required the provision of a maximum of 470 dwellings with a limited amount of development acceptable before completion of a bypass.

2.3.17. The Inspector recommended the Deposit Draft Local Plan regarding Major Road Schemes be amended to include the Winnersh Relief Road. Paragraphs 5.622 and 5.627 of the Inspectors Report noted that:

“..... there seems little dispute by all concerned that its construction still remains a desirable objective in order to relieve traffic problems in Winnersh.”

“... the Council has agreed that the section of road funded by the developers should be included in Policy WT15 if the site is recommended for development and I would concur with this. I would hope that this would encourage the public authorities to consider again the benefits that would be derived from getting the remaining section built.”

2.3.18. The inclusion of the Relief Road was accepted by the Council and the adopted Local Plan includes Policy WT15 identifies the Winnersh Relief Road as a proposed Major Road Scheme.

2.3.19. In the written text guidance for the Hatch Farm Dairies allocated site (Appendix 4 of the WDLP) reference is made to the site making provision for the section of the Winnersh Relief Road between Lower Earley Way and King Street Lane. Appendix 4 also required that the junctions at either end should not prejudice the completion of the road (implying further works to be carried out by others).

2.3.20. Wokingham's Adopted Core Strategy (2010) Policy CP10 states that improvements to Strategic Transport Network (which includes Winnersh Relief Road) will be provided to ameliorate major environmental or safety problems and to support new development in partnership with other authorities.

2.3.21. Phase 1 of the relief road was always built with the intention of being the access road to the Hatch Farm Dairies development, as the existing highway network was not considered able to cope with the additional residential development. The 2006 planning application for the Hatch Farm Dairies site (2006/8687) was therefore for both the residential development and a Link road including new junctions with King Street Lane and Lower Earley Way (forming Phase 1 of the Winnersh Relief road).

2.3.22. The application was decided in November 2011 with the Phase 1 road conditioned within the S106 agreement. The legal tests for when a s106 agreement can be used are as follows and as such demonstrate that Phase 1 of the relief road was needed to unlock the Hatch Farm Dairies site:

- necessary to make the development acceptable in planning terms
- directly related to the development
- fairly and reasonably related in scale and kind to the development.

2.3.23. The modelled dependency of the housing delivery on the whole scheme is demonstrated in Economic Case (Section 3.4). This section confirms that the PVB impact of the Hatch Farm Dairies development is -£8.7m, indicating that the introduction of the Hatch Farm Dairies development worsens travel conditions of existing users. The PVB impact of the Hatch Farm Dairies development is greater than the PVC of either Phase 1, Phase 2 or the Lower Earley Way Dualling alone, suggesting its general dependency on the wider road scheme.

2.3.24. The following points are worthy of consideration:

- Phase 1 of the relief road was always built with the aim of being the access road to the Hatch Farm Dairy development. The Hatch Farm Dairy site and associated Phase 1 of the relief road is allocated for development in the adopted WDLP, has planning permission (as part of the Hatch Farm Dairies application and S106 agreement) and has been built out, so the principle of why the road scheme was needed for development has already been established and the Business Case demonstrates its value for money
- The Hatch Farm Dairies site and Phase 1 of the relief road were directly linked together in planning terms by a Planning Inspector at the WDLP Inquiry (Appendix 4 of the WDLP)
- Additionally, recent Economic Case modelling has demonstrated that the PVB impact of the Hatch Farm Dairies development is greater than the PVC of any component part of the relief road, confirming the sites dependency on the whole Winnersh Relief Road scheme.

2.3.25. In addition, there is the longer-term housing demand in response to housing market, demographic changes and to support growth in jobs. Barton Willmore's study³ on the Objective Assessment of Housing Need (OAHN) for Wokingham Borough and the Western Berkshire Housing Market Area (HMA) provides estimates of economic-led housing need for the period 2013 to 2036. For Wokingham, it estimates 920 dwellings per annum and 3250 per annum for the Western Berkshire HMA. The same study also looked at Travel to Work Areas (TTWAs) as this provides a useful point of reference in determining the appropriate HMA definition. Whilst the TTWA does not relate to housing markets, nevertheless, they do reflect people's travel between the locations of employment and residential and are therefore an indicator of travel demand. The study defined the TTWA to identify discrete and statistically robust geographical regions within which a large proportion of the resident labour force is contained. In other words, people living and working in the same TTWA. TTWA defined by the study is shown in Figure 11. The figure depicts the limits of the various TTWAs covering Wokingham and shows that Wokingham Borough falls entirely within the Reading TTWA.

³ Wokingham Objective Assessment of Housing Need - February 2018

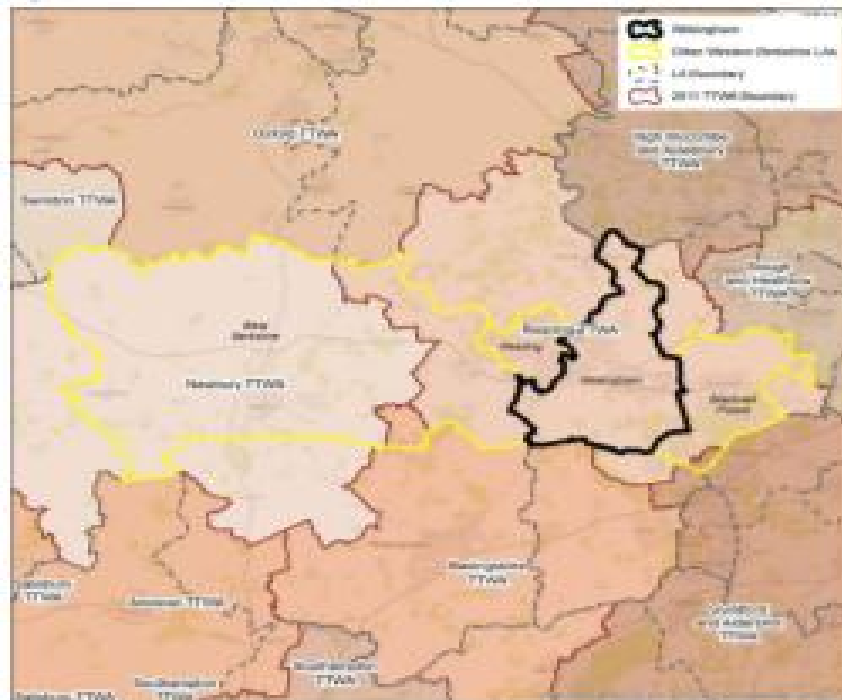


Figure 11 – Travel to Work Areas

- 2.3.26. The study also looked at demographic-led OAHN and its estimate for Wokingham was 670 dwellings per annum. The analysis indicates that to support economic growth of 770 jobs per annum there is a need for 920 dwellings per annum in Wokingham and the demographic led OAHN would only support growth of 400 jobs per annum thereby leaving a short fall in the number of workers available to take up jobs in Wokingham. Full objective assessment of the housing need concludes that 920 dwellings per annum for Wokingham would be required for the period 2013-2036. The analyses indicate that the long-term housing projections for Wokingham is a material consideration in planning for future transport capacity. The fact that Wokingham falls entirely within the Reading TTWA, further demonstrates the need for additional highway capacity to cope with future demand.

2.4. IMPACT OF NOT CHANGING

- 2.4.1. If the current network is maintained, the growth in underlying trips are forecast to result in a deterioration of the performance of the A329 Reading Road through Winnersh, with increasing congestion and delays, resulting in higher, and less reliable, journey times and further increases in economic inefficiencies.
- 2.4.2. This will impact upon north-south connectivity across the area affecting both strategic movements, as well as local accessibility to employment and town centre services and facilities.
- 2.4.3. If the Relief Road were not completed vehicles using the Phase 1 element of the scheme would continue to travel via Kings Street Lane leading to ongoing use of the A329 Reading Road through Winnersh. The full Winnersh Relief Road offers an opportunity to remove through traffic from the centre of Winnersh.

- 2.4.4. The Winnersh Relief Road scheme is required to improve traffic capacity on key routes in the Wokingham Borough and alleviate existing congestion through Winnersh by means of the provision of an alternate route for non-local traffic travelling through the area, and deliver extra capacity to support existing employment centres and cater for the increase in traffic volumes that is expected to be generated from new housing developments within the borough.
- 2.4.5. The Winnersh Relief Road as a whole is critical to improve the resilience of Wokingham Borough's road network by helping to relieve the existing congestion through Winnersh. The full scheme when joined with the Wokingham Northern Distributor Road will offer an alternative route around the centre of Wokingham and Winnersh Crossroads.
- 2.4.6. In summary, the impact of not having the whole scheme in its entirety will be that:
- The problems identified above would be exacerbated in the future as housing development and traffic volumes grow
 - Without the whole scheme in place the overall impact on the highway network would be to increase journey times through key sections of the A329, which are having a negative effect on business and economic growth
 - Full potential benefits of the NWDR would not be fully realised as Winnersh Relief Road is complementary to it
 - The A329 Reading Road will continue to be congested and likely to worsen in the future, impacting vehicles travelling to/from Reading, Wokingham, Bracknell and wider areas.
- 2.4.7. Figure 12 and Figure 13 show 2015 and 2026 AM delay plots. These show the impact of increase in demand on delays.

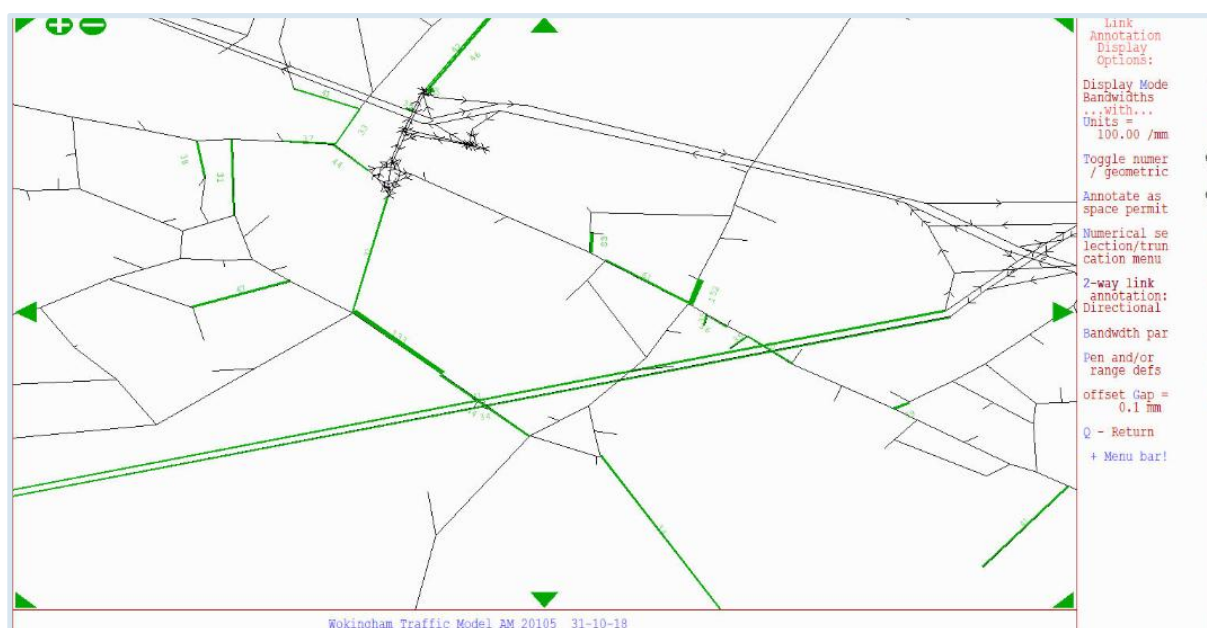


Figure 12 - 2015 base year AM delay (s)

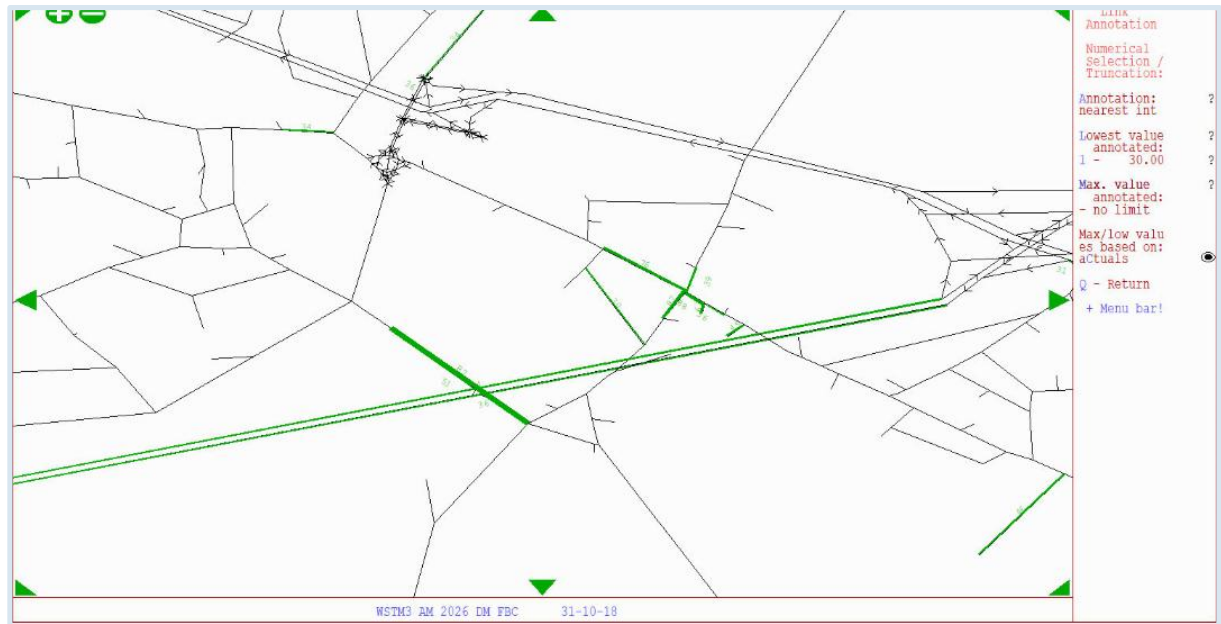


Figure 13 - 2026 Do Minimum AM delay (s)

2.4.8. Network statistics for the 2019 DM and 2026 DM scenarios provided in Table 1 show worsening of network performance between 2019 and 2026.

Table 1 - 2019 and 2026 DM network statistics

	2019 DM			2026 DM		
Parameter	AM	IP	PM	AM	IP	PM
Transient Queues (pcu)	6,106	2,860	6,488	6,922	3,286	7,191
Over-Capacity Queues (pcu)	3,314	588	6,920	3,771	760	7,521
Total Travel Time (pcu x hrs)	82,088	58,566	93,128	87,207	62,775	98,611
Travel Distance (pcu x kms)	7,100,261	5,509,486	7,928,299	7,430,813	5,835,554	8,293,322
Overall Average Speed (kph)	87	94	85	85	93	84
Total Trips Loaded (pcu)	165,586	120,027	164,836	176,407	129,544	175,279

2.5. SCHEME OBJECTIVES

- 2.5.1. The objectives of the Winnersh Relief Road are to:
- Reduce existing and future peak hour congestion in Winnersh by providing an alternative route for through traffic
 - Reduce journey times on the A329 Reading Road through Winnersh
 - Facilitate the Hatch Farm Dairies housing development (433 dwelling units)
 - Cater for traffic generated by other new housing developments in the Borough of Wokingham as set out in the Core Strategy
 - Encourage active transport through provision of cycle lanes and footpaths.
- 2.5.2. At present, in the morning and the evening peaks the A329 Reading Lane through Winnersh and the crossroads at the junction of Reading Road, King Street Lane and Robin Hood Lane suffers from congestion and the speeds on these links are less than desirable. This indicates that this section of the network has already reached its capacity and additional growth will not only further exacerbate the traffic situation, but will impose constraints on full realisation of the future growth plan and housing delivery the Council currently has.
- 2.5.3. For the next 18 years, jobs and housing demand is forecast to grow and it is estimated that to support economic growth, 770 jobs per annum and 920 dwellings per annum will be needed. The Hatch Farm site (now known as Hatchwood Mill) would deliver circa 400 dwellings and the WRR Phase 1 is already built for delivering this development. The WRR Phase 1, mainly serves the new development and provides connection between Lower Earley Way and B3030 King Street only and does not provide the needed east west connection to ameliorate the existing congestion related issues through Winnersh.
- 2.5.4. If no relief road is provided to ease congestion through Winnersh, the growth in underlying trips are forecast to result in a deterioration of the performance of the A329 Reading Road through Winnersh, with increasing congestion and delays, resulting in higher, and less reliable, journey times and further increases in economic inefficiencies.
- 2.5.5. This will impact upon north-south connectivity across the area affecting both strategic movements, as well as local accessibility to employment and town centre services and facilities.
- 2.5.6. If the Relief Road were not completed vehicles using the Phase 1 element of the relief road scheme would still continue to travel via Kings Street Lane leading to ongoing use of the A329 Reading Road through Winnersh. The full Winnersh Relief Road would remove through traffic from the centre of Winnersh.
- 2.5.7. The Winnersh Relief Road scheme is required to improve traffic capacity on key routes in the Wokingham Borough and alleviate existing congestion through Winnersh by means of the provision of an alternate route for non-local traffic travelling through the area, and deliver extra capacity to support existing employment centres and cater for the increase in traffic volumes that is expected to be generated from new housing developments within the borough.
- 2.5.8. Therefore, the Winnersh Relief Road as a whole is critical to improve the resilience of Wokingham Borough's road network by helping to relieve the existing congestion through Winnersh. The full scheme when joined with the Wokingham Northern Distributor Road will offer an alternative route around the centre of Wokingham and Winnersh Crossroads.

2.5.9. In summary, the impact of not having the whole scheme in its entirety will be that:

- The problems identified above would be exacerbated in the future as housing development and traffic volumes grow
- Without the whole scheme in place the overall impact on the highway network would be to increase journey times through key sections of the A329, which are having a negative effect on business and economic growth
- Full potential benefits of the NWDR would not be fully realised as Winnersh Relief Road is complementary to it
- The A329 Reading Road will continue to be congested and likely to worsen in the future, impacting vehicles travelling to/from Reading, Wokingham, Bracknell and wider areas.

2.6. MEASURE OF SUCCESS

2.6.1. Table 2 sets out scheme objectives and criteria for assessment of these objectives.

Table 2 - Measure of success

Project Objectives	Benefit	Measure	Timescale
Reduce existing and future peak hour congestion in Winnersh	Improved and reliable East-West connection, would improve overall network performance.	Journey time and reliability monitoring	Immediately after completion.
Reduce journey times on the A329 Reading Road through Winnersh	Removal of some strategic traffic on the A329 Reading Road due to the bypass.	Journey time and reliability	Immediately after completion.
Facilitate the Hatch Farm Dairies housing development	Deliver the identified housing development. Full connectivity with the wider network	Delivery of housing target and jobs	Immediately after completion.
Cater for traffic generated by other new housing developments in the Borough of Wokingham	Improved connectivity and network capacity for accommodating Council's growth aspiration.	Network performance against increase in demand due to new developments.	Long term.
Encourage active transport in the area through provision of better cycle lanes and footpaths.	Support growth of sustainable transport (non-motorised users)	Monitoring NMU mode share against target	Medium term

2.7. CONSTRAINTS AND INTERDEPENDENCIES

CONSTRAINTS

2.7.1. There is only one limited constraint associated with the scheme, which is the need to secure LEP funding for the scheme.

- 2.7.2. Planning permission has been granted for Phase 1 of the scheme, which was completed and opened in June 2018.
- 2.7.3. In October 2018 planning permission was granted for Phase 2 of the scheme. All the land needed to deliver Phase 2 of the scheme is already in control of Wokingham Borough Council, which mitigates the risk associated with planning applications.
- 2.7.4. Lawful Development approval has also been granted for Lower Earley Way dualling, which is to be delivered under permitted development rights.

INTER-DEPENDENCIES

- 2.7.5. Currently there are no known inter-dependencies. Phase 1 of the scheme has already been delivered.

2.8. STAKEHOLDERS

- 2.8.1. The key stakeholders for the project are:
 - Thames Valley LEP
 - Bovis Persimmon
 - Adjacent Councils – Reading and Bracknell
 - Statutory Bodies such as Environment Agency
 - Local Residents – in the present time there has been positive feedback on the scheme, there is strong political support as it's seen as part of the wider package of measures to support the growth of Wokingham Borough.

2.9. OPTIONS CONSIDERED

- 2.9.1. The provision of a Winnersh Relief Road as broadly defined in this business case has been a longstanding aim of Wokingham Borough Council and this is demonstrated by its inclusion in historic planning and adopted policy documents, as set out below.
- 2.9.2. The WRR is the best scheme to alleviate the congestion problems along the A329 and simultaneously deliver the transport capacity required for the Hatch Farm Dairies site.
- 2.9.3. The WRR is not just a longstanding proposal but is allocated in the adopted WDLP, Core Strategy and Managing Developments DPD and has planning permission linked to the development of the Hatch Farm Dairies site. The principle and location of scheme has therefore already been clearly tested and established and the Business Case demonstrates its value for money.
- 2.9.4. As part of a Borough master planning process, a range of delivery and infrastructure options were considered for the provision of the proposed 10,000 new homes during the development of Wokingham Borough's Core Strategy. Delivery options regarding infrastructure requirements have therefore been through the statutory consultation process and examination in public process before finally being formally adopted by the council.

LODDON AREA LOCAL PLAN (1995)

- 2.9.5. In Part 2 of the Loddon Area Local Plan (LALP) reference was made to the specific proposals for the Hatch Farm Dairies site (site reference PW1). This required the provision of a maximum of 470 dwellings with a limited amount of development acceptable before completion of a bypass.

WOKINGHAM DISTRICT LOCAL PLAN (2004)

- 2.9.6. The LALP was superseded and incorporated into an adopted Wokingham District Local Plan (WDLP) in 2004.
- 2.9.7. The Deposit Draft Local Plan identified the reduced site for housing (Hatch Farm Dairies) given the Council considered that the Winnersh Relief bypass was unlikely to be developed due to the high cost of funding. As such the bypass was concurrently removed from the list of identified major road schemes, sought under Policy WT15.
- 2.9.8. At the Local Plan Inquiry, which took place between 2 February 2000 and 29 November 2000, Bovis Homes made representations to include land at Hatch Farm Dairies. The Inspector, after due consideration, recommended, in his report published in October 2001, that land at Hatch Farm Dairies was appropriate for allocation. The Inspector recommended the Deposit Draft Local Plan regarding Major Road Schemes be amended to once again include the Winnersh Relief Road. Paragraphs 5.622 and 5.627 of the Inspectors Report noted that:
- “..... there seems little dispute by all concerned that its construction still remains a desirable objective in order to relieve traffic problems in Winnersh.”*
- “... the Council has agreed that the section of road funded by the developers should be included in Policy WT15 if the site is recommended for development and I would concur with this. I would hope that this would encourage the public authorities to consider again the benefits that would be derived from getting the remaining section built.”*
- 2.9.9. The inclusion of the Relief Road was accepted by the Council and the adopted Local Plan includes Policy WT15 identifies the Winnersh Relief Road as a proposed Major Road Scheme.
- 2.9.10. In the written text guidance for the Hatch Farm Dairies allocated site (Appendix 4 of the WDLP) reference is made to the site making provision for the section of the Winnersh Relief Road between Lower Earley Way and King Street Lane. Appendix 4 also required that the junctions at either end should not prejudice the completion of the road (implying further works to be carried out by others).

CORE STRATEGY (2010)

- 2.9.11. Wokingham's Adopted Core Strategy (2010) Policy CP10 states that improvements to Strategic Transport Network (which includes Winnersh Relief Road) will be provided to ameliorate major environmental or safety problems and to support new development in partnership with other authorities⁴. As part of a Borough master planning process, a range of delivery and infrastructure options were considered for the provision of the proposed 10,000 new homes during the development of Wokingham Borough's Core Strategy. Delivery options regarding infrastructure requirements have therefore been through the statutory consultation process and examination in public process before finally being formally adopted by the council.

⁴ Wokingham Borough Local Development Framework. Wokingham Borough Core Strategy Development Plan Document (Adopted – 29 January 2010)

MANAGING DEVELOPMENT DELIVERY LOCAL PLAN (2014)

- 2.9.12. An alignment for the Winnersh Relief Road was safeguarded in Wokingham's Adopted Managing Development Delivery Local Plan (2014) Policy CC08 as part of Wokingham's vision for improving the Strategic Transport Network and other transport related schemes (see Figure 14⁵).

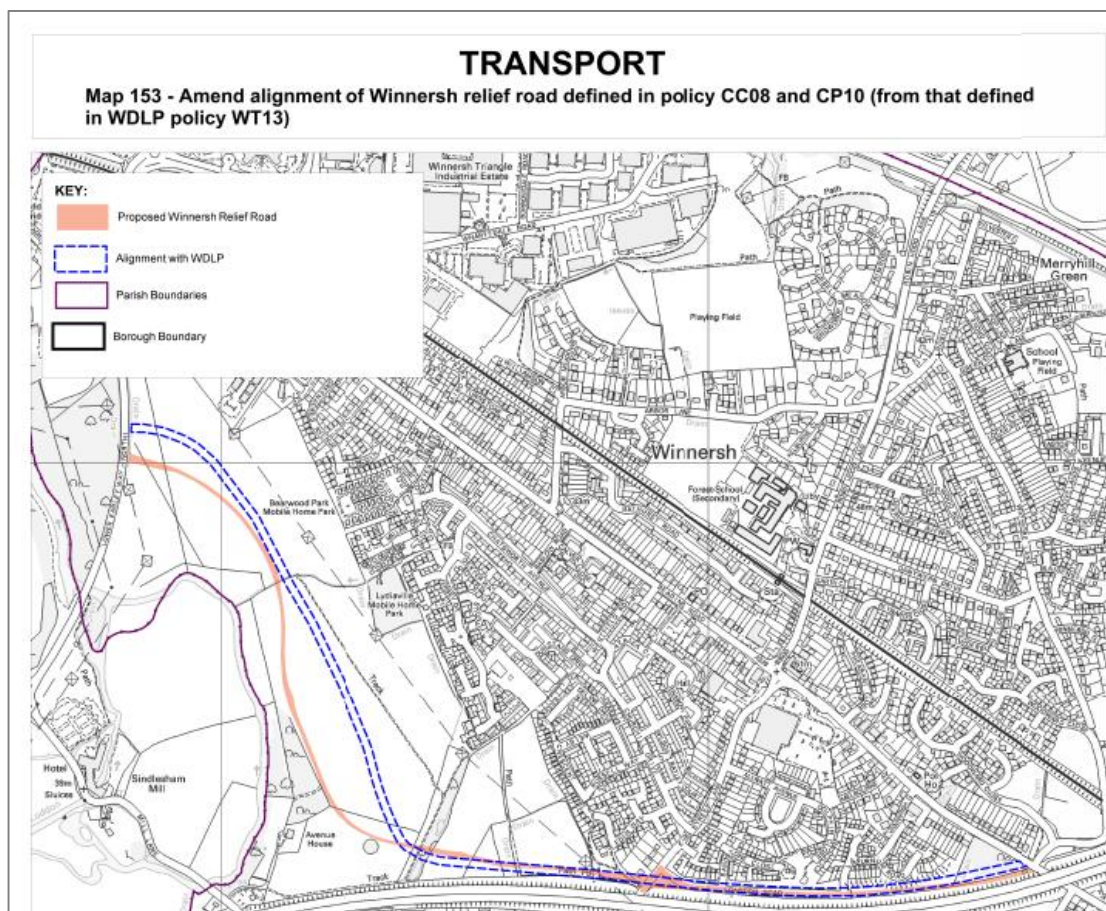


Figure 14 – Amended Route Alignment of Winnersh Relief Road

- 2.9.13. The location of the Winnersh Relief Road is such that it is needed to connect two existing junctions together. The exact line of the Relief Road has been dictated by the technical requirements for positioning the junctions at Lower Earley Way and King Street Lane/Longdon Road and design standards. In respect of Lower Earley Way appropriate junction spacing, achievement of visibility sight lines and avoidance of an existing electricity pylon at the northern end of the site has dictated the exact entry point of the Relief Road into the site.

⁵ www.wokingham.gov.uk/_resources/assets/attachment/full/0/210036.pdf

2.9.14. The line of the Relief Road through the site is then dictated by avoidance of identified belts of ancient semi-natural woodland along the boundary of the River Loddon and veteran trees. Making appropriate use of natural ground levels and the required provision of a 7.3m wide carriageway to safely accommodate a 40mph speed limit dictated forward visibility on the bends and the exact alignment of the road on its approach to the King Street Lane junction. In conclusion the alignment provides the optimum alignment having regard to existing physical, environmental and ecological constraints.

2.9.15. Alternative options for the WRR scheme are broadly described below:

Dual Carriageway

2.9.16. The proposed scheme is for a single-carriageway road between the A329 Reading Road and the Reading Road Showcase Roundabout. A dual-carriageway way road may provide additional transport user benefits; however, it would not be in keeping with the surrounding road network or align with the built single-carriageway Phase 1 scheme. Additionally, the significant additional cost of providing a dual-carriageway scheme would be expected to outweigh the transport benefits received.

Different Location

2.9.17. The scheme provides a relief road to the south-west of Winnersh.

2.9.18. A route to the north-east would not be feasible as a. it would not facilitate the Hatch Farm Dairies site and b could not be installed due to a number of significant physical constraints including the Gatwick to Reading railway line, the A329 (M), Winnersh Meadows, the density of existing buildings including the residential properties and the established Winnersh Triangle business park.

2.9.19. A route to the south would not be feasible as it:

- would not facilitate the Hatch Farm Dairies site
- could not be installed due to a number of significant physical constraints including the need to cross the M4 motorway and flooding.

Dualling/ Improving Capacity A329 Reading Road

2.9.20. The scheme provides relief to the A329 Reading Road, which is a single carriageway road providing a link between Wokingham and Reading. Widening of the Reading Road to provide additional traffic lanes is not feasible for the following reasons: width of the M4 overbridge, land constraints at the point of the Winnersh Crossroads (the biggest bottleneck along the road), multiple residential/commercial properties built up to the edge of the highway preventing widening and enormous associated costs and disruption of compulsory purchase, impact of air quality and noise impacts on residential/commercial properties if widening were to take place, provision of dual carriageway road along Reading Road would not be in keeping with the surrounding road network. The widening of the A329 Reading Road would also not facilitate the Hatch Farm Dairies site.

Different Component Parts

2.9.21. The whole relief road (A329 London Road to A329 Showcase Roundabout) is being delivered in three build out phases, however each are intrinsic to the whole scheme and the following points are noteworthy:

- If Phase 1 were delivered alone/or even with Lower Earley Way dualling the full scheme benefits will not be realised, as Phase 1 ends at Kings Street Lane at its southern end - meaning vehicles still need to travel through the centre of Winnersh, and the constraining Winnersh Crossroads bottleneck, along the Reading Road
- If Phase 2 were delivered alone, limited transport benefits would be provided as an indirect route around the A329 would be provided and vehicles would still need to travel through the centre of Winnersh, and the constraining Winnersh Crossroads bottleneck, along the Reading Road. Access to Hatch Farm Dairies site would also not be provided.

2.9.22. To sum up:

- The Hatch Farm Dairy site and associated Phase 1 of the relief road is allocated for development in the adopted WDLP, has planning permission (as part of the Hatch Farm Dairies application and S106 agreement) and has been built out, so the principle of why the road scheme was needed for development has already been established
- The WRR is the best scheme option to both alleviate the congestion problems along the A329 and simultaneously deliver the transport capacity required for the Hatch Farm Dairies site.

WINNERSH RELIEF ROAD PHASE 2 PLANNING APPLICATION

2.9.23. Having identified an adopted route for the Relief Road in 2014, a number of alternative options details were considered as the scheme was developed and these are contained in the Addendum to Transport Assessment report⁶ submitted as part of the Phase 2 planning application (approved in October 2018). These include:

- Option SK-010: This option was considered in relation to the integration of a roundabout on Reading Road to support the Winnersh Relief Road with the inclusions of the NWDR / A329 Roundabout
- Option SK-011: This option allows direct right turns into (and out of) Woodward Close and right turn only onto the A329 (to Winnersh Crossroads) and is shown with the NWDR / A329 Roundabout
- Option SK-012: This option provides a slightly different signal layout at Woodward Close which allows a more efficient “switching” between routes to / from achieve this, the options requires the right turn from the A329 Wokingham direction into Woodward Close to be restricted, an additional provided to allow a left turn on to the Winnersh Relief Road and thus a left turn into Woodward Close. Woodward close would be left turn out only and this options also incorporates the NWDR / A329 Roundabout

⁶ Winnersh Relief Road Addendum to Transport Assessment-Final Issue Rev1, September 2018

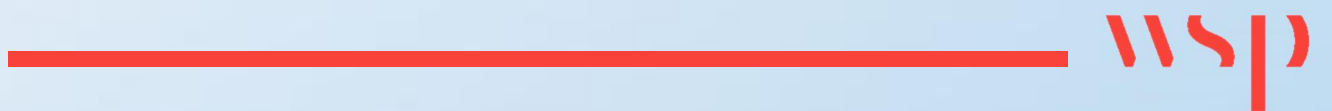
- Option SK-013- King Street Planning: This option is in relation to signalisation layout and operation of the King Street Lane with the Winnersh Relief Road. This option allows all right turn movements and a give way in the centre of the junction for the Northbound and Southbound traffic along King Street Lane
- Option SK-014: This option is in relation to signalisation layout and operation of the King Street Lane with the Winnersh Relief Road. This option only allows right turn movements for traffic coming from the Winnersh Relief Road (West) to King Street Lane (South) and from King Street Lane (South) to Winnersh Relief Road (East). A give way for those turning right from the south of King Street Lane onto the Winnersh Relief Road east is also provided.

2.9.24. Following the Winnersh Relief Road Phase 2 public exhibition, the proposed route was further amended in response to the feedback. Changes included:

- The proposed northern roundabout to be moved further away from properties 305-315 Reading Road
- Amendments to the proposed pedestrian crossing points
- Introducing a shared space outside 286-290 Reading Road
- A right turn lane into Sadlers Lane and junctions of Sandstone Close and Laburnum Road
- Alteration to the proposed positioning of pre- signal and traffic island opposite Green Lane removing requirement for banned right turns.

3

ECONOMIC CASE



3. ECONOMIC CASE

3.1. INTRODUCTION

- 3.1.1. The Economic Case assessment is undertaken to fulfil one of the Department of Transport's five-case business case models for demonstrating value for money.
- 3.1.2. The Economic Case identifies and assesses all the impacts of the scheme to determine its overall value for money. It takes account of the costs of developing and building the scheme, and a full range of its impacts. These include those impacts which can be monetised. The economic case considers the extent to which the scheme's benefits will outweigh its costs.
- 3.1.3. Information will be presented on the following items:
- Modelling approach
 - Scenarios appraised
 - Transport benefits
 - Sensitivity and risk profile
 - Appraisal Summary Table
 - Value for Money statement.

3.2. MODELLING APPROACH

- 3.2.1. The Wokingham Strategic Transport Model 3 (WSTM3) has been utilised to assess the impact of the Winnersh Relief Road scheme proposals. The WSTM3 consists of the following sub-models:
- Highway model built using SATURN software suite
 - Public Transport model developed using VISUM software
 - Variable demand model set up using DIADEM.
- 3.2.2. The WSTM3 covers the following time periods:
- AM peak hour: (08:00-09:00)
 - Average Inter peak hour: (10:00-16:00)
 - PM peak hour: (17:00-18:00).
- 3.2.3. The WSTM3 was developed to represent 2010 transport conditions. To ensure the model still represents a robust basis for the assessment of major infrastructure schemes in the Borough, a present year validation has been undertaken for the highway model only. The results of the present year validation are detailed in 'Winnersh Relief Road Present Year Validation' (October 2018) and Regeneris has confirmed their acceptance of this model for assessing the Winnersh Relief Road scheme.
- 3.2.4. The 2019 and 2026 WSTM3 forecast models were updated to include the latest development proposals, and in accordance with TAG Unit M2 (March 2017) variable demand modelling has been undertaken to estimate the impact of the proposed scheme on travel demand.
- 3.2.5. The Department for Transport's (DfT) DIADEM (Dynamic Integrated Assignment and Demand Modelling) software has been used for the Variable Demand Model as it provides a simple hierarchical structure of trip frequency, mode choice, distribution and time of day choice, and has direct interface with the WSTM3 SATURN assignment.

- 3.2.6. In accordance with current guidance variable demand modelling has only been applied to car user classes and LGV and HGV movements have been treated as fixed. Furthermore, external to external movements, where the scheme is unlikely to have an impact, have been fixed.
- 3.2.7. Realism tests were carried out on the variable demand model to ensure the overall demand response to changes in travel cost and time was in accordance with general experience. The variable demand model convergence was checked to ensure that the whole model system converged to a satisfactory degree (gap values of less than 0.1%).
- 3.2.8. In the absence of locally calibrated demand parameters TAG Unit M2 (March 2017) recommends the use of illustrative sensitivity parameters for car and public transport destination choice and mode choice. The minimum, median and maximum values for these parameters are shown in Table 3.

Table 3 - VDM parameter ranges

Car Destination Choice (λ)			
Purpose	Minimum	Median	Maximum
Home-based work	0.054	0.065	0.113
Home-based employers business	0.038	0.067	0.106
Home-based other	0.074	0.090	0.160
Non-home-based employers business	0.069	0.081	0.107
Non-home-based other	0.073	0.077	0.105
Public Transport Destination Choice (λ)			
Purpose	Minimum	Median	Maximum
Home-based work	0.023	0.033	0.043
Home-based employers business	0.030	0.036	0.044
Home-based other	0.033	0.036	0.062
Non-home-based employers business	0.038	0.042	0.045
Non-home-based other	0.032	0.033	0.035
Mode Choice (Θ)			
Purpose	Minimum	Median	Maximum
Home-based work	0.50	0.68	0.83
Home-based employers business	0.26	0.45	0.65
Home-based other	0.27	0.53	1.00
Non-home-based employers business	0.73	0.73	0.73
Non-home-based other	0.62	0.81	1.00

- 3.2.9. The parameters were adjusted iteratively to determine appropriate values for the variable demand model to achieve acceptable levels of convergence, fuel cost elasticity and journey time elasticity. The final values used in the variable demand model are shown in Table 4.

Table 4 – VDM final parameters

Car Destination Choice (λ)	
<i>Purpose</i>	<i>Value</i>
Home-based work	0.054
Home-based employers business	0.038
Home-based other	0.074
Non-home-based employers business	0.069
Non-home-based other	0.073
Public Transport Destination Choice (λ)	
<i>Purpose</i>	<i>Value</i>
Home-based work	0.023
Home-based employers business	0.030
Home-based other	0.033
Non-home-based employers business	0.038
Non-home-based other	0.032
Mode Choice (θ)	
<i>Purpose</i>	<i>Value</i>
Home-based work	0.50
Home-based employers business	0.26
Home-based other	0.27
Non-home-based employers business	0.73
Non-home-based other	0.62

- 3.2.10. TAG Unit M2 (March 2017) recommends a 10% or a 20% fuel cost increase to calculate the car fuel cost elasticity. The annual average fuel cost elasticity should lie within the range of -0.25 to -0.35 overall, across all purposes. Annual average elasticities for different purposes should show more variation, with Employers' Business trips near to -0.1 and discretionary trips near to -0.4.
- 3.2.11. The Pence Per Kilometre (PPK) parameter was amended for the 2015 base year models to replicate a 10% increase in fuel cost. The car vehicle-kilometres before and after the fuel cost change were then calculated using both the matrix-based and network based methods. The results of the car fuel cost realism test are shown in Table 5 and Table 6.

Table 5 - Car fuel cost realism test (matrix based method)

Purpose	AM peak	Inter peak	PM peak	Annual average
Home-based work	-0.352	-0.410	-0.346	-0.359

Home-based education	-0.213	-0.196	-0.162	-0.195
Home-based employers business	-0.077	-0.126	-0.083	-0.097
Home-based other	-0.490	-0.542	-0.372	-0.483
Non-home-based education	-0.478	-0.593	-0.421	-0.521
Non-home-based employers business	-0.116	-0.270	-0.119	-0.205
Non-home-based other	-0.443	-0.524	-0.371	-0.460
All purposes	-0.307	-0.418	-0.308	-0.347

Table 6 - Car fuel cost realism test (network based method)

Purpose	AM peak	Inter peak	PM peak	Annual average
Home-based work	-0.135	-0.158	-0.109	-0.129
Home-based education	-0.122	-0.073	-0.057	-0.091
Home-based employers business	0.009	-0.044	-0.004	-0.014
Home-based other	-0.103	-0.181	-0.134	-0.156
Non-home-based education	-0.188	-0.146	-0.174	-0.161
Non-home-based employers business	-0.015	-0.076	-0.022	-0.051
Non-home-based other	-0.168	-0.173	-0.108	-0.149
All purposes	-0.105	-0.143	-0.100	-0.118

- 3.2.12. The matrix-based fuel cost elasticities show the correct response with Employers' Business tending towards -0.1 and Other purposes closer to -0.4. The annual average fuel cost elasticity across all purposes is -0.347, which lies within the TAG recommended range.
- 3.2.13. The network-based calculation underestimates fuel cost elasticity as the change in car vehicle-kilometres includes fixed elements, for example external to external movements.
- 3.2.14. A matrix based method has been used to calculate the change in car trips with respect to the change in journey time. The results of the journey time realism test are shown in Table 7.

Table 7 - Car journey time realism test (matrix based method)

Purpose	AM peak	Inter peak	PM peak	Annual average
Home-based work	-0.011	-0.011	-0.011	-0.006
Home-based education	-0.007	-0.007	-0.006	-0.003
Home-based employers business	-0.005	-0.006	-0.005	-0.001
Home-based other	-0.020	-0.020	-0.016	-0.007
Non-home-based education	-0.016	-0.016	-0.014	-0.008
Non-home-based employers business	-0.007	-0.015	-0.008	-0.003
Non-home-based other	-0.018	-0.019	-0.016	-0.007
All purposes	-0.010	-0.013	-0.009	-0.005

3.2.15. Table 7 shows that the annual average journey time elasticity across all purposes is -0.005, which is within the -2.0 limit specified in guidance.

3.2.16. The results of the fuel cost and journey time realism tests show that the model will be able to accurately predict the demand response to changes in travel costs and journey time over time.

3.2.17. The results for the 2019 and 2026 WSTM3 forecast highway models are presented in Appendix A.

3.3. SCENARIOS APPRAISED

3.3.1. In order to assess the transport impacts of the Winnersh Relief Road scheme, three transport scenarios have been modelled to inform the scheme appraisal. The three scenarios are set out in Table 8.

Table 8 - Scenarios appraised

Scenario	Description
Do Minimum (Reference)	<ul style="list-style-type: none"> This option models the existing highway network around Winnersh, with no highway improvements assumed and no development at Hatch Farm Dairies
Do Something 1 (without Hatch Farm Dairies development)	<ul style="list-style-type: none"> This option considers a single carriageway road connecting the B3270 Lower Earley Way to B3030 King Street Lane (Relief Road Phase 1) and B3030 King Street Lane to A329 Reading Road (Relief Road Phase 2). This option includes new roundabouts at the Relief Road/ A329 Reading Road junction and on the A329 south of Green Lane This option includes new signalised junctions at the Relief Road/ B3030 King Street Lane and Relief Road/ B3270 Lower Earley Way. This option also includes dualling of the B3270 Lower Earley Way between the Loddon Road (A329) Roundabout and the new junction with the WRR.
Do Something 2 (with Hatch Farm Dairies development)	<ul style="list-style-type: none"> As per Do Something 1 above but additionally includes 433 dwellings at the Hatch Farm Dairies site.

3.4. SCHEME BENEFITS

COST AND BENEFIT TO ACCIDENTS – LIGHT TOUCH (COBALT)

- 3.4.1. COBALT is a computer program developed by the Department for Transport (DfT) to undertake the analysis of the impact on accidents as part of economic appraisal for a road scheme. It uses detailed inputs of separate road links and road junctions impacted by the scheme.
- 3.4.2. The assessment is based on a comparison of accidents by severity and associated costs across an identified network in 'Without-Scheme' and 'With-Scheme' forecasts, using details of link and junction characteristics, relevant accident rates and costs and forecast traffic volumes by link and junction.
- 3.4.3. The scheme data from the model input into COBALT included:
- Link Classification:
 - COBALT link type (matched with the SATURN model link types)
 - Link length
 - Speed limit.
 - Link Flow:
 - Base Year Annual Average Daily Traffic (AADT) flows
 - Without and with scheme AADT flows.
- 3.4.4. The COBALT assessment has been undertaken using links and junctions combined.
- 3.4.5. Automatic Traffic Counts (ATC) in the study area were used to derive adjustment factors to calculate Annual Average Daily Traffic (AADT) flows.
- 3.4.6. Accident data for Wokingham has been provided by Wokingham Borough Council to identify the current levels of collisions within the broad study area.
- 3.4.7. To estimate the accident savings from the transport scheme the COBALT assessment has been undertaken for the following scenario:
- Scenario 1: Do Something 1 (without Hatch Farm Dairies development) vs Do Minimum.
- 3.4.8. The COBALT output for Scenario 1 is shown in Table 9. The COBALT summary output is included in Appendix B. The introduction of Winnersh Relief Road is expected to give £3,046.7m of accident benefits, which is the equivalent of one fatal casualty, nine serious casualties and 80 slight casualties.

Table 9 - COBALT output scenario 1

	Scenario 1 - DS1 (w/o HFD) vs DM
Total Without-Scheme Accident Costs	£300,424,900
Total With-Scheme Accident Costs	£297,378,200
Total Accident Benefits Saved by Scheme	£3,046,700

3.4.9. The locations of observed accidents around Winnersh are shown in Figure 15. It can be seen that a number of accidents have occurred along the A329 Reading Road. As discussed in Appendix A, the introduction of Winnersh Relief Road causes traffic to transfer away from the A329 Reading Road onto Winnersh Relief Road. Lower volumes of traffic on the A329 Reading Road will therefore result in a reduction in accidents along the road.

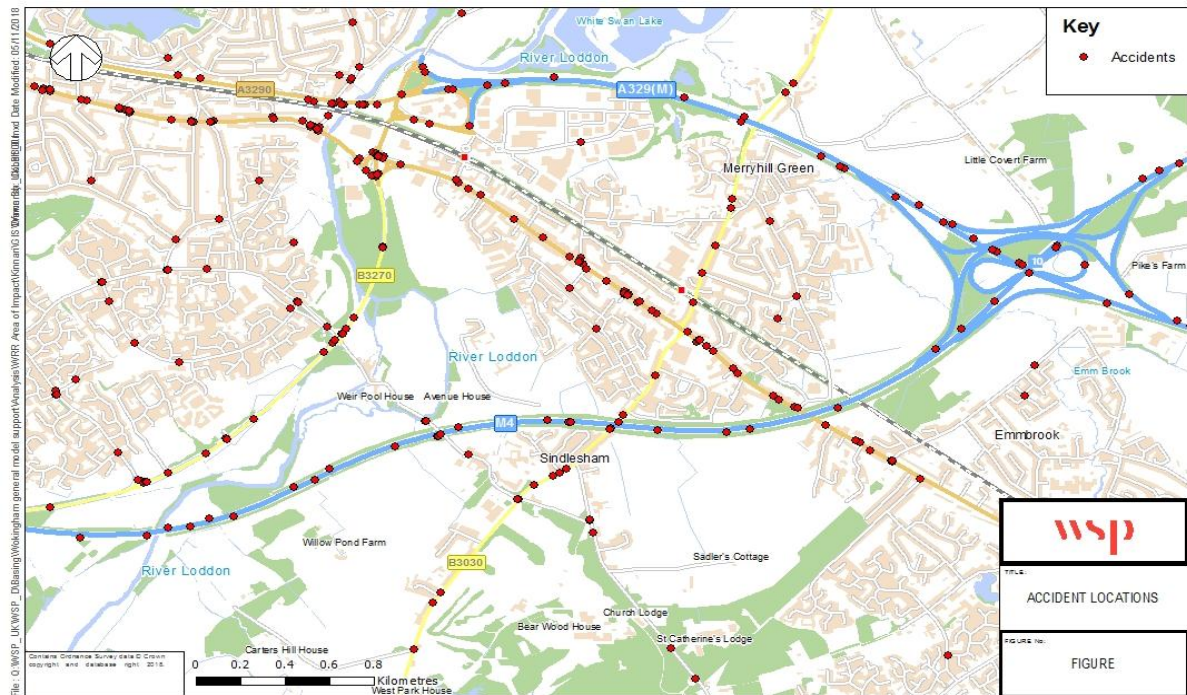


Figure 15 – Observed accidents

3.4.10. It was established in the Strategic Case that Hatch Farm Dairies is a ‘dependent development’. An additional scenario has been undertaken in COBALT to assess the accident cost associated with the development:

- **Scenario 2:** Do Something 2 (with Hatch Farm Dairies development) vs Do Something 1 (without Hatch Farm Dairies development)

3.4.11. The output from the COBALT assessment for Scenario 2 is summarised in Table 10. The COBALT summary output is included in Appendix B. The Hatch Farm Dairies development will result in £1,031.3m of accident costs as it introduces more traffic to the network.

Table 10 - COBALT output scenario 2

	Scenario 2 - DS2 (with HFD) vs DS1 (w/o HFD)
Total Without-Scheme Accident Costs	£297,446,800
Total With-Scheme Accident Costs	£298,478,100
Total Accident Benefits Saved by Scheme	-£1,031,300

3.4.12. The results from the COBALT assessments have been included as part of the wider economic assessment below.

TRANSPORT USER BENEFIT APPRAISAL (TUBA)

- 3.4.13. Scheme benefits have been assessed using the Department for Transport's TUBA software. This is an industry-standard tool for undertaking economic appraisal in accordance with guidelines published in TAG Unit A1 (May 2018). The full economic assessment methodology adopted including choice of parameters, definition of inputs, discounting and reporting is compliant with TAG Unit A1 (May 2018).
- 3.4.14. The current version of the TUBA software is Version 1.9.11. The software carries out the appraisal of the following economic elements associated with the scheme (excluding those accrued during construction and maintenance):
- Time savings
 - Vehicle operating costs
 - Carbon savings
 - Scheme costs
 - Indirect tax revenues
- 3.4.15. The WSTM3 2019 and 2026 forecast models were used as the basis for the economic assessment in TUBA. TUBA extrapolates growth between these years, and after 2026 the default TUBA assumption of no growth beyond this point has been retained, in the absence of more detailed information. Calculated benefits are therefore likely to represent a conservative estimate. The assessment has been completed for a 60 year appraisal period.
- 3.4.16. The outputs produced by the WSTM3 represent an average weekday AM peak hour (08:00 – 09:00), Inter peak hour (average hour between 10:00 – 16:00) and PM peak hour (17:00 – 18:00). In order to annualise these hours, Automatic Traffic Counts (ATC) in the study area were used to derive adjustment factors to convert the benefits to AM peak period (07:00 – 10:00) and PM peak period (16:00 – 19:00). The adjustment factor derived from ATC data to convert the AM peak hour into the AM peak period was 2.62. The adjustment factor derived from ATC data to convert the PM peak hour into the PM peak period was 2.75. A factor of 6 was used to convert the average Inter peak hour to the Inter peak period (10:00 – 16:00). A factor of 253 was then applied to all three time periods, representing the number of weekdays in a year (excluding bank holidays). The annualization factors applied are shown in Table 11.

Table 11 - Annualization factors

Time Period	Peak hour to peak period factor	Number in year	Annualization factor
AM	2.62	253	662.06
IP	6.00	253	1518.00
PM	2.75	253	696.40

- 3.4.17. The benefits at weekends and bank holidays have not been considered, therefore the calculated benefits are likely to represent a conservative estimate.
- 3.4.18. The SATURN user classes one to seven have been aggregated to match the TUBA user classes. User classes eight to ten are largely the same as the TUBA user classes. The input TUBA user classes are set out in Table 12.

Table 12 - TUBA user classes

UC	SATURN UC	TUBA UC	Vehicle Type	Purpose	Person
UC1	HBW	Commuting	Car	Commuting	All
UC2	HBEd	Commuting	Car	Commuting	All
UC3	HBEB	Business	Car	Business	All
UC4	HBO	Other	Car	Other	All
UC5	NHBEd	Other	Car	Other	All
UC6	NHBEB	Business	Car	Business	All
UC7	NHBO	Other	Car	Other	All
UC8	LGV	LGV Freight	LGV Freight	Business	All
UC9	OGV1	OGV1	OGV1	Business	Driver
UC10	OGV2	OGV2	OGV2	Business	Driver

3.4.19. The factors shown in Table 13 were applied to convert the input trip matrices from passenger car units to vehicles. In accordance with SATURN guidance, the trip matrices are defined in passenger car units (pcu), which translate all vehicles into one common unit. In the WSTM3 cars and LGV are equal to one pcu, OGV1 are equal to 1.5 pcu and OGV2 are equal to 2.3 pcu.

Table 13 - Trip matrix factors

UC	AM	IP	PM
UC1	1	1	1
UC2	1	1	1
UC3	1	1	1
UC4	1	1	1
UC5	1	1	1
UC6	1	1	1
UC7	1	1	1
UC8	1	1	1
UC9	0.66667	0.66667	0.66667
UC10	0.43478	0.43478	0.43478

3.4.20. The following assumptions have been made during the TUBA economic assessment:

- Winnersh Relief Road Phase 1 opened in 2018, and Winnersh Relief Road Phase 2 and Lower Earley Way Dualling is planned to open in 2020. Since they are being considered as a single scheme, the scheme opening year input into TUBA is 2020.
- Full scheme cost of £19,743,332.17, including:
 - WRR Phase 1: £6,279,109.00
 - WRR Phase 2: £8,037,121.82
 - Lower Earley Way Duallin: £5,427,101.36.

These costs are 2016 Quarter 3 Market Prices.

- GDP deflator of 110.01 assumed as taken from the TAG Data Book (May 2018). Full scheme cost in 2010 price: £17,948,000

3.4.21. The scheme cost and expenditure profile is fully detailed in the Financial Case.

3.4.22. To estimate the conventional user benefits from the transport scheme the TUBA assessment has been undertaken for the following scenario:

- Scenario 1: Do Something 1 (without Hatch Farm Dairies development) vs Do Minimum.

3.4.23. The results for Scenario 1 are shown in Table 14 below. Table 14 shows that the Present Value of Benefits (PVB) is approximately £37.1m, with a Present Value of Costs (PVC) of £13.4m and a Benefit to Cost Ratio (BCR) of 2.77, which according to WebTAG represents High Value for Money.

3.4.24. All values provided in Table 14 are discounted to 2010 prices.

Table 14 - Scenario 1 Analysis of Monetised Costs and Benefits

Benefit	Scenario 1 - DS1 (w/o HFD) vs DM
Total Accident Benefits Saved by Scheme	£3,046,700
Greenhouse gases	£460,000
Economic efficiency - consumer users (commuting)	£13,086,000
Economic efficiency - consumer users (other)	£8,915,000
Economic efficiency - business users and providers	£12,581,000
Wider public finances (indirect tax revenues)	-£987,000
Present Value of Benefits (PVB)	£37,101,700
Broad Transport Budget	£13,403,000
Present Value of Costs (PVC)	£13,403,000
Net Present Value (NPV)	£23,698,700
Benefit to Cost Ratio (BCR)	2.77

Transport External costs

- 3.4.25. Since Hatch Farm Dairies is a 'dependent development' the 'transport external cost' of the development has been assessed. To understand the costs imposed by dependent transport users on all other users the following scenarios have been compared:
- **Scenario 2:** Do Something 2 (with Hatch Farm Dairies development) vs Do Something 1 (without Hatch Farm Dairies development)
- 3.4.26. The impact of the Hatch Farm Dairies development is summarised in Table 15.
- 3.4.27. Transport external costs for Scenario 2 is -£8.7m. This represents the additional costs to the existing users because of the Hatch Farm Dairies development.

Table 15 - Scenario 2 Analysis of Monetised Costs and Benefits

Benefit	Scenario 2 - DS2 (with HFD) vs DS1 (w/o HFD)
Total Accident Benefits Saved by Scheme	-£1,031,300
Greenhouse gases	-£1,444,000
Economic efficiency - consumer users (commuting)	-£4,295,000
Economic efficiency - consumer users (other)	-£2,913,000
Economic efficiency - business users and providers	-£2,468,000
Wider public finances (indirect tax revenues)	£3,426,000
Present Value of Benefits (PVB)	-£8,725,300

Land Value Uplift

- 3.4.28. The Hatch Farm Dairies/Phase 1 Revised Planning statement (June 2010) provides the key data for estimating land value uplift. These are:
- Gross floor area; 20.5 hectares
 - Developable area, a gross to net ratio of 70% (14.4 ha)
 - Number of residential units; 433
 - Density; 36 dwellings per hectares
 - Total area occupied by dwellings- saleable area 12ha.
- 3.4.29. The Ministry of Housing, Communities and Local Government publication, Land Value Estimates for Policy Appraisal May 2017 was used to estimate the land value of former and current uses. Land value of agricultural and residential uses is as follows:
- Agricultural land -Thames Valley Berkshire LEP: £22,500/ha
 - Residential land -South East- Wokingham: £5,325,000/ha.
- 3.4.30. As the total saleable area 12ha is lower than the net area of 70% (14.4ha), 12 ha was used in the calculation of land value uplift.

Table 16 - Land value uplift

	Value (April 2017 prices)
Former land use - Agricultural 20.5ha	£461,250
Now land use- Residential saleable area 12ha	£63,900,000
Land value uplift	£63,438,750

3.4.31. Further adjustments have been made for deadweight and additionality. Assumptions and key factors in relation to deadweight and additionality are as follows:

- Hatch Farm Dairies (HfD) site was non-previously developed land (NPDL) and it is used for housing
- The housing development is funded privately
- Houses are being built on this site now (in 2018) hence there is no risk of it not going ahead or relying on public sector funding
- Winnersh Relief Road (WRR) Phase 1 was needed to deliver this housing. This was funded by private funding and built and opened to general traffic in June 2018.

3.4.32. Taking in to consideration of the above factors, a deadweight of 0 has been assumed as the infrastructure for this was already delivered by privately funded money and houses being built at the present without reliance on public sector aid.

Additionality

3.4.33. This is a residential site whilst displacement is more relevant non-residential development, even if there is the effect is assumed to be nil or very marginal.

3.4.34. Distributional impact is likely to be marginal as the additional housing supply is likely have only a marginal impact on land value.

3.4.35. The other additionality assumptions around substitution, multipliers and leakage do not apply here.

3.4.36. However, to add further robustness to the net uplift of land value an allowance of 95% has been allowed for the above two impacts. Land value uplift calculations are as follows:

3.4.37. The land value uplift in 2010 prices is £56,556,597

3.4.38. After allowing for additionality (95%) the resulting land value uplift in 2010 prices, £53,728,766, additionality impact, £2,828,329.

Amenity Impact

3.4.39. Further adjustment has been made for amenity impact, which relates to the loss of green space and other factors. The values are based on 'valuing housing impacts'. The values are in 2010 prices and for Agricultural Land (extensive) which the HFD site falls under is £838.42 per hectare. For the 20 hectares this equates to £702,945.

Housing built-out profile and inflation

3.4.40. We have obtained information on built out profile and this is provided below.

3.4.41. The Hatch Farm Dairies site has been granted planning permission and build out continues by the private developer. Wokingham's November 2017 SHLAA⁷ confirmed the build-out profile of the site, which is set out in Table 17.

Table 17 - Hatch Farm Dairies build-out profile

App No (LDF site ref)	Location	Total Capacity (net)	Residual capacity (net) at 30 November 2017 ³¹	Number of dwellings under construction at 30 November 2017	Forecast completions						
					30/11/18	1/12/17 - 30/11/19	1/12/18 - 30/11/20	1/12/19 - 30/11/21	1/12/20 - 30/11/22	1/12/21 - 30/11/23	Post 1/12/23
Assessment of Site Deliverability											
WI031 O/2006/8687 152359	Land at Hatch Farm Dairies, Winnersh	431	358	82	100	100	100	56	0	356	0
Deliverability – The site is currently under construction (82 dwellings). The council contacted the two developers in November 2017 but had no response. Based on historical delivery rates for Wokingham Borough delivery can be anticipated within the five year period. Two developers are involved in the site (Bovis Homes and Persimmon Homes).											

3.4.42. The housing will be delivered over a four-year period from 2018 till 2021. An adjustment has been made to take account of inflation. In line with DCLG statistics, average annual growth residential values are assumed to go up 5% each year.

⁷ www.wokingham.gov.uk/EasySiteWeb/GatewayLink.aspx?allid=431718

Table 18 – Inflation adjustment

	2018	2019	2020	2021	Total
No, of dwellings	177	100	100	56	433
Hectares	4.9	2.8	2.8	1.5	
Land value in	£25,992,265	£14,684,895	£14,684,895	£8,179,369	£63438,750*
Inflation at 5%		1 year	2 years	3 years	
With inflation	£25,992,265	£16,190,097	£16,999,602	£9,942,074	£69,124,040
2010 prices	£22,823,949.62	£13,998,875.49	£14,460,753.68	£8,315,051.59	£59,598,630
NPV discounted	£17,332,771.10	£10,271,408.52	£10,251,500.34	£5,695,358.94	£43,551,038

***rounded**

- 3.4.43. After allowing for additionality; £2,828,329 (2010 price) and amenity impact; £702,945 (2010 prices), the total impact is £3,531,274. The discounted PV is £2,681,690
- 3.4.44. Therefore, having allowed for inflation and discounted land value uplift, deadweight, additionality and amenity impact the net value is £43,551,038 minus £2,681,690 to give £40,869,348.
- 3.4.45. The total impact of the scheme, is summarised in
- 3.4.46. Table 19. This takes into account the user benefits, transport external costs, land value uplift and impact on amenity.

Table 19 - Total scheme benefits

Benefits	Value
Conventional transport user benefits	£37,101,700
Net land value uplift	£40,869,348
Transport external costs	-£8,725,300
Total benefits	£69,245,748

- 3.4.47. Realising half (65%) of the land value uplift benefits (approximately £26.56m) would result in total benefits of approximately £55m, and achieve a BCR greater than 4. This would move the Value for Money category from High to Very High.

3.5. SENSITIVITY AND RISK PROFILE

- 3.5.1. It is acknowledged that sensitivity and risk profile is recommended by the DfT's guidance. This would involve changing highway demand to $\pm 2.5\%$ and recalculating a BCR. However, considering the level of the BCR achieved and a principle of the proportionality applied to the assessment, there is no merit in doing a high growth scenario test. It is also worth noting that housing needs and job demand will be continually met and this will ensure that the core scenario growth assumptions will be maintained, hence materialisation of a low growth scenario is less likely. For these reasons low and high growth tests were not carried out.

3.6. APPRAISAL SUMMARY TABLE

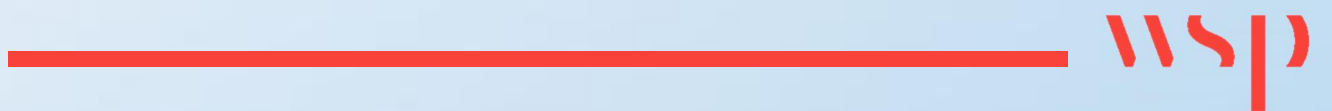
- 3.6.1. This section sets out the qualitative and quantitative impacts of the transport scheme which will then be used to inform the Value for Money Statement. The completed Appraisal Summary Table is provided in Appendix C.

3.7. VALUE FOR MONEY STATEMENT

- 3.7.1. This section provides a Value for Money conclusion by considering the evidence pulled together as part of the Appraisal Summary Table, and categorises the Value for Money of the scheme as recommended by DfT.
- 3.7.2. The expected Benefit to Cost Ratio (BCR) of the scheme is **2.77** which represents a High Value for Money category. This would be elevated to Very High Value for Money if 50% of the land value uplift benefits at Hatch Farm Dairies were realised.

4

FINANCIAL CASE



4. FINANCIAL CASE

4.1. INTRODUCTION

- 4.1.1. The financial case concentrates on the affordability of the proposal and its funding arrangements (value for money is scrutinised in the economic case). It presents the financial profile of the scheme and the impact of the proposed deal on the Department's budgets and accounts.
- 4.1.2. The Financial Case for the Winnersh Relief Road scheme is based on significant scheme development and the identification and costing of the preferred option by Wokingham Borough Council and its contractors Balfour Beatty. The proposed funding arrangements are set out and described, including the Business Rates Retention Pilot Fund and local S106 contribution.

4.2. COST ESTIMATE

- 4.2.1. The capital cost estimate and expenditure profile for the Lower Earley Way Dualling and Winnersh Relief Road Phase 2 are provided in Table 20. All costs are given in 2016 Quarter 3 prices and include construction and design risks and Building Information Modelling (BIM).

Table 20 – Scheme cost

Lower Earley Way Dualling					
	2017/ 18	2018/ 19	2019/ 20	2020/ 21	Total
Lands	£0	£5,000.00	£0	£0	£5,000.00
Pt1 Claims	£0	£0	£0	£0	£0
Core Team	£210,319.50	£701,065.01	£0	£0	£911,384.51
Surveys	£0	£259,469.85	£0	£0	£259,469.85
Enabling Works	£0	£144,174.00	£0	£0	£144,174.00
Construction	£0	£700,000.00	£2,800,000.00	£0	£3,500,000.00
Risk & BIM (Design)	£0	£145,488.00	£0	£0	£145,488.00
Risk & BIM (Construction)	£0	£0	£461,585.00	£0	£461,585.00
Total	£210,319.50	£1,955,196.86	£3,261,585.00	£0	£5,427,101.36
Winnersh Relief Road Phase 2					
	2017/ 18	2018/ 19	2019/ 20	2020/ 21	Total
Lands	£0	£45,000.00	£0	£0	£45,000.00
Pt1 Claims	£0	£0	£0	£500,000.00	£500,000.00
Core Team	£127,404.37	£509,617.49	£212,340.62	£0	£849,362.49
Surveys	£0	£0	£209,344.99	£0	£209,344.99
Enabling Works	£0	£0	£186,938.00	£0	£186,938.00
Construction	£0	£0	£5,033,987.88	£719,141.13	£5,753,129.00
Risk & BIM (Design)	£0	£0	£120,932.38	£0	£120,932.38
Risk & BIM (Construction)	£0	£0	£372,414.95	£0	£372,414.95
Total	£127,404.37	£554,617.49	£6,135,958.82	£1,219,141.13	£8,037,121.82

4.2.2. The total expenditure for Winnersh Relief Road Phase 1 was £6,500,000.00 in 2018 Quarter 4 prices.

4.3. FUNDING SOURCES

WRR Phase 1 is developer funded. Phase 2 and Earley Way Dualling will be funded through TVBLEP Business Rates Retention Pilot Fund and Wokingham Borough Council's Capital Funding programme as shown below in

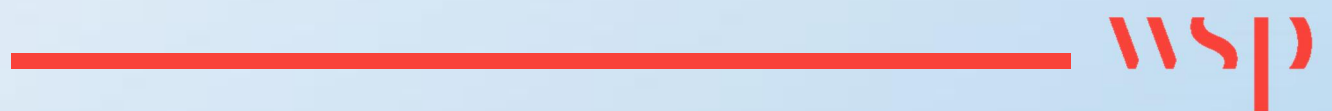
Table 21.

Table 21 – Funding sources

Source of funding	2016/17	2017/18	2018/19	2019/20	2020/21	Total
Amount from LEP Business Rates Retention Pilot			£2,848,000	£2,022,000	£1,390,000	£6,260,000
Private sector (Developer delivery of Phase 1)		£6,500,000		-	-	£6,500,000
Council Capital Programme				£7,204,223		£7,204,223
Other sources (private sector)	£438,000					£438,000
Total Scheme Cost	£438,000	£6,500,000	£2,848,000	£9,226,223	£1,390,000	£20,402,223

5

COMMERCIAL CASE



5. COMMERCIAL CASE

- 5.1.1. The commercial case provides evidence of commercial viability of the project and the procurement strategy adopted.
- 5.1.2. The Commercial Case is designed to provide evidence of the commercial viability of a proposal and the procurement strategy which will be used.
- 5.1.3. Information is provided about the following:
 - Procurement strategy
 - Sourcing Options
 - Output based specification
 - Payment and charging mechanisms
 - Risk allocation and transfer
 - Contract length
 - Contract management.

5.2. PROCUREMENT STRATEGY AND SOURCING OPTIONS

- 5.2.1. Wokingham Borough Council has a contract with Balfour Beatty (BB), via the Scape Framework, to deliver a series of major highway schemes across Wokingham.
- 5.2.2. Wokingham Borough Council also has formed Highways Alliance partnership with WSP (professional services) and Balfour Beatty Living Places (maintenance) to deliver its highways and transportation services.
- 5.2.3. These contracts are described below:

SCAPE FRAMEWORK

- 5.2.4. BB has been appointed by Wokingham Borough Council through the Scape Civil Engineering and Infrastructure framework to deliver the Winnersh Relief Road Phase 2 and Lower Earley Way schemes.
- 5.2.5. Wokingham Borough Council has agreed for BB through Scape's Civil Engineering and Infrastructure framework to plan and build a series of major road projects including the Winnersh Relief Road Phase 2, Lower Earley Way improvements, Arborfield Cross Relief Road, South Wokingham Distributor Road and North Wokingham Distributor Road and, will bring the long-planned improvements to the borough's road network.
- 5.2.6. The new roads and other highways improvements will help relieve congestion as well as provide access to the major developments coming at Arborfield Green and to the north and south of Wokingham.

SCAPE CIVIL ENGINEERING FRAMEWORK DETAILS

- 5.2.7. On 12 June 2014 Scape placed an advertisement, reference 2014/s 114-199896 in the Official Journal of the European Union (OJEU), seeking expressions of interest from economic operators for the provision of services to public sector bodies under a framework agreement in the area stated in the Notice.

- 5.2.8. The Contractor submitted its expression of interest on 21 July 2014 and on 10 October 2014 Scape invited potential contractors to tender for the provision of construction services and submit a tender on 24 November 2014.
- 5.2.9. On the basis of the Tender, Scape selected the Contractor Balfour Beatty to enter into a framework agreement, which is for the provision of civil engineering and infrastructure construction and associated services. The Scape framework contract with Balfour Beatty was signed on 30 January 2015.
- 5.2.10. Balfour Beatty is the sole contractor on our four-year Scape National Civil Engineering and Infrastructure framework, delivering projects of up to £1.5 billion. The framework allows public sector clients to commission works through a procurement process that provides the fastest route to market and utilises early contractor engagement to deliver the best value solutions.
- 5.2.11. In 2017, Wokingham Borough appointed BB through the Scape Framework, which is based on the NEC3 Engineering and Construction Contract. The contract was awarded and signed on 18th December 2017 and it runs for four years until 21 October 2021.
- 5.2.12. The contract is being in two phases, Stage 1: Pre-construction circa £11.8m, Stage 2: Construction will follow once current project budgets are refined into an agreed target cost. Total Delivery Agreement value is approximately £124m, which is the largest Scape contract value to date.

WOKINGHAM HIGHWAY ALLIANCE

- 5.2.13. Wokingham Borough Council's transport network has been managed and maintained since 2008 by Wokingham Highways Alliance being a partnership comprising of Wokingham Borough Council (the Council), WSP Professional Services Consultancy Contractor (PSCC) and Balfour Beatty Living Places (BBLP) the term Maintenance and Construction Contractor (MCC) together delivering highways and transportation services to Wokingham. The current Highways Alliance ends on 31 March 2019.
- 5.2.14. WSP has supported the Winnersh Relief Road Phase 2 element through the provision of planning application documents such as the planning statement, design and access statement, transport assessment and the design of scheme elements.
- 5.2.15. A new Wokingham Borough Highways and transport Professional Services Consultancy Contractor (PSCC, OJEU Notice: 2018/S 010-018524) and separate Maintenance and Construction Contractor (MCC, OJEU Notice: 2018/S 010-018515) was advertised by OJEU in January 2018. Following a competitive process with negotiation, new contractors have been selected and a new Highways Alliance is to be formed by Wokingham Borough, WSP (PSCC) and VolkerHighways (MCC) from 1 April 2019. The contract term is for seven years from 1 April 2019 with an option to extend for a further three years, subject to performance.

5.3. OUTPUT BASED SPECIFICATION

- 5.3.1. Winnersh Relief Road Phase 1 has been delivered by the developer (Bovis) as part of the Land at Hatchfield Dairies development. The delivery of the road was secured through a S106/278 agreement with the developer.

5.3.2. Winnersh Relief Road Phase 2 and Lower Earley Way Dualling are being delivered by BB through the Scape Framework on behalf of Wokingham. The design specification is as follows:

- Lower Early Dualling:
 - Cross section consisting of a 7.3m wide carriageway and a 3m footway to each side.
 - A typical pavement and pavement foundation as defined
 - Red anti-skid surfacing to approaches to stop lines
 - Splitter & refuge island construction
 - Footways as defined
 - Boundary fence as defined
 - Surface water drainage
 - Requirement for new signals to the junction
 - Lighting columns in line with Borough specifications.
- Winnersh Relief Road:
 - Cross section consisting of a 7.3m wide carriageway, a single 3m verge and a single 3m footway
 - A typical pavement and pavement foundation as defined
 - Red anti-skid surfacing to approaches
 - Splitter & refuge island construction
 - Footways as defined
 - Surface water drainage
 - Lighting columns in line with Borough specifications.

5.4. PAYMENT AND CHARGING MECHANISMS

5.4.1. Payment of the contracts will be administered in accordance with the stipulated process within the NEC form of contract. These are described below:

SCAPE FRAMEWORK

- 5.4.2. Services to be delivered by BB are based on the terms of the NEC Engineering & Construction Contract 3rd Edition April 2013 Option C, X23 (Target Contract with Activity Schedule).
- 5.4.3. Under Option C the contractor is paid the actual cost for the work undertaken with incentivisation via a pain/gain mechanism based on actual cost vs Target Price. The share percentages of the pain/gain mechanism have been defined with BB. Risk associated with the accuracy of the Target Cost is predominately with the contractor, but this may be adjusted by the share ranges incorporated in the contract.

WOKINGHAM HIGHWAY ALLIANCE - PSCC

- 5.4.4. Services to be delivered by WSP are based on the terms of the NEC Engineering & Construction Contract 3rd Edition April 2013 Option G (Term Contract), where the price for services is, for each Task, the total of the time charge for work or a lump sum price.

WOKINGHAM HIGHWAY ALLIANCE - MCC

- 5.4.5. Services to be delivered by Volker Highways are based on the terms of the NEC Engineering & Construction Contract 3rd Edition April 2013 Options A (Priced Contract with Activity Schedule), C (Target Contract with Activity Schedule) and E (Cost reimbursable contract), with the option specified in each Task Order.
- 5.4.6. Option A is only viable if the design is fully designed at the time of tender and or design liability is placed with the contractor when it provides the greatest degree of cost certainty of any of the NEC options. This form of contract is attractive because it provides relative cost certainty. The contractor is paid a lump sum for each activity.
- 5.4.7. Option C as above.
- 5.4.8. Option E is a cost reimbursable contract where the financial risk is taken largely by the Employer and the contractor is paid their actual costs plus the Fee. It is normally used when the scope of works cannot be defined at the outset, for example with emergency work.

5.5. RISK ALLOCATION AND TRANSFER

- 5.5.1. The New Engineering Contract (NEC) 3 suite of contracts have been utilised in all contract cases.
- 5.5.2. Risk is shared across these contracts in accordance with the contractual terms. Given the long-term nature of the contracts, there is the benefit of potential long-term working arrangements and the incentive to minimise cost overrun.
- 5.5.3. The Winnersh Relief Road scheme has benefitted from Early Contractor Involvement (ECI) and a detailed review of risk has been undertaken by the whole (Client, Consultant and Contractor) team. The residual risks have been captured and appropriate risk allocation is included in the project budget. Proactive management and monitoring of project activities and budget will help to mitigate against the risk of budget overruns. Ultimately the risk of cost over run is, as per the terms of the grant award, with Wokingham Borough Council.
- 5.5.4. The Management Case sets out clear roles and responsibilities for the project.

5.6. CONTRACT LENGTH

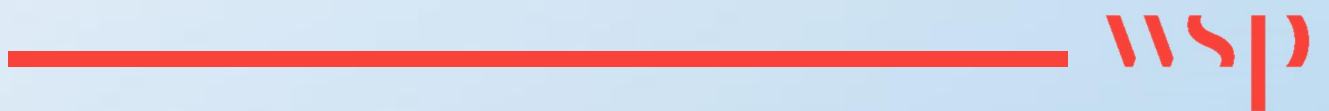
As described above in Section 5.2.

5.7. CONTRACT MANAGEMENT

- 5.7.1. The Council provides an officer (Ian Haller) in the role of Scape contract project manager. The conditions of Scape contract are the clauses for main Option C with dispute resolution Option W2 and numerous secondary options of the NEC3 Engineering and Construction Contract (April 2013). The Council provides an officer (Alex Deans) in the role of Highways Alliance contract project manager
- 5.7.2. With regard to all contracts, Wokingham Borough meets with its respective contractor's management team on a monthly basis. The contractors provide monthly progress and financial updates to Wokingham Borough, which will include updates to the project programme.
To sum up, a total of five different contract/procurement options were considered by WBC. The scale of the SCAPE contract allows for multiple highways schemes to be built across Wokingham Borough in parallel and for tight timescales to be met. The unique capacity of the SCAPE framework to complete such parallel working was the main factor in its selection over the other potential procurement options.

6

MANAGEMENT CASE



6. MANAGEMENT CASE

6.1. INTRODUCTION

- 6.1.1. This chapter forms the Management Case. It describes how the scheme will be delivered using project management best practice, confirms the project is deliverable within the timescales, and demonstrates an appropriate governance structure and assurance framework to oversee the project.
- 6.1.2. The Management Case follows a defined structure as specified by government. Following this structure ensures all the necessary information is provided and enables efficient assessment of the proposal. Information is presented on the following:
- Evidence of similar projects
 - Programme / project dependencies
 - Governance, organisational structure and roles
 - Programme / project plan
 - Assurance and approvals plan
 - Communications and stakeholder management
 - Programme / project reporting
 - Risk management strategy
 - Benefits realisation plan
 - Monitoring and evaluation.

6.2. EVIDENCE OF SIMILAR PROJECTS

- 6.2.1. In the last 10 years Wokingham Borough has demonstrated that it can deliver large transport projects, such as the redevelopment of Wokingham Rail Station and the new Station Approach link road. The council has also delivered capacity improvement to Coppid Beech roundabout and significant town centre regeneration works.
- 6.2.2. Wokingham Borough supported the delivery of the Shinfield Eastern Relief Road and Winnersh Relief Road Phase 1 developer schemes. The council, partnered with Reading Borough Council, has also delivered park and ride facilities at Winnersh, Thames Valley Park and on the A33 at Mere oak.

6.3. PROJECT DEPENDENCIES

- 6.3.1. The scheme programme is relatively free from dependencies, with the exception of the requirement for utilities diversions. It is anticipated that some utility diversions will be required as a consequence of the scheme. These diversions could involve some engineering challenges; however, early contractor involvement will have helped to mitigate against any potential utility or construction risks. Trial holes will be undertaken to establish the location of apparatus in key areas to ensure an accurate assessment of impacts and costs can be made at this stage of the project.

6.4. GOVERNANCE, ORGANISATIONAL STRUCTURE AND ROLES

- 6.4.1. Wokingham Borough has established a clear and robust structure to provide accountability and an effectual decision-making process for the management of the Winnersh Relief Road scheme. The organisation structure that would apply to the project is shown in Appendix D.

- 6.4.2. Ultimate responsibility for delivery of the scheme rests with Wokingham, who will assume an overall project management role on the project. The Project Manager will work closely with the Term Contractors and also form a point of contact for stakeholders.
- 6.4.3. The usual Council governance procedures will apply to all aspects of the project management, with issues being escalated in accordance with Council protocols as necessary.

6.5. PROJECT PLAN

- 6.5.1. A detailed Project Plan has been developed (Appendix E). It covers each key stage of the project and the critical path. The tasks that have a critical end date that affect the delivery timescale are highlighted on the Project Plan.
- 6.5.2. Ian Haller will have overall responsibility for delivering the tasks required to achieve key milestones. Key milestones, timescales and tasks are summarised below:
 - Full Business Case ready for submission: October 2018
 - Approval sought from TVBLEP: November 2018
 - Works begin on ground: Summer/Autumn 2019
 - Completion works: Autumn 2020.

6.6. ASSURANCE AND APPROVALS PLAN

- 6.6.1. In line with the Thames Valley LEP Assurance Framework, Wokingham Borough Council will submit regular scheme progress and spend updates to the Thames Valley LEP ahead of attendance at the Berkshire Local Transport Body (BTLB) meetings (held at least 3 times per year). The BTLB is a publicly accountable Joint Committee of the six Berkshire Authorities and has the following objectives regarding the management of all Growth Funds for schemes including the Winnersh Relief Road:
 - To manage an investment programme of LGF for developing and improving the transport infrastructure within the Thames Valley Berkshire area
 - To establish and keep under review a prioritised list of local major transport schemes within the available budget
 - To assess and evaluate the relative merit of competing schemes, and to subject all proposals to independent scrutiny
 - To ensure value for money is achieved from individual schemes and the overall investment programme, and to review the impact of completed schemes
 - To monitor the progress of scheme delivery and spend
 - To oversee the management of the devolved budget and programme such that it responds to changing circumstances
 - To make decisions on individual scheme approvals.
- 6.6.2. Responsibility for the assurance and approval of the Winnersh Relief Road Business Case rests with the BTLB/LEP and their independent technical advisors Hatch Regeneris, who will assess the technical content of the business case against appropriate transport appraisal guidance and the Thames Valley LEP's Assurance Framework in order to confirm that the scheme represents value for money to the taxpayer. Hatch Regeneris will advise the Thames Valley LEP/BTLB whether to approve or decline the Business Case and the associated scheme.

- 6.6.3. Following scheme approval and subsequent completion, at 1 and 5 years post-opening, Wokingham Borough will submit a Winnersh Relief Road Monitoring and Evaluation document to the Thames Valley LEP and its independent technical advisors for their review and approval. The document will monitor the scheme's progress against a set of standard measures, highlight lessons learned and confirm whether local-level investment has provided value for money.

6.7. COMMUNICATIONS AND STAKEHOLDER MANAGEMENT

- 6.7.1. Wokingham Borough Council has a tried and tested Stakeholder Engagement process which is used on all significant projects.
- 6.7.2. The main aim from the Stakeholder Engagement process is to ensure that stakeholders and members of the general public are kept informed throughout the development and implementation of a scheme. This can range from keeping key stakeholders updated with critical information, essential to the successful delivery of the scheme to providing information to the general public on the Wokingham Borough Council website, which has a scheme specific progress update page⁸, updated at regular intervals.
- 6.7.3. Stakeholders and members of the general public have also been consulted on the Winnersh Relief Road in several other ways - as part of the relevant Phase 1 and 2 planning applications and as part of various planning policy document submissions and examinations (e.g. the Core Strategy and Managing Development Delivery Local Plan). Public exhibitions for Phase 2 were held in September 2017 to update the public on the proposal.

6.8. PROJECT REPORTING

- 6.8.1. Progress Reports will be produced and comprise updates on:
- General progress
 - Project finances
 - Issues
 - Risks.

6.9. RISK MANAGEMENT STRATEGY

- 6.9.1. Project risk will be managed as an on-going process as part of the scheme governance structure. A scheme risk register is maintained. A quantified risk appraisal has been undertaken and risk costs are set out in the Financial Case.

Responsibility for the risk register being maintained is held by Ian Haller.

6.10. BENEFITS REALISATION AND MONITORING EVALUATION PLAN

- 6.10.1. The purpose of benefits realisation is to plan for and track the benefits that are expected to be accrued over the lifetime of the scheme (as defined in the Strategic Case. The monitoring and

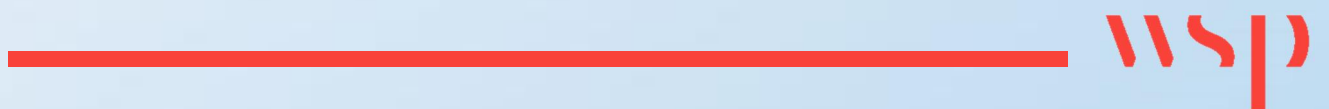
⁸ <http://www.wokingham.gov.uk/major-new-roads/winnersh-relief-road/>

evaluation plan will detail the activities required to track the progress of the scheme including project milestones and responsibilities.

- 6.10.2. A draft monitoring and evaluation plan was issued to the LEP's Business Case Independent Technical Advisor Hatch Regeneris in August 2018 for their consideration.
- 6.10.3. Wokingham Borough Council will conduct a full evaluation of the impact of the scheme in the period after it is completed. The Council will prepare evaluation reports one year and five years after scheme opening, using the information to be collected as set out above to gauge the impact of the scheme on the traffic network, and assess the success in meeting the scheme objectives. Unexpected effects of the scheme will be reported upon and, where appropriate, remedial measures identified.

7

ENVIRONMENTAL SUMMARY



7. ENVIRONMENTAL SUMMARY

7.1. INTRODUCTION

- 7.1.1. This section presents a review of the existing environmental information and reports available for Winnersh Relief Road (the 'Site'). The net benefits and constraints associated with the Site have been presented below for each of the environmental impacts where appropriate. The results are reported in the Appraisal Summary Table (Appendix C).

7.2. AIR QUALITY

- 7.2.1. A qualitative assessment of potential impacts on local air quality resulting from construction activities has been carried out. A quantitative assessment of the potential impacts during the operational phase using detailed dispersion modelling to predict changes in NO_x, NO₂ and PM₁₀ concentrations due to traffic generated and re-distributed by the Site. Construction and operation assessments were carried out for years 2019 and 2036.
- 7.2.2. Results of the assessment show concentrations in the majority of locations are predicted to meet statutory objectives both with and without the Site. Exceedances above the UK Air Quality Strategy Objective are predicted in 2019 for several receptors within Wokingham, however these are all within the Wokingham Air Quality Management Area. Results also show that the Site would cause both increases and decreases in pollutant concentrations, however effects at the majority of receptors are predicted to be negligible.
- 7.2.3. By 2036, due to the reduction in total pollutant concentrations, the residual effect of the Site on NO₂ concentrations is reduced and considered negligible at all receptors. The residual effect of the Site on hourly mean No₂, annual and daily mean PM₁₀ and annual PM_{2.5} is considered to be negligible for both 2019 and 2036.
- 7.2.4. The Proposed Development would cause both increases and decreases in pollutant concentrations and thereby will be a further reduction in pollutant concentrations.

7.3. ARBORICULTURE

- 7.3.1. A tree constraints report has been produced that identified, surveyed and classified trees within the Site and within a 15m buffer. This report has been used to determine whether trees should be retained or removed and is used as a basis for further tree protection and mitigation measures that may be required.

7.4. ARCHAEOLOGY AND HERITAGE

- 7.4.1. An archaeology technical note was prepared to indicate the presence of designated and non-designated heritage assets within the Site or immediate vicinity. The report provides an indication of previous impacts that may have affected heritage asset survival, provides an indication of likely constraints to future development and suggest possible mitigation proposals where relevant.
- 7.4.2. In relation to archaeology, it is considered unlikely that archaeology would present a primary constraint to the Site, i.e. in terms of a requirement for preservation in situ of nationally significant remains.

- 7.4.3. A subsequent Archaeological Desk Based Assessment was completed which stated the main potential impact to archaeological assets would be from initial topsoil stripping in advance of construction of the Site. It was concluded that despite the potential for Iron Age and Roman remains, all that would be required is an archaeological watching brief during ground preparation or excavation and in accordance with an approved Written Scheme of Investigation.
- 7.4.4. Built heritage was also confirmed not to pose a primary constraint to the Site as there are no statutory designated assets within or adjacent to the Site. None of the designated assets would be directly impacted by the Site, nor would their setting. The only mitigation would be to retain areas of woodland either side of the Site.
- 7.4.5. There is the potential for Iron Age and Roman archaeological remains to be present beneath the Proposed Development. Main impacts would arise during any soil stripping ahead of construction activities. It is suggested this risk can be managed through an archaeological watching brief or written scheme of investigation. Built heritage was concluded to not be a constraint to the Proposed Development, however areas of woodland should be retained to maintain the setting of certain heritage assets.

7.5. ECOLOGY

- 7.5.1. A range of ecological baseline studies have been undertaken to inform the Site. These have identified ecological constraints including the presence of Loddon Bridge/Lower Earley Community Woodland Local Wildlife Site, habitats of ecological value, invasive non-native plant species and the presence (or potential presence) of protected species including roosting bats, breeding birds, reptiles, badgers and great crested newt.
- 7.5.2. Effects to designated sites could include habitat loss to the Loddon Bridge/Lower Earley Community Woodland LWS and potential pollution during construction to the river Loddon. Invasive non-native plant species including Himalayan Balsam, Japanese Knotweed and Snowberry were all identified on or surrounding the Site. No effects to badgers or other mammals are anticipated during construction or operation of the Site. Some trees with roosting bat potential are likely to be affected by the Site as well as foraging and commuting habitat for bats. Clearance of habitat used by birds for breeding will be required prior to construction of the Site. Effects can be avoided as long as vegetation clearance is outside the breeding bird season. Effects to great crested newts, reptiles and invertebrates have been assessed and considered unlikely apart from reducing habitat availability for these species.
- 7.5.3. In addition, Ecological Mitigation and Enhancement Strategies have been produced to collate and present recommendations for avoidance and mitigation measures which are to be implemented during the detailed design and construction phase to reduce and manage the risk of legal offences being caused and minimise negative ecological effects. It has been concluded that subject to all recommendations in the Ecological Mitigation and Enhancement Strategies are adhered to, the Site is unlikely to have any significant long-term effects on ecology.
- 7.5.4. It has been concluded that subject to all recommendations in the Ecological Mitigation and Enhancement Strategies are adhered to, the Site is unlikely to have any significant long-term effects on ecology.

7.6. GROUND CONDITIONS, HYDROGEOLOGY AND CONTAMINATION

- 7.6.1. WSP produced a Contaminated Land Technical Note that has been used to inform pre-planning application discussions and identifies any constraints relevant to potential land contamination. The geology underlying the Site comprises of superficial deposits including River Terrace Deposits and Alluvium (aquifers) and Made Ground. The underlying bedrock geology is London Clay Formation considered unproductive strata.
- 7.6.2. Based on the preliminary assessment, there are potential plausible contaminant linkages to future onsite maintenance workers, off-site residents, controlled waters and adjacent properties from potential contaminants including heavy metals, polycyclic aromatic hydrocarbons and total petroleum hydrocarbons.
- 7.6.3. A subsequent Site Investigation Factual Report presented the work carried out, the ground conditions encountered during exploratory bore holes and in situ laboratory testing. A Phase 2 Contamination Land assessment concluded that no potential contaminants of concern exceeded the public open space land use generic assessment criteria. Any soils that are reused will be subject to validation testing to reduce the risks to human health and risk to construction workers will be managed through health and safety protocol. Further to this groundwater samples that were collected were analysed and polycyclic aromatic carbons were identified, however it was concluded that they are not likely to pose a risk to surface water or the wider groundwater.
- 7.6.4. Overall, no contamination constrains to the Site were identified, however further ground investigation would be required within identified landfills should intrusive construction works be undertaken in those areas.

7.7. LANDSCAPE AND VISUAL

- 7.7.1. A Landscape and Visual Impact Assessment (LVIA) has been produced for the Site and reports any likely significant effects arising on the existing landscape character and views/visual amenity of the Site and surrounding area. The LVIA considers the potential effects of the Site during the construction phase and the operational phase during year 1 (i.e. before any proposed planting would have any mitigating effects) and at year 15 (i.e. when proposed planting is likely to be well established and thus have a mitigating effect).
- 7.7.2. During construction, the Site is not anticipated to have an impact on topography of the Site. Effects to the Site fabric are expected due to removal of existing vegetation, tree and features from the existing landscape. The Wokingham - Winnersh Settled and Farmed Clay Landscape Character Area is likely to be affected by the Site as construction activities would be visible from areas if the LCA immediately surround the Site. Effects to nine visual receptors during construction are also anticipated. Operation of the Site is unlikely to affect topography of the Site, however adverse effects to the Site Fabric are expected. Five out of nine visual receptors are likely to experience some level of visual effect resulting from the operational Site.
- 7.7.3. The LVIA has confirmed that no significant landscape or visual effects are expected during construction or operation of the Site. This is based on the implementation of mitigation planting at the London Road extension and the recommendations and landscape mitigation plan in the Landscape Mitigation Strategy are adhered to.

7.8. AMENITY IMPACT

- 7.8.1. The construction and operation of the Site is considered unlikely to affect visual amenity and amenity associated with enjoyment of an area or location as long as the Landscape Mitigation Strategy and Landscape Mitigation Plans are adhered to. Effects to from a combination of air quality, noise and traffic could affect the amenity of future residents of the Hatch Farm residential development, however it is assumed that these effects will be managed using a Construction Environmental Management Plan, Construction Logistics Plan and engagement with the local community. Effects to amenity are therefore considered negligible.

7.9. NOISE AND VIBRATION

- 7.9.1. Noise and Vibration has been assessed during both construction and operation of the Site and is reported in the Noise Assessment Report. The assessment concluded that in the short term, the majority of dwellings are expected to experience a negligible change in noise levels, with the split between an increase and decrease being almost equal. A further 145 dwellings are predicted to experience a negligible change in noise level. Furthermore, 154 dwellings are predicted to experience a minor increase in noise level, however this is not considered significant. These receptors are primarily found on the roads nearest to the Site.
- 7.9.2. In the long term, 734 dwellings and 10 non-residential sensitive buildings are predicted to experience a negligible change in noise levels (with the vast majority expected an increase rather than decrease). No dwellings or other receptors are predicted to experience changes greater than negligible. The benefit of screening has been assessed as fairly limited based on a reduction in noise of 1 to 2 dB and benefit to cost ratio analysis. A preliminary assessment in relation to the Noise Insulation Regulations has identified six dwellings that would be eligible for noise insulation which would typically include secondary glazing, supplementary ventilation, venetian blinds and double or insulated doors where applicable.
- 7.9.3. In terms of vibration during construction, the assessment has identified that mitigation may be required where ground compaction is required within 45m of a receptor which could take the form of less vibratory inducing rollers or a static roller.
- 7.9.4. It is concluded that during construction the majority of residential dwellings are expected to experience change in noise levels, with the split between positive and negative being almost equal. A further 145 dwellings are predicted to experience a negligible change in noise level. Furthermore 154 dwellings are predicted to experience a minor increase in noise levels. In terms of vibration during construction, the assessment has identified that mitigation may be required where ground compaction is required within 45m of a receptor which could take the form of less vibratory inducing rollers or a static roller.

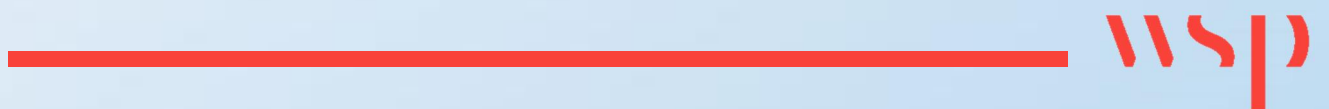
7.10. WATER ENVIRONMENT

- 7.10.1. Flood Risk Assessments for both Winnersh Relief Road and Lower Earley Way have been undertaken to identify sources of flooding, establish baseline flood risk, determine if the Site could have potential adverse impacts on flood risk to others and establish a package of mitigation measures if necessary.

- 7.10.2. Risk of flooding is considered low due to low peak flood depths surrounding the Site and no incidents of flooding within the Site. The assessments concluded that the risk of the Site exacerbating flood risk from coastal and tidal habitat, fluvial, sewers and artificial sources is negligible, whilst the risk of the Site exacerbating flood risk from pluvial and groundwater sources, accounting for mitigation measures is low.
- 7.10.3. The Site is therefore considered to comply with requirements of the National Planning Policy Framework (NPPF) and Pollution Prevention Guidelines to diminish the increased flood risk either to or from the Site.

8

REFERENCES



8. REFERENCES

References

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Department for Transport (2016) National Infrastructure Delivery Plan to 2021.

Thames Valley Berkshire LEP (2014) Growth Deal Proposal - Appendix C.

Thames Valley Berkshire LEP (2013) Strategic Economic Plan.

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Wokingham Borough Council (2011) Census Data. Winnersh.

Wokingham Borough Council (2011) Local Transport Plan 2011-2026.

Wokingham Borough Council (2013) Forecasting Report, Methodology and Results.

Wokingham Borough Council (2013) Strategic Transport Model - Local Model Validation Report.

Wokingham Borough Council (2013) Strategic Transport Model Appendix A-C.

Wokingham Borough Council (2013) Strategic Transport Model Appendix D.

Wokingham Borough Council (2013) Strategic Transport Model Appendix E.

Wokingham Borough Council (2017) Winnersh Relief Road Phase 1 Public Exhibition Leaflet.

Wokingham Borough Council (2018) Strategic Environmental Assessment.

Wokingham Borough Council (n.d.) Strategic Transport Model Appendix F.

WSP (2014) Warfield Link Road Business Case.

Appendix A

MODEL OUTPUTS



1 INTRODUCTION

- 1.1.1. The Wokingham Strategic Transport Model 3 (WSTM3) has been used to inform the Business Case assessment of Winnersh Relief Road.
- 1.1.2. The following forecast scenarios have been developed for the 2019 and 2026 assessment years:
 - Do Minimum (Reference): This option models the existing highway network around Winnersh, with no highway improvements assumed and no development at Hatch Farm Dairies.
 - Do Something 1 (without Hatch Farm Dairies): This option includes Winnersh Relief Road, Lower Earley Way Dualling and associated junction improvements.
 - Do Something 2 (with Hatch Farm Dairies): This option is based on the Do Something 1 option above, but includes 433 dwellings at the Hatch Farm Dairies site.
- 1.1.3. This report compares the results of the Do Minimum and Do Something 1 scenarios and analyses the impact of the scheme proposals on the transport network.

2 FORECASTING RESULTS

- 2.1.1. The Do Minimum and Do Something 1 scenarios have been compared to understand the impact of the introduction of Winnersh Relief Road.
- 2.1.2. The actual flow differences between the two scenarios for each modelled year and time period are presented in Figure 1 to Figure 6 below. Increases in flow are shown in green and decreases in flow are shown in blue. All flow values are shown in passenger car units.
- 2.1.3. The flow difference figures show that traffic transfers onto Winnersh Relief Road from the A329 Reading Road in all years and time periods. In addition to the flow reduction along the A329 Reading Road, there are decreases in flow along a number of local roads in the vicinity of the scheme for example Mill Lane, King Street Lane and Churchill Drive.
- 2.1.4. The delay differences between the two scenarios for each modelled year and time period are displayed in Figure 7 to Figure 12 below. Increases in delay are shown in green and reductions in delay are shown in blue. All values are displayed in seconds.
- 2.1.5. The changes in delay mirror the flow patterns discussed above. There are some delays at the Winnersh Relief Road/ King Street Lane and Winnersh Relief Road/ B3270 Lower Earley Way signalised junctions due to the high volumes of traffic utilising the scheme. The higher traffic flow along the A329 Reading Road to the south of Winnersh Relief Road also leads to a slight increase in delay time along this section of the road.
- 2.1.6. There are reductions in the delay experienced along the A329 Reading Road and local roads such as Churchill Drive as traffic flow along these roads decreases.



Figure 1: 2019 AM DS1 minus DM flow difference

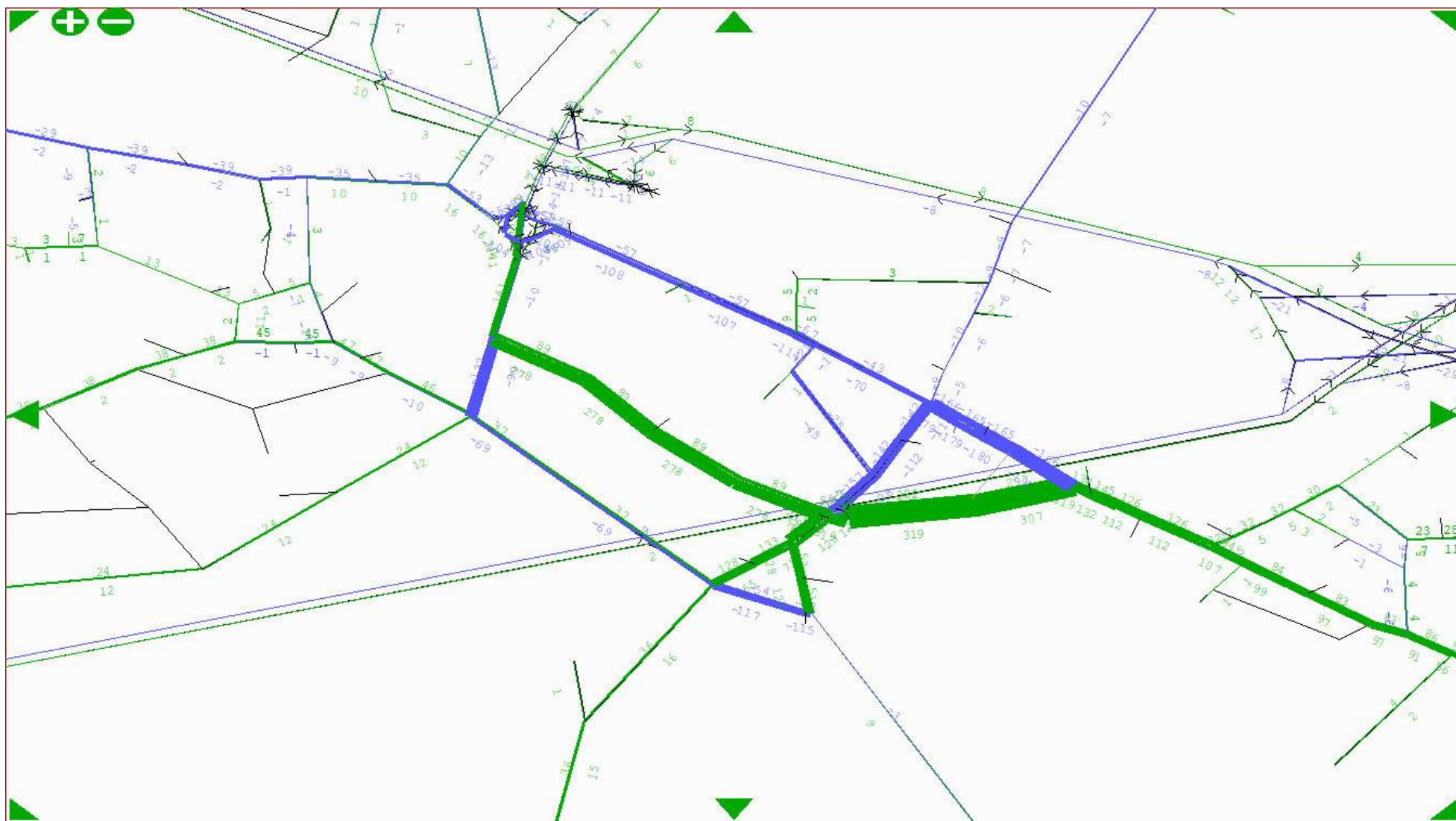


Figure 2: 2019 IP DS1 minus DM flow difference



Figure 3: 2019 PM DS1 minus DM flow difference

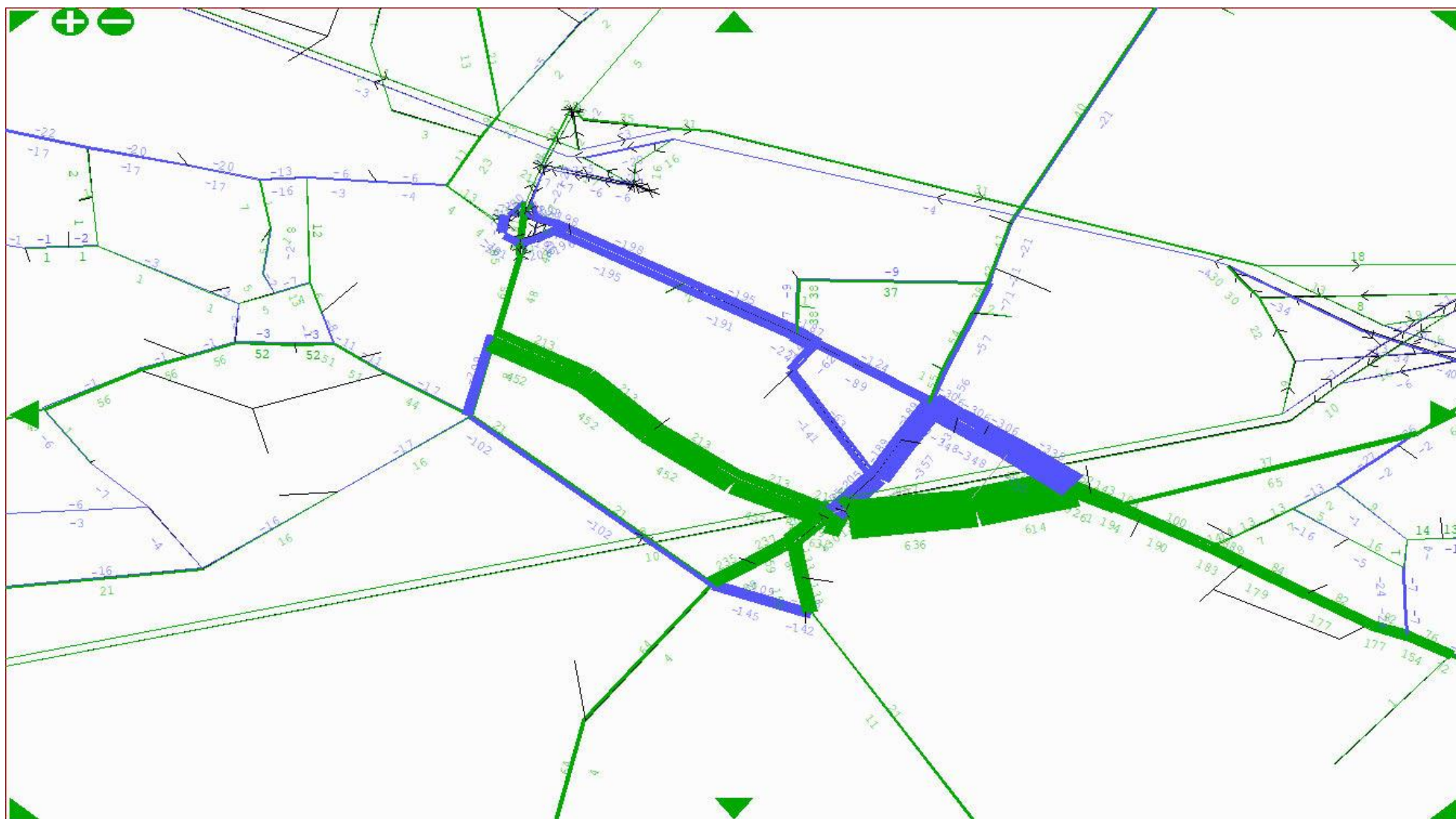


Figure 4: 2026 AM DS1 minus DM flow difference



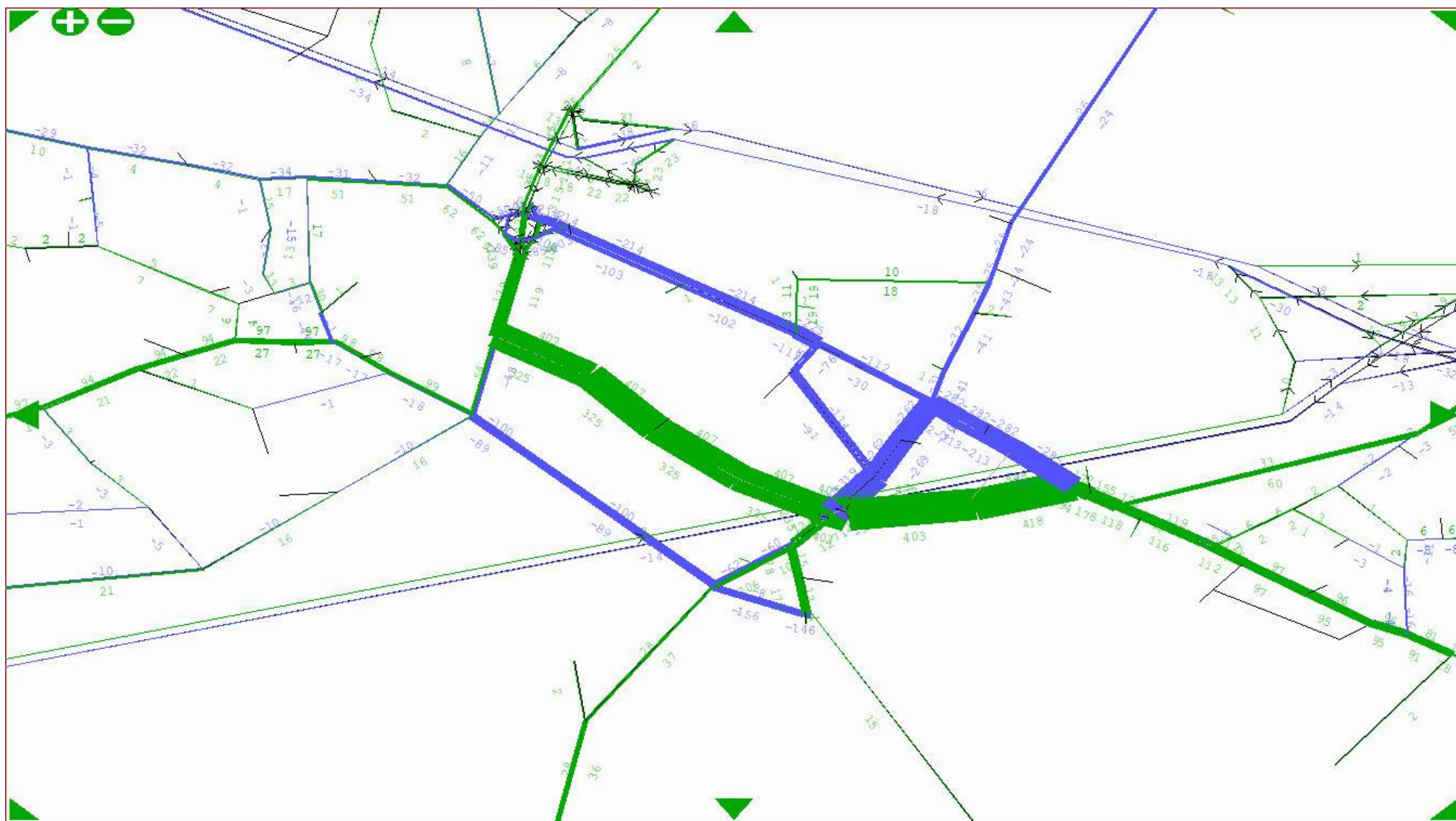


Figure 6: 2026 PM DS1 minus DM flow difference



Figure 7: 2019 AM DS1 minus DM delay difference

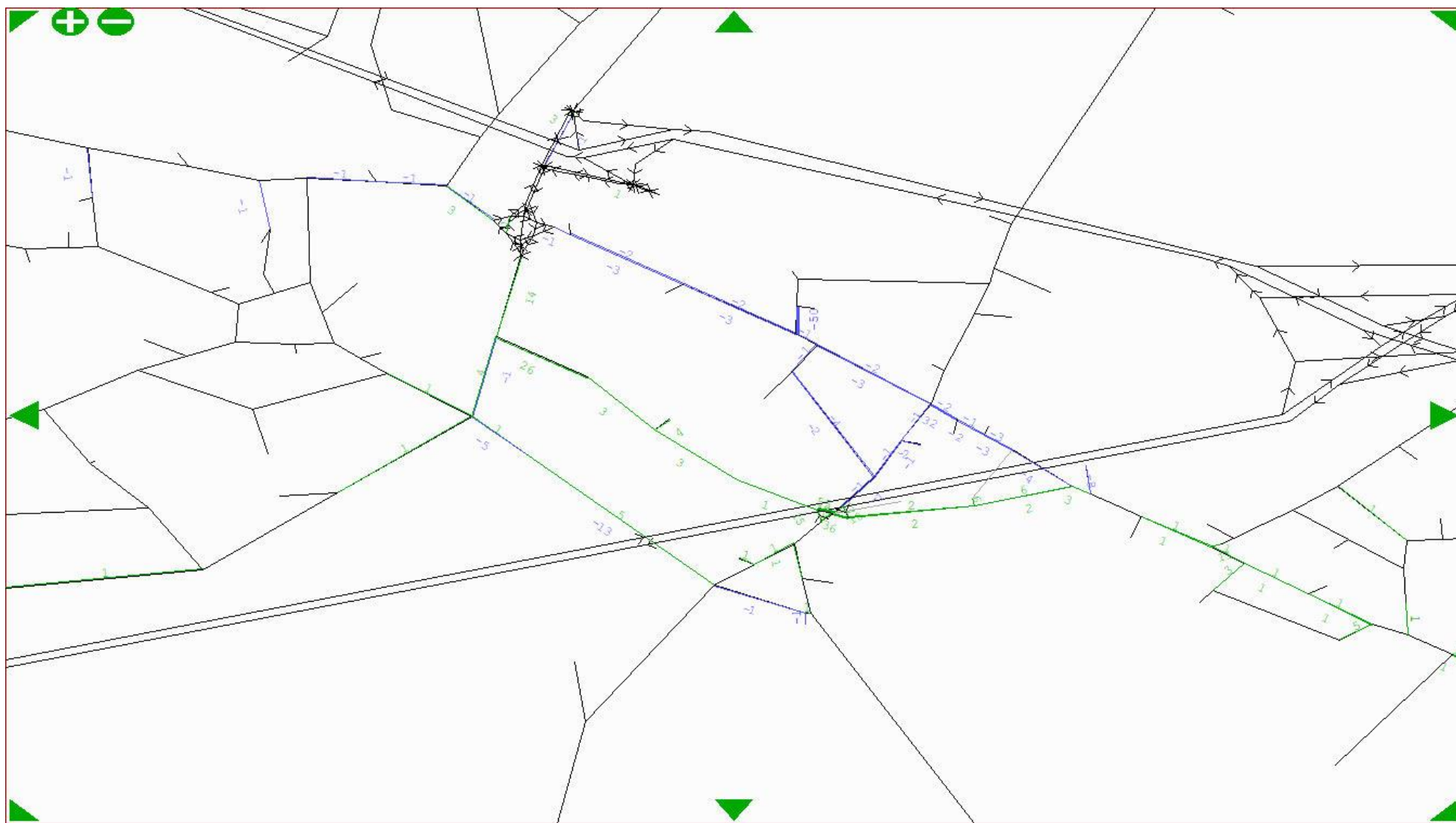


Figure 8: 2019 IP DS1 minus DM delay difference

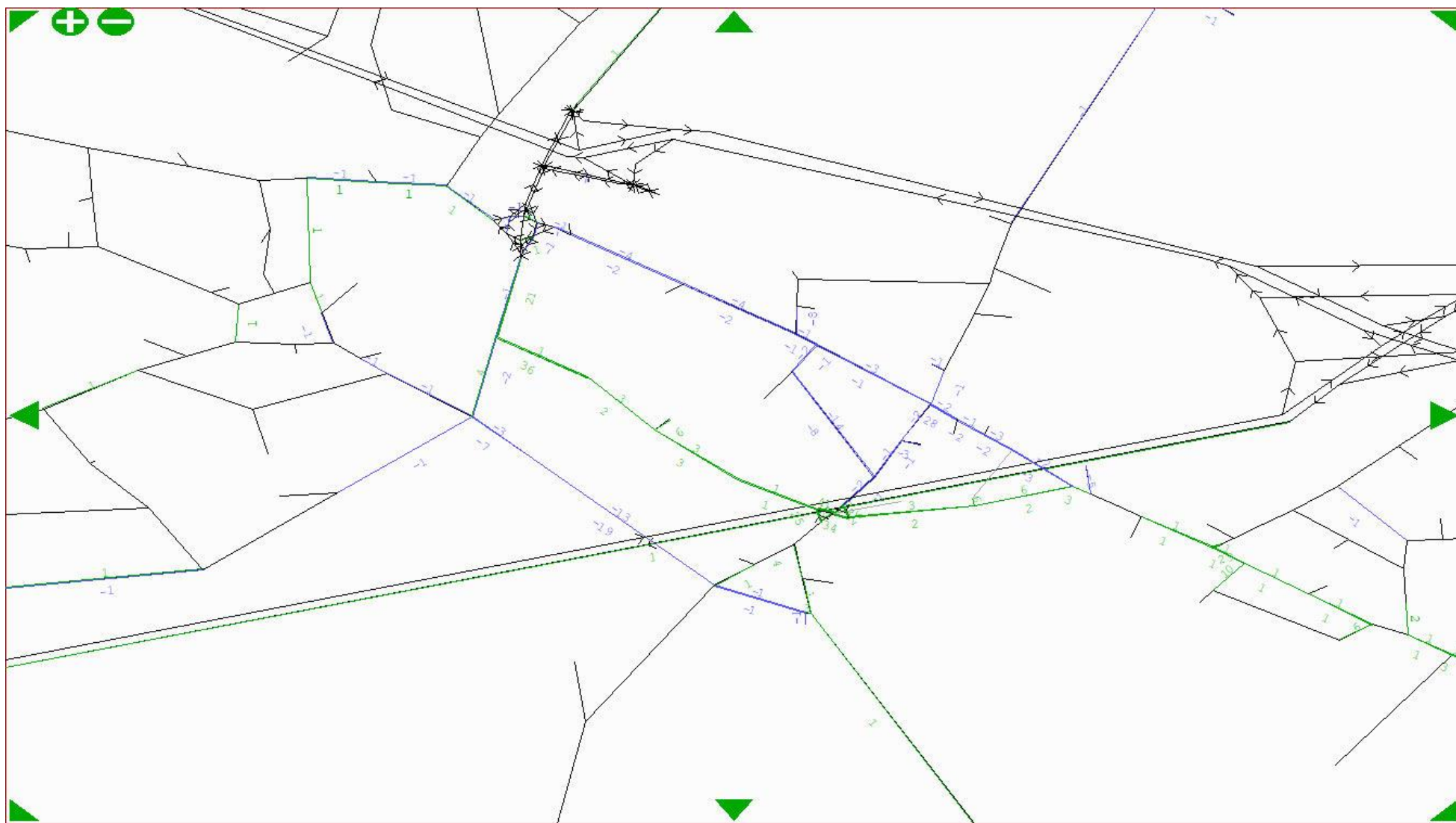


Figure 9: 2019 PM DS1 minus DM delay difference

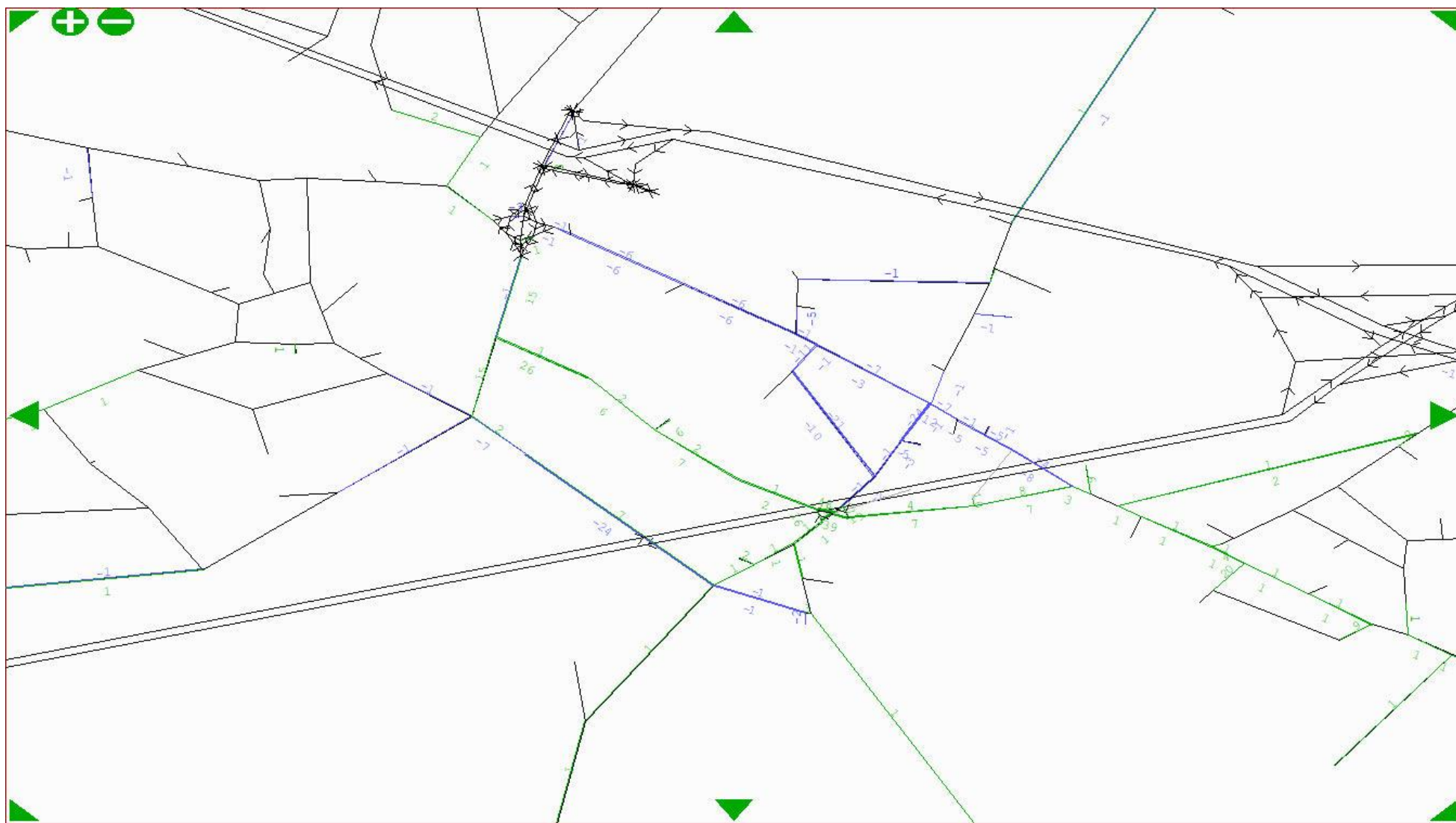


Figure 10: 2026 AM DS1 minus DM delay difference

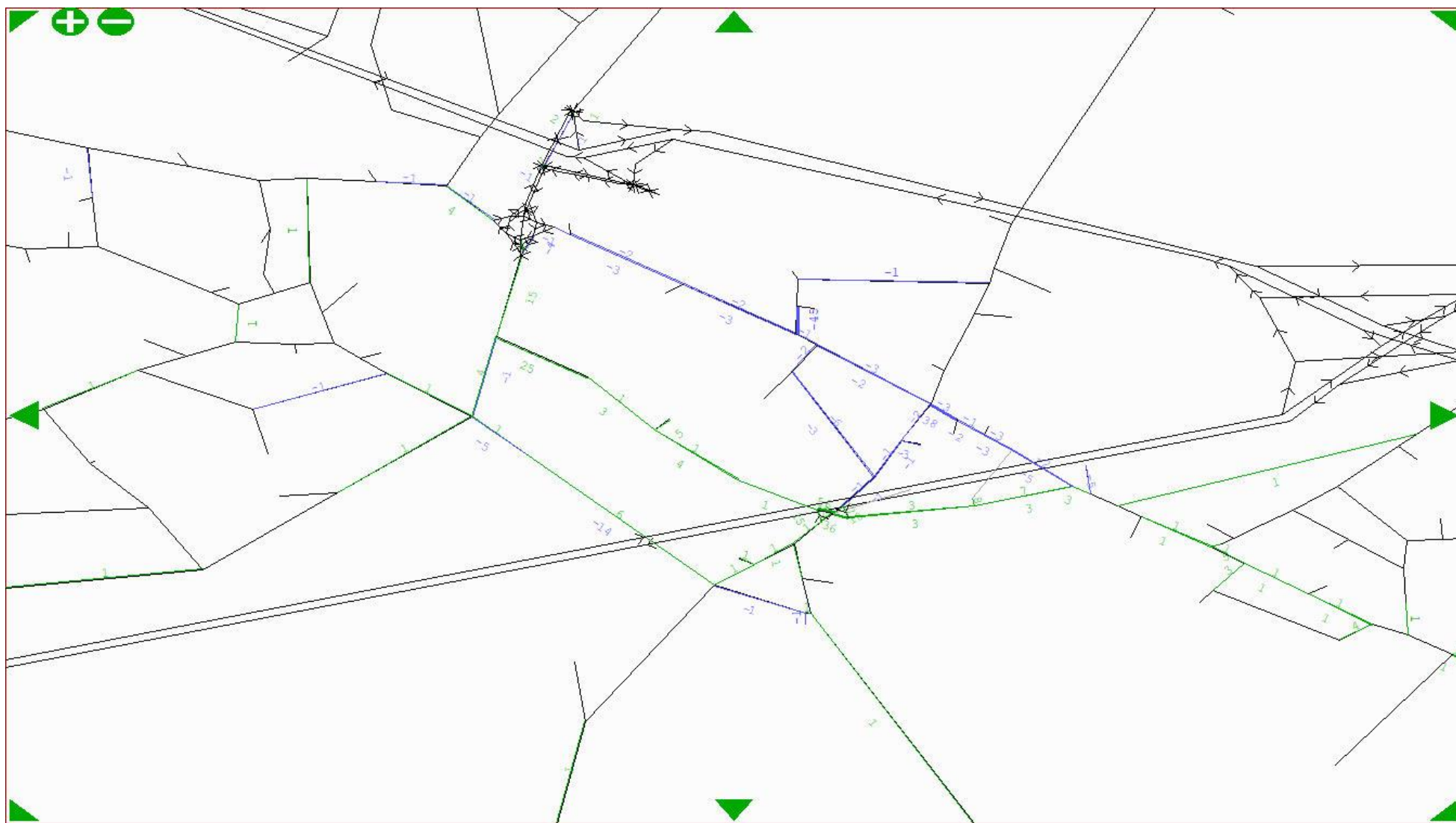


Figure 11: 2026 IP DS1 minus DM delay difference

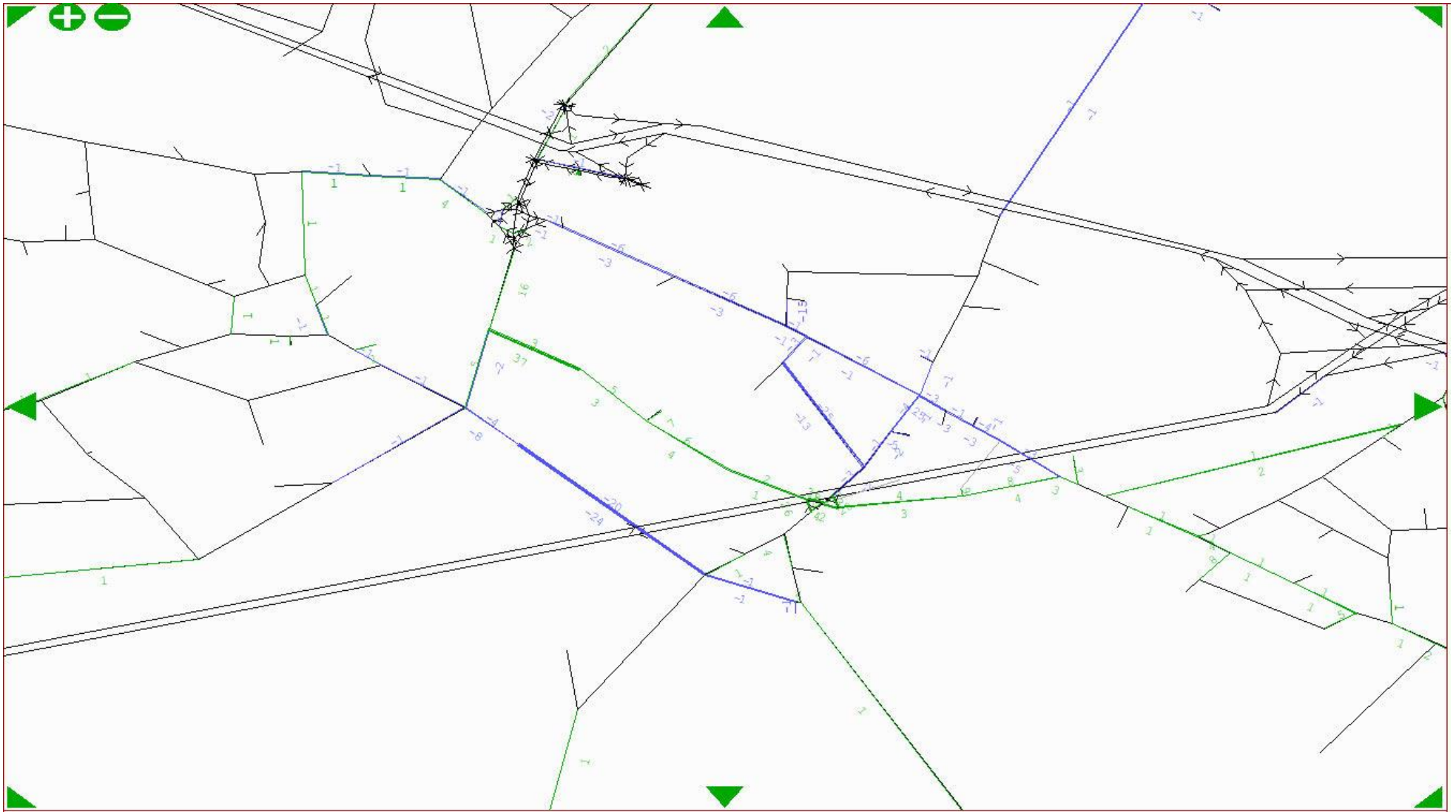


Figure 12: 2026 PM DS1 minus DM delay difference

3 SUMMARY

- 3.1.1. The flow and delay differences between WSTM3 forecast models with and without Winnersh Relief Road have been compared to understand the impact of the scheme.
- 3.1.2. The results show that traffic transfers onto Winnersh Relief Road from surrounding roads including the A329 Reading Road and Mill Lane. Whilst there are some increases in delay experienced along Winnersh Relief Road due to the high volumes of traffic utilising the scheme, there are reductions in the delay experienced along the A329 Reading Road and local roads in the vicinity of the scheme.
- 3.1.3. The results confirm that:
- The full length of the WRR (Phase 1, Phase 2 and Lower Earley Way dualling) is being used by traffic
 - Benefits are attributed to local roads such as A329 Reading Road and Mill Lane
 - Location of the delays has changed as a result of the scheme and re-routing has therefore taken place

Appendix B

COBALT SUMMARY OUTPUT



COBALT OUTPUT Scenario 1: Do Something 1 (without Hatch Farm Dairies) vs Do Minimum

[Section 1] Summary Statistics

[Section 1.1] Economic Summary

Total Without-Scheme Accident Costs = 300,424.9

Total With-Scheme Accident Costs = 297,378.2

Total Accident Benefits Saved by Scheme = 3,046.7

[Section 1.2] Accident Summary

Total Without-Scheme Accidents = 6,460.9

Total With-Scheme Accidents = 6,391.5

Total Accidents Saved by Scheme = 69.3

[Section 1.3] Casualty Summary

Total Without-Scheme Casualties (Fatal) = 66.4

(Serious) = 821.4

(Slight) = 8,042.0

Total With-Scheme Casualties (Fatal) = 66.0

(Serious) = 812.5

(Slight) = 7,961.6

Total Casualties Saved by Scheme (Fatal) = 0.5

(Serious) = 9.0

(Slight) = 80.4

COBALT OUTPUT Scenario 2: Do Something 2 (with Hatch Farm Dairies) vs Do Something 1 (without Hatch Farm Dairies)

[Section 1] Summary Statistics

[Section 1.1] Economic Summary

Total Without-Scheme Accident Costs = 297,446.8

Total With-Scheme Accident Costs = 298,478.1

Total Accident Benefits Saved by Scheme = -1,031.3

[Section 1.2] Accident Summary

Total Without-Scheme Accidents = 6,393.4

Total With-Scheme Accidents = 6,417.0

Total Accidents Saved by Scheme = -23.7

[Section 1.3] Casualty Summary

Total Without-Scheme Casualties (Fatal) = 66.0

(Serious) = 812.7

(Slight) = 7,963.4

Total With-Scheme Casualties (Fatal) = 66.1

(Serious) = 815.7

(Slight) = 7,991.5

Total Casualties Saved by Scheme (Fatal) = -0.2

(Serious) = -3.0

(Slight) = -28.1

Appendix C



APPRAISAL SUMMARY TABLE

Appraisal Summary Table				Date produced:			2112018		Contact:	
Name of scheme:		Winnersh Business Case							Name	
Description of scheme:		Winnersh Relief Road will connect the B3270 Lower Earley Way to the A329 Reading Road in Winnersh, Wokingham							Organisation	WSP
									Role	Promoter/Official
Impacts		Summary of key impacts			Assessment					
					Quantitative		Qualitative	Monetary £(NPV)	Distributional 7-pt scale/ vulnerable grp	
Economy	Business users & transport providers				Value of journey time changes(£)		£8.97	£12.58		
					Net journey time changes (£)					
		0 to 2min		2 to 5min	> 5min					
		£11.68		£1.48	-£0.58					
	Reliability impact on Business users									
	Regeneration									
	Wider Impacts									
Environmental	Noise	During construction the majority of residential dwellings are expected to experience change in noise levels, with the split between positive and negative being almost equal. A further 145 dwellings are predicted to experience a negligible change in noise level. Furthermore 154 dwellings are predicted to experience a minor increase in noise levels					Negligible			
	Air Quality	Concentrations OF NOx, No2 and PM10 are predicted to meet statutory objectives with and without the Proposed Development. Exceedances above the UK Air Quality Strategy Objective are predicted in 2019 for several receptors in Wokingham and are all within the Wokingham Air Quality Management Area. The Proposed Development would cause both increases and decreases in pollutant concentrations and by there will be a further reduction in pollutant concentrations					Negligible			
	Greenhouse gases	A decrease in greenhouse gas emissions is anticipated due to proposed road and junction improvement which are expected to alleviate congestion. However, the potential for increase in greenhouse gas emissions as a result of increased speeds where vehicles are operating at a lower fuel efficiency.			Change in non-traded carbon over 60y (CO2e)			Negligible		
					Change in traded carbon over 60y (CO2e)					
	Landscape	During construction, the Proposed Development is not anticipated to have an impact on topography of the Site. Effects to the Site fabric are expected due to removal of existing vegetation, tree and features from the existing landscape. The Wokingham - Winnersh Settled and Farmed Clay Landscape Character Area is likely to be affected by the Proposed Development as construction activities would be visible from areas if the LCA immediately surround the Proposed Development. Effects to nine visual receptors during construction are also anticipated. Operation of the Proposed Development is unlikely to effect topography of the Site, however adverse effects to the Site Fabric are expected. Five out of nine visual receptors are likely to experience some level of visual effect resulting from the operational Proposed Development.					Slight Adverse - Negligible			
	Townscape	Not Applicable								
	Historic Environment	There is the potential for Iron Age and Roman archaeological remains to be present beneath the Proposed Development. Main impacts would arise during any soil stripping ahead of construction activities. It is suggested this risk can be managed through an archaeological watching brief or written scheme of investigation. Built heritage was concluded to not be a constraint to the Proposed Development, however areas					Negligible			
	Biodiversity	A range of ecological constraints have been identified including the Loddon Bridge/Lower Earley Community Woodland Local Wildlife Site, habitats of ecological value, invasive non-native plant species and several protected species. Effects to designated sites could include habitat loss to the Loddon Bridge/Lower Earley Community Woodland LWS and potential pollution during construction to the river Loddon. Invasive non-native plant species including Himalayan Balsam, Japanese Knotweed and Snowberry were all identified on or surrounding the Proposed Development. No effects to badgers or other mammals are anticipated during construction or operation of the Proposed Development. Some trees with roosting bat potential are likely to be affected by the Proposed Development as well as foraging and commuting habitat for bats. Clearance of habitat used by birds for breeding will be required prior to construction of the Proposed Development. Effects can be avoided as long as vegetation clearance is outside the breeding bird season. Effects to great crested newts, reptiles and invertebrates have been assessed and considered unlikely apart from reducing habitat					Negligible			
	Water Environment	Risk of flooding is considered low due to low peak flood depths surrounding the Proposed Development and no incidents of flooding within the Proposed Development. The assessments concluded that the risk of the Proposed Development exacerbating flood risk from coastal and tidal habitat, fluvial, sewers and artificial sources is negligible, whilst the risk of the Proposed Development exacerbating flood risk from pluvial and groundwater sources, accounting for mitigation measures is low. The Proposed Development is therefore considered to comply with requirements of the National Planning Policy Framework (NPPF) and Pollution Prevention Guidelines to diminish the increased flood risk either to or from the Proposed Development.					Negligible			
	Social	Commuting and Other users				Value of journey time changes(£)		£22.34	£22.00	
					Net journey time changes (£)					
		0 to 2min		2 to 5min	> 5min					
		£24.09		£1.07	-£3.16					
Reliability impact on Commuting and Other users										
Physical activity										
Journey quality										
Accidents		Accident benefits. Accidents on exisisting roads are expected to be reduced through diversion of traffic to the WRR			Estimated using COBALT			£3.05		
Security										
Access to services										
Affordability										
Severance										
	Option and non-use values									
Public Account	Cost to Broad Transport Budget							£13.40		
	Indirect Tax Revenues							£9.87		