

Wantage & Grove Station

Statement of Opinion - Report

Oxfordshire County Council

Vale of White Horse District Council



August 2018

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EXECUTIVE SUMMARY

1. Oxfordshire County Council (OCC) and Vale of White Horse District Council (VoWHDC) wish to develop the case for a new railway station providing access to the National Rail network for the growing populations of Wantage, Grove and Swindon. Swindon is included given its major growth at the Eastern Villages, being the largest Sustainable Urban Extension (SUE) in England at 8,000 homes.

STRATEGIC CONTEXT

2. According to OCC's Research and Intelligence Unit, Oxfordshire's population in 2017 was 687,700 people, 129,261 of which lived in Vale of White Horse.
3. The county's population is expected to grow by 27% to around 876,314 by 2031 and will continue to grow by 39% to 954,625 by 2040.
4. In Wantage and Grove there are plans for approximately 5,300 new homes, including strategic site allocations for 4,885 new homes at Grove Airfield, Crab Hill and Monks Farm, to be built to help accommodate this growth before 2031. An additional site allocation is being proposed at North West Grove for 400 new homes.
5. Wantage and Grove are within one of the key growth areas set out in the Oxfordshire Strategic Economic Plan – Science Vale. The area is attracting significant investment from the Oxford and Oxfordshire City Deal with internationally significant sites at Harwell Campus and Milton Park. It is located at the southern end of the Oxfordshire 'Knowledge Spine', which is a significant growth corridor and one of the most important in the Golden Triangle (London-Cambridge-Oxford).
6. The Vale of White Horse District Council Local Plan 2031: Part 1 was adopted in December 2016 and focuses on 4 key challenges and opportunities; building healthy and sustainable communities, economic prosperity, sustainable transport and accessibility, and protecting the environment and responding to climate change.
7. The Oxfordshire Infrastructure Strategy identifies Wantage and Grove station as important regional and countywide infrastructure in support of planned growth.

THE CASE FOR WANTAGE & GROVE STATION

8. A new station could function both as a local access point to the National Rail network for residents and businesses in Wantage, Grove and the surrounding area, and have a significantly wider and dual role as a 'parkway' for South East Vale and the A420 corridor.
9. The strategic benefits of a new station could include wider regional connectivity, better labour market access for employers, relief of pressure on highway access to Oxford, Didcot and Swindon, and enable capacity for rail passenger growth.

THE TRAIN SERVICE

10. The availability of a train service is the key determining factor in the feasibility of Wantage & Grove station rather than demand, strategic case and engineering feasibility.
11. The position of the station on the Great Western Main Line (GWML) is the most challenging rather than facilitating factor in creating a suitable train service.

12. This is because the ‘once in a generation’ GWML electrification, new train fleet, re-signalling and faster, more frequent train service does not currently allow for new stations.
13. Unsurprisingly the Department for Transport (DfT), Network Rail and train operator Great Western Railway (GWR) are cautious about any schemes that would compromise the very benefits GWML electrification is set to deliver.
14. Promoters of Wantage & Grove Station (and similar GWML new station aspirations at Royal Wootton Bassett and Corsham in Wiltshire) must therefore develop new train services which demonstrably perform without impacting upon GWML electrification benefits.
15. Achieving such services, supported and signed off by the rail industry is lengthy and costly, requiring a level of joint development and investment at risk by a partnership of local authorities and Local Enterprise Partnerships, in this case Oxfordshire Local Enterprise Partnership (OxLEP), Oxfordshire County Council, Vale of White Horse District Council, South Oxfordshire District Council, Swindon Wiltshire Local Enterprise Partnership (SWLEP), Wiltshire Council, Swindon Borough Council and possibly the West of England Combined Authority. It will require a sharing of the workload and resources across all these organisations.
16. The most promising approach may be to seek to include one or all of these stations within a DfT-franchised western extension of future East West Rail (EWR) services, both adding value to the DfT’s investment and avoiding the new stations having to fully support the cost of the new service.
17. In recognising the primacy of the GWML Bristol and South Wales to Paddington services, such a proposed service could be titled ‘GWML 2 Timetable’ for ongoing engagement purposes

THE INDICATIVE BUSINESS CASE

18. The indicative Business Case for Wantage & Grove was tested by comparing demand for 1 train per hour (tph) and 2tph Oxford to Bristol services with and without an East West Rail extension. This business case was also based on the outline capital costs for station delivery of £18.23 million (Site C, as set out in section 5.4.4).
19. The base service, 1tph Oxford to Bristol, would generate a demand of over 1 million trips per annum, c. 1,607 return passengers per day, of which 86%, 913,853, or 1,422 return passengers per day, will be ‘new to rail’. This is in line with the levels of demand at stations such as Warwick Parkway and Oxford Parkway.
20. **Wantage & Grove could be viable with a Benefit Cost Ratio (BCR) of 2.48** for 1tph Bristol to Oxford – i.e. a return of £2.48 for each £1 expended on the scheme. This is “high value for money” within the Department for Transport’s Value for Money Assessment: Advice Note for Local Transport Decision Makers (DfT 2013). Increasing the frequency to 2tph does not necessarily increase the business case as the additional moderate increase in revenue does not cover the significant increase in operational costs.
21. Indicative work undertaken for Oxfordshire County Council in Spring 2017 by SLC Rail and Systra indicated an additional £50.95m Gross Value Added to the economy between Bristol and Cambridge per annum and 1,070 new jobs generated by 1 train per hour between Bristol, Oxford and Cambridge. In considering and supporting the specific case for Wantage and Grove Station this wider economic value warrants further development.

STATION SITE SELECTION & COST

22. In April 2017 representatives of SLC Rail, Fereday Pollard Architects, OCC and VoWHDC visited six potential sites for the new Wantage & Grove Station. A site evaluation workshop was held in early June. A further site visit and teleconference took place in early 2018 to explore a seventh potential site at the request of Vale of White Horse District Council.
23. Each site was evaluated in regard to its location and connectivity to the road network, cycle/footpaths and bus links, and availability for the station, car parking and access, planning and ecological constraints. The interface with the current railway and the need to minimise intervention would be key to making this a cost-effective proposition
24. The results of the workshop showed Site C Bradfield and Site F Denchworth Road to be carried forward for further option selection and were subsequently safeguarded in the Publication Version of the Vale of White Horse Local Plan 2031 Part 2. General arrangement drawings of these options are to be found in Appendix C of this report.
25. An indicative station capital cost estimate has been carried out for a station of this specification, with a prospective budget amount of between £16-18m. This is subject to final site selection and full requirements to be defined, including purchase of the land required.

CONCLUSIONS AND NEXT STEPS

26. Developing the detailed case for Wantage & Grove Station within the principles of Network Rail's 'Governance of Railway Investment Projects' (GRIP) process will require: -
 - An evidenced, deliverable and affordable train service;
 - Full economic and financial Business Cases;
 - Engineering assessment of the scope and cost of the station;
 - Innovative funding models;
 - Engagement with the Department for Transport, Network Rail, Great Western Railway, together with neighbouring LEPs and local authorities.

Achieving such evidence will require significant investment via a united, ambitious, determined promoter and stakeholder partnership. This report provides a solid foundation for taking this more detailed work forward.

SLC Rail
Birmingham

August 2018

1 INTRODUCTION

1.1 CONTEXT

Oxfordshire County Council (OCC) and Vale of White Horse District Council (VoWHDC) wish to develop the case for a new railway station capable of providing access to the National Rail network for the growing populations of Wantage and Grove.

This aspiration reflects: -

- The growing population, economic value and attractiveness of southern Oxfordshire and the 'Science Vale' region, including the expansion of Wantage and Grove;
- The area's location which makes it commutable to Oxford, Didcot and Swindon;
- Growing issues related to congestion along the A420, A338, A417 and the area's smaller rural road network;
- The extensive growth of eastern Swindon, including its Sustainable Urban Extension, adjacent to the western extent of the Vale of White Horse District.

1.2 HISTORY

Wantage Road Station was opened as 'Faringdon Road Station' by the original Great Western Railway (1835-1948) in 1846, 63 miles and 36 chains from Paddington, between Didcot and Swindon, and remained in use until 1964.

The former station is within the current 4-track section between Wantage Road and Challow (60m 22c to 64m 00c), situated on the A338 Oxford to Wantage road, and is within the Vale of White Horse District Council area of Oxfordshire.

The station's original markets – along with those at Shrivenham, Challow and Steventon - were the small rural, agricultural communities of the Vale of the White Horse, and it is unsurprising that these stations closed in 1964 following the Beeching Report. OCC's aspiration for a new station serving Wantage & Grove has been long-standing, going back to 1979, although it was the introduction of a new train service between Bicester Town (now Bicester Village), Oxford and Bristol Temple Meads in 1998 that was the catalyst for a more detailed assessment. When the train service was withdrawn in 2003 the decision was made to safeguard a site by means of an outline planning application, as referenced back to studies by Faber Maunsell and Halcrow (subsequently known as CH2M Hill and now Jacobs) in the 2000s. Outline planning consent was granted in 2008 but has since expired and the site identified is no longer available.

1.3 THE COMMISSION

SLC Rail was commissioned to undertake an initial assessment of the feasibility of a new station at Wantage and Grove, including: -

- Indicative Demand Forecast and Business Case;
- Site Assessment and Prioritisation;
- Indicative Drawings and Visualisations; and
- Capital Costs.

This report is set out as follows: -

An **EXECUTIVE SUMMARY STATEMENT OF OPINION** is set out at the beginning of the report.

CHAPTER 2 describes the development context within Oxfordshire

CHAPTER 3 considers the range of train service options for Wantage & Grove station, and the challenges in doing so. **This is perhaps the most central element in assessing the case for the station.**

CHAPTER 4 considers initial demand forecast data

CHAPTER 5 discusses the various site location options

CHAPTER 6 summarises the capital cost estimates for the station

CHAPTER 7 sets out SLC Rail's indicative opinion on the concept, together with suggested 'Next Steps' that Oxfordshire County Council and Vale of White Horse District Council may wish to consider to progress the scheme further.

APPENDIX A Systra's indicative demand forecast and business case report

APPENDIX B Estimated Capital Cost Breakdown

APPENDIX C The potential layout and design of the station

1.4 STATUS OF THIS REPORT WITHIN RAIL INDUSTRY PROJECT DEVELOPMENT

New station projects, whether developed by the rail industry or Third Parties, require development within Network Rail's 8-stage 'Governance for Railway Investment Projects' process, (GRIP).

Wantage & Grove Station has not yet been developed within the GRIP process. This Opinion Statement represents *preparation for the scheme to be taken to GRIP Stages 1 and 2* where it will need to be demonstrated that the following 2 key questions can be answered positively: -

- GRIP 1 - What are the expected outputs of this scheme - what is meant to do?
- GRIP 2 – is this scheme feasible – e.g. commercially, engineering, operations?

The 8 stage GRIP process is summarised as follows:

GRIP 1	Output Definition
GRIP 2	Pre-Feasibility
GRIP 3	Option Selection
GRIP 4	Single Option Development
GRIP 5	Detailed Design
GRIP 6	Construction, test and commission
GRIP 7	Scheme hand-back
GRIP 8	Project close-out

2 DEVELOPMENT CONTEXT

The proposal for a new station serving Wantage and Grove aligns with the wider ambitions for growth within Oxfordshire and specifically the Vale of White Horse District. The neighbouring District of South Oxfordshire, within which the town of Didcot and Didcot Parkway station are located, also has a number of proposals to manage the expected growth in both housing and employment over the next 15 years, all of which highlight the importance of improved connectivity and the requirement to increase public transport access in a region that is largely rural. This growth is highlighted in the following sections.

2.1 ECONOMIC DEVELOPMENT: OXFORDSHIRE STRATEGIC ECONOMIC PLAN 2016

The Oxfordshire Local Enterprise Partnership (OxLEP) is responsible for championing and developing the Oxfordshire economy, and has a vision for Oxfordshire as “a vibrant, sustainable, inclusive, world leading economy, driven by innovation, enterprise and research excellence”.

OxLEP has recently refreshed its 2014 Strategic Economic Plan (SEP) and the new document “Creating the Environment for Growth: Strategic Economic Plan for Oxfordshire 2016” is written as an “economic route map” to support the economic performance, potential and prospects of Oxfordshire through sustainability and inclusivity. The SEP highlights two main challenges – the need for more affordable housing, and the need to tackle road congestion.

The SEP has four inter-related and inter-dependent priorities which are based around people, place, enterprise and connectivity. The key headlines are:

- Oxfordshire is a very attractive place to live and work, with a high quality built environment – particularly in central Oxford and some of the market towns and villages – and areas of natural environment of high quality including the Oxford Green Belt and Areas of Outstanding Natural Beauty in the North Wessex Downs and Chilterns;
- Oxfordshire has internationally significant cultural and heritage assets, making it a tourism and cultural hotspot;
- There is a highly qualified workforce with globally leading science, research and technology firms attracting the best talent to Oxfordshire;
- A large student population provides recruitment opportunities for local firms;
- Housing in Oxfordshire is among the most expensive and least affordable in the country, with house prices across the county 51% above the national average and 13% above average for the South East;
- The rate of new housebuilding remains well below the annual completion rate of 5,000 homes needed to meet the 20-year housing target of 100,000 new homes by 2031;
- Vacancies are hard to fill in vital public-sector jobs (teachers, nurses, police etc) and lower paid jobs, resulting in long distance commuting from lower cost areas which creates more congestion on key transport routes;
- Retention problems in the young adult age groups due to the high cost of living in Oxfordshire;
- A declining working age population means labour supply is likely to get worse;
- Employers are struggling to recruit the people they need with the skills that they require against a backdrop of close to full employment - the unemployment rate is just 0.6%, compared to 1.8% for Great Britain;

- Road congestion remains a significant issue, despite targeted investment at some pinch-points on the strategic network. Oxford suffers from serious traffic congestion, which is forecast to get worse, and this will affect the journey time and reliability of bus travel making it less appealing to attract more users;
- There has been significant improvement in rail, but with more investment needed to enhance capacity and reliability;
- Bus travel is amongst the country's most modern and innovative (e.g. in terms of payment);
- Active & Healthy Travel is a growing area of importance.

The SEP envisages growth in Oxfordshire as a whole of an additional 85,600 jobs between 2011 and 2031 and approximately 100,000 new homes, based on the adopted and emerging Local Plans.

The main locations for housing and employment growth will be within the Oxfordshire Knowledge Spine - stretching from Bicester in the north through Oxford to Science Vale in the south (including the major employment areas and centres of science at Harwell, Milton Park and Culham, and the growing towns of Didcot, Grove and Wantage). OxLEP also encourages and supports projects in the market towns and rural areas by ensuring they are well connected to the Knowledge Spine, so that the benefits of economic growth are accessible to all. This spatial focus is reflected in the adopted and emerging Local Plans within Oxfordshire.

2.2 SCIENCE VALE UK

Science Vale is the UK's leading centre for science, technology and innovation, and straddles the border of the Vale of White Horse and South Oxfordshire. It has the highest concentration of science research facilities and development activity in Western Europe, making it one of the most successful science clusters in the UK.

The research and development activity is primarily located within the three centres for science, at Harwell Oxford, Milton Park and Culham Science Centre, and includes some facilities unique to the UK. They are supported by a number of important settlements including Didcot, Wantage and Grove, and an array of businesses that complement and support the 'big science', such as the Williams F1 headquarters at Grove - a focus for innovation in the transport and motor racing industry. In summary, key growth plans for Science Vale include:

- Two enterprise zones: Science Vale Oxford and Didcot Growth Accelerator. In total they amount to 216 hectares of development land spread across seven locations;
- 20,000 new jobs by 2031;
- 15,000 new homes by 2031, mostly in Didcot, Wantage and Grove;

The transport priority for Science Vale is to improve access to the Enterprise Zone sites for local, national and international travel by, amongst other things, improving access to the national rail network, having better connectivity with Oxford's universities and the centres of innovation and improving east-west journeys across the Science Vale area.

2.3 SPATIAL PLANNING: VALE OF WHITE HORSE LOCAL PLAN 2031

The Vale of White Horse Local Plan 2031 Part 1: Strategic Sites and Policies was adopted in December 2016 and provides the policy framework for the delivery of sustainable development across the district up to 2031. The Local Plan 2031 identifies a number of key challenges and opportunities:

- Building healthy and sustainable communities;
- Economic prosperity;
- Sustainable transport and accessibility;
- Protecting the environment and responding to climate change.

The South East Vale Sub-Area Strategy covers much of the Science Vale area including Wantage and Grove, and a number of significant employment sites, including Harwell Oxford, Milton Park and the recently decommissioned Didcot A Power Station site..

It includes strategic site allocations in Wantage and Grove for 4,885 new homes at Grove Airfield, Crab Hill and Monks Farm, with other sites identified in Faringdon and Kingston Bagpuize with Southmoor. Additional growth is also expected to happen at smaller 'windfall' sites. There are plans for around 5,300 new homes in total. Local Plan 2031 Part 2: Detailed Policies and Additional Sites proposes an additional site allocation at North West Grove for 400 new homes, and notes the site is unlikely to come forward until the end of the plan period, between 2028 and 2031.

Within the South East Vale Sub-Area, Core Policy 19 supports "*Re-opening of Grove Railway Station*" to help increase access to the national rail network within the district. A new station would improve local and regional connectivity and help reduce road congestion. However, none of the sites for new housing identified in the Local Plan are currently required to contribute direct funding towards a new station by either a site-specific Section 106 agreement or the district-wide Community Infrastructure Levy (CIL). However, access to the station for certain site options would be through proposed development and their associated roads. Land is currently proposed to be safeguarded for delivery of the station in the Vale Local Plan 2031 Part 2.

2.4 TRANSPORT: CONNECTING OXFORDSHIRE – LOCAL TRANSPORT PLAN

Connecting Oxfordshire: Local Transport Plan 2015-2031 sets out Oxfordshire County Council's strategy for developing the transport system in Oxfordshire to 2031. It has taken into account the Oxfordshire Strategic Housing Market Assessment which identified a need for around 100,000 new homes and 85,000 new jobs in Oxfordshire up to 2031, and recognises that the transport system in Oxfordshire faces a major challenge to cope with the number of new homes and jobs being planned for the county over the next fifteen years.

Connecting Oxfordshire supports the growth aspirations set out in the Strategic Economic Plan and the aspirations of the England's Economic Heartland strategic alliance to co-ordinate the planning and delivery of major strategic infrastructure. The Plan identifies transport schemes

throughout the Knowledge Spine, and across the whole county, that meet three over-arching transport goals:

- To support jobs and housing growth and economic vitality;
- To reduce emissions, enhance air quality and support the transition to a low carbon economy; and
- To protect and enhance Oxfordshire’s environment and improve quality of life (including public health, safety and individual wellbeing).

These translate into ten objectives that cover areas such as improving transport connections where they support growth, making best use of available capacity, improving reliability and journey times, creating a high-quality integrated transport system, and influencing development to maximise the value of investment in the transport network.

The core policies relevant to Wantage & Grove station are:

- **Policy 1** – “Oxfordshire County Council will work to ensure that the transport network supports sustainable economic and housing growth...”
- **Policy 3** – “Oxfordshire County Council will support measures and innovation that make more efficient use of transport network capacity...”
- **Policy 7** – “Oxfordshire County Council will work with operators and other partners to enhance the network of high quality, integrated public transport services, interchange, and supporting infrastructure.”
- **Policy 9** – “Oxfordshire County Council will work in partnership with the rail industry to seek enhancements to the rail network in Oxfordshire and connections to it, where this supports the county’s objectives for economic growth”

Published alongside the core policy document were a number of supporting strategies, including an Oxfordshire Rail Strategy, a Science Vale Area Transport Strategy and an A420 corridor strategy.

Within the Rail Strategy, chapter 6 outlines potential future projects, including “Grove Station” and the specific LTP outcome is: *“to identify a site for a new station and evaluate the potential demand based on various growth and train service scenarios. Working with Vale of White Horse District Council we will seek to safeguard land within the Local Plan to protect the long-term ambition of a railway station”*.

2.5 INFRASTRUCTURE: OXFORDSHIRE INFRASTRUCTURE STRATEGY (OXIS)

The Oxfordshire Infrastructure Strategy was commissioned by the Oxfordshire Growth Board (a collective of all six local councils and their strategic partners) and looked at the wide range of infrastructure needed to support planned growth in Oxfordshire up to 2040. This included transport infrastructure, social infrastructure (such as education and healthcare), utilities (such as energy, water, telecommunications and waste), flooding and drainage, and the emergency services. The strategy aims to prioritise identified projects based on their deliverability, the scale of growth that each supports and potential funding.

Wantage & Grove station is identified as being regional infrastructure and within that categorisation it has been prioritised 12th out of 15 similar transport projects.

2.6 RAIL INDUSTRY: LONG TERM PLANNING

The Long-Term Planning Process sets out a strategic vision for the rail network for the next 30 years by considering the longer-term capability of the network and providing choices to funders, primarily the government, but increasingly Local Enterprise Partnerships and local authorities, that deliver the capability and capacity required. The LTPP considers planned economic, housing and population growth, government and industry aspirations, and the need to meet passenger and freight demand. It is a key part of the evidence base for future investment in the rail network.

Network Rail developed four market studies in 2013 (regional, long distance and London & South East passenger markets, and the freight market). Each included a long-term view of passenger and freight demand at 2023 and 2043. They established 'conditional outputs' – or ambitions – in terms of journey times, capacity and frequencies for passenger and freight traffic to be accommodated. The conditional outputs relevant to the Thames Valley are:

- Provide sufficient capacity for passengers travelling to Reading to 2043
- Provide sufficient capacity for passengers travelling to London Paddington to 2043
- Provide capacity for growth of all freight commodities to 2043
- Provide better access to Heathrow Airport and HS2 interchange
- Better access to tourist infrastructure and educational establishments
- Improve connectivity with regions other than London

Network Rail's Western Route Study used these conditional outputs to create an indicative train service specification for 2023, 2033 and 2043. It then compared the infrastructure at 2019 ("the baseline"¹) with that needed to operate the indicative train services, identifying where intervention will be required. The affordability and deliverability of each intervention was assessed to inform the choices for funders. The route study gives priority to schemes required during Control Period 6 (CP6, 2019-2024) and also sets out a longer-term investment strategy.

2.7 RAIL INDUSTRY: INVESTMENT

The structure of the rail industry is very complex and although the majority of its component parts are privatised, there is still a high degree of regulation and government control. The Department for Transport (DfT) is responsible for implementing government policy and decisions on investment. It manages and awards rail passenger franchises and specifies the level of service to be provided and the allocation of rolling stock between train companies.

Network Rail is a public-sector company funded by a mix of direct grant from the government (70%), charges levied on train operators that use the network (25%), and income from commercial property (5%). It is responsible for operating, maintaining and renewing Britain's

¹ The "baseline" includes schemes assumed to have been delivered by 2019, including those that had funding committed in Control Period 5 (CP5, 2014-2019), such as Crossrail and East West Rail (Phase 2), and schemes involving significant change to the railway network over the next ten years, such as the Western Rail Link to Heathrow and High Speed 2.

railway. It leads on long-term industry planning, overall performance and also manages capacity utilisation.

Network Rail is transforming into devolved route-level businesses to drive efficiency and enable it to better respond to local customers and communities. Strategic planning will take place at route-level and each route will have its own regulated funding and performance targets.

Investment in the industry occurs on a five-yearly cycle, called Control Periods. In advance of each control period, the government issues a **High Level Output Specification** (HLOS) setting out what it needs the rail industry to achieve within the control period, and how much direct grant is available for investing in the railways.

In response to the HLOS, Network Rail produces a draft business plan identifying the estimated costs of delivering the individual schemes or programmes necessary to meet the HLOS requirements. The Office of Rail and Road (ORR) carries out a 'periodic review' to assess the level of capital expenditure Network Rail requires to deliver the regulated outputs efficiently and effectively. It also assesses the level of revenue required to operate the rail network to determine the charges which Network Rail can levy on train operators. At the end of the review, the Network Rail delivery plan commits them to delivering the regulated outputs to an agreed timescale and budget. This is the 'contract' against which the ORR, as the independent regulator, will monitor delivery and compliance.

There is a very limited amount of funding for discretionary capital spending on other projects during the control period. As part of its route-level devolution, the government is expecting Network Rail to do more to secure financial contributions from third parties for schemes that bring local benefits, and this could apply to Wantage & Grove Station. This may include application of innovative third-party funding models for new stations, including those developed and applied by train operators such as Chiltern Railways, infrastructure investors such as John Laing, and local authorities such as Warwickshire and Worcestershire.

The HLOS for Control Period 6 (CP6: 2019 to 2024) was published in July 2017 with the next set of priorities identified as being:

- Improving the efficiency and productivity of the railway, focused on route-level devolution;
- A major uplift in maintenance and renewals activity to boost reliability and punctuality;
- The safe operation of the railway, through the control of risk, a focus on high priority areas identified by the ORR and safety learning;
- Mitigating national security threats, including terrorism, physical and cyber security;
- Increasing levels of performance and reliability with route-level targets and better resilience to severe weather;
- Improving accessibility of the rail network for all passengers; and
- Delivering capacity for 28,300 passenger arrivals at London Paddington in the morning three hour peak (between 0700 and 0959), including 12,500 in the high peak (between 0800 and 0859) by 2024.

The **Statement of Funds Available** for Control Period 6 (CP6: 2019 to 2024) was published in October 2017 with a direct grant of £34.7 billion; this compares to £18.3 billion in the current control period. Unlike previous control periods, it does not include enhancement funding, as a new funding process is being introduced whereby the government will allocate funds separately for major upgrades and enhancements. The aim being to provide “more rigour in investment decisions” after excessive cost overruns on recent enhancement projects.

We are currently in Control Period 5 (CP5: 2014 to 2019) which includes three projects of relevance to Wantage & Grove Station:

- Electrification of the Great Western Main Line
- InterCity Express Programme – a new fleet of electric trains
- Resignalling of the Great Western Main Line

ELECTRIFICATION

Electrification of the GWML from Maidenhead to Bristol and Cardiff was announced in 2009 and was confirmed by the coalition government in 2011. It was expected to be completed by the end of 2017. The project has been beset with technical challenges, planning difficulties and increasing costs from the outset. Following a review of Network Rail's 2014-2019 capital investment programme² it was confirmed that the main part of the programme would go ahead but with revised completion dates.

Electrification to Cardiff was expected by December 2018; from Didcot to Oxford by June 2019; and from Wootton Bassett to Bristol Temple Meads by April 2020. By November 2016, the decision had been made by government that electrification would instead focus on linking London and the Welsh capital, and it will be indefinitely deferred in four sections of the route:

- Didcot Parkway and Oxford;
- Chippenham and Bristol Temple Meads;
- Bristol Parkway and Bristol Temple Meads ('Filton Bank'); and
- Cardiff and Swansea (although this has now been cancelled completely).

The electrification project includes a number of track and station improvements to enable the new generation of electric InterCity Express Trains to take full advantage of their improved acceleration and overall performance. In order to provide improved clearance for the overhead line equipment and loading gauge, the bridges at Wantage Road (A338) and Hanney's Crossing have recently been rebuilt, and some footpath level crossings have been replaced with footbridges, such as Uffington.

² “Re-planning Network Rail's investment programme: A report from Sir Peter Hendy to the Transport Secretary” (November 2015)

INTERCITY EXPRESS PROGRAMME

The InterCity Express Programme (IEP) provides a new generation of trains, known as InterCity Express Trains (IET), to replace the current 40-year old High Speed Train (HST) fleet, increasing capacity and accessibility.

The new fleet of 57 IETs comprises 21 nine-carriage and 36 five-carriage trainsets and will be used on services between London Paddington, Oxford, Bristol and South Wales. The five-carriage trainsets can be coupled together to form 10-carriage trains at peak times. The nine-carriage trainsets were to be all-electric for use on the electrified GWML, but delays with electrification and uncertainty about its completion caused them to be modified with diesel engines now also fitted. It means the entire fleet is bi-mode, i.e. each train can use either electric or diesel power, enabling them to operate over non-electrified parts of the network. The trains are able to switch between overhead electric power and their on-board diesel engines at high speed.

The first train entered passenger service on 16th October 2017, and they will progressively enter service in readiness for a major timetable change at the end of 2018. This is likely to include some significant journey time reductions and enhanced train frequencies, particularly between London and Bristol.

RESIGNALLING

A major programme of re-signalling is required in the Bristol, Swindon and Oxford areas to replace life-expired equipment and ensure the signalling is AC-immune in readiness for electrification. This will see old electro-mechanical relays replaced with 21st century solid-state equipment and control of these areas moved to the Thames Valley Signalling Centre at Didcot. The new signalling supports the phased introduction of ETCS (European Train Control System) which will do away with trackside signals in favour of in-cab signalling. This will help increase capacity in the future.

3 TRAIN SERVICE OPTIONS

The key factor in determining the feasibility of a new station to serve Wantage & Grove is train service availability rather than market demand, strategic case or engineering. Being located on the Great Western Main Line (GWML) is, in this case, a major challenge as much as an asset.

This is because the major projects to electrify the GWML, re-signal, and introduce a new train fleet that will provide faster and more frequent Paddington-Bristol services does not currently include the impact of new stations within the timetable structure. Unsurprisingly the Department for Transport (DfT), Network Rail and train operator GWR are cautious about any schemes that may compromise the core benefits these major projects aim to deliver. A priority for further work in support of a new station will be to define the train service and validate its operation and impact on the network.

3.1 PREVIOUS TRAIN SERVICE

Between 1999 and 2003 Thames Trains operated a service between Bicester Town (now Bicester Village), Oxford and Bristol Temple Meads via Bath Spa using 3-coach 90mph trains. This was withdrawn at the request of the then Strategic Rail Authority given its perceived impact – historic and potential - upon performance of the network. However, its short existence stimulated demand from commuters and tourists alike and ignited local authority interest in new stations such as Wantage & Grove and Corsham (Wiltshire) which could not easily be served by Paddington-Bristol and South Wales trains without significant journey time impact, and at the core of any decision making about such stations is the feasible train service to support them as much as the markets for travel.

3.2 EXISTING TRAIN SERVICES

The passenger services passing the station site in 2017 are GWR's 2 trains per hour between Paddington and South Wales and 2 trains per hour between Paddington and Bristol. There is a train every two hours between Paddington and Cheltenham Spa. They are currently operated by 125mph High Speed Trains (or HSTs) which are now being phased out and replaced by new InterCity Express Trains.

Additionally, there are freight trains, with a timetabled 1 train per hour. It is worth noting that many of these trains only operate 'as required', and the majority of freight trains make use of the passing loop between Challow and Wantage Road to allow faster passenger trains to overtake.

3.3 PLANNED EXTRA TRAIN SERVICES

Following completion of GWML electrification and the introduction of electric InterCity Express Trains (IETs), it is planned to increase passenger services passing the station site by 3 trains per hour from December 2018. There will be 2 trains per hour between Paddington and South Wales, 4 trains per hour between Paddington and Bristol (2tph via Bath Spa and 2tph via Bristol Parkway) and 1 train per hour between Paddington and Cheltenham Spa. A peak time service between Swindon/Didcot and Paddington will also operate on weekdays.

In the longer term, Network Rail's Western Route Study suggests there will be further increases in both passenger and freight trains passing through the area up to 2033 and beyond. These will eventually exceed the capability of the existing track and signalling, even without a new station, and drive the need for extra tracks to achieve and maintain a robust and reliable train service.

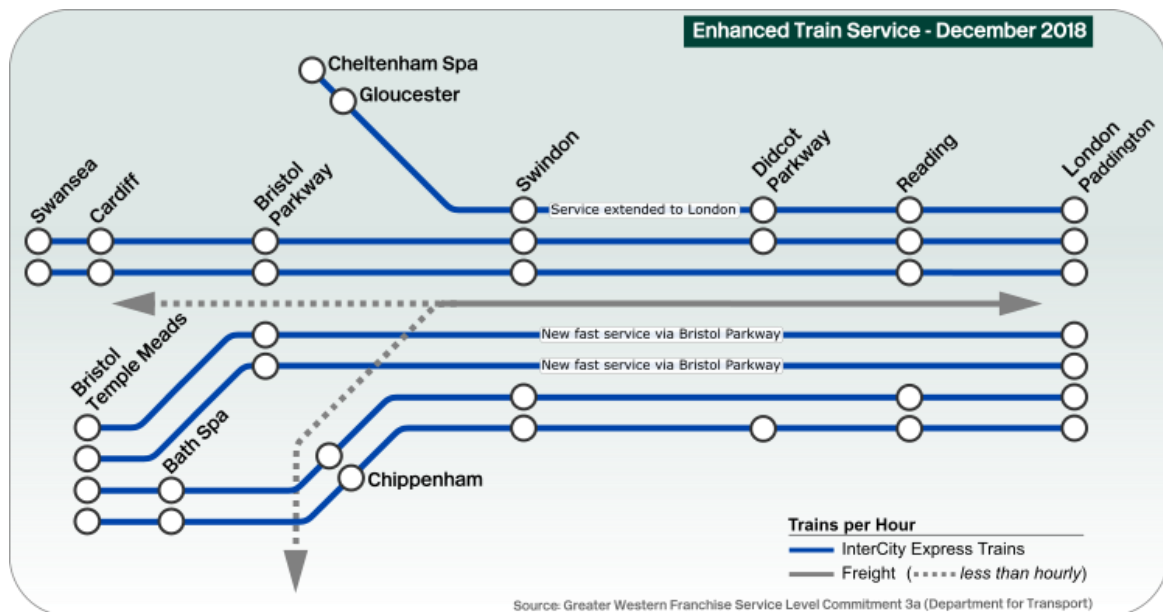


FIGURE 3.1 – GWML ENHANCED TRAIN SERVICE FROM DECEMBER 2018.

3.4 NEW BRISTOL – OXFORD ‘WESTERN RAIL’ SERVICES

It may be possible for Wantage & Grove Station to be served by a new inter-regional train service following the opening of East West Rail, which is expected by 2023. A logical development of the proposed train service pattern would be a service connecting some of the fastest growing centres of growth in the country: Bristol, Swindon, Science Vale, Oxford, Milton Keynes and Cambridge. This will add value to the investment in re-opening the railway and will extend the benefit of the business and growth connectivity being established in the Oxford to Cambridge corridor through the recommendations of the National Infrastructure Commission. The agglomeration impact (i.e. businesses being better connected and able to work together) generates the biggest benefits.

Indicative work undertaken for Oxfordshire County Council in Spring 2017 by SLC Rail and Systra suggest the wider economic value of a half-hourly Bristol-Oxford-Milton Keynes-Cambridge train service could be an £58m uplift in GVA per annum, with a £37.4m uplift in GVA per annum specific to the Bristol to Oxford section. Routeing the service via Bath Spa rather than Bristol Parkway generates greater benefits as it would serve more stations, improving both the attractiveness of rail and local access to the rail network. If one train each hour provided a direct service to Milton Keynes instead of Cambridge it would add more benefits by removing the need to change trains at Bletchley. Together these two options add a further £3m to the GVA uplift per annum, making them the preferred option.

Of the proposed new stations, Wantage & Grove generates £1.7m of wider impacts each year, Corsham £1.14m and Royal Wootton Bassett £0.75m.

Importantly such connectivity is recognised within Network Rail’s Western Route Study as a potential ‘Conditional Output’ up to 2043, and as such may be developed – *and thus funded* - by the DfT, enabling the service to be provided without direct and sole cost to the Wantage and Grove, Corsham and Royal Wootton Bassett Station aspirations. This may represent a key opportunity to practically advance the case for the station.

To develop such a service not only to call at Wantage & Grove but the aspirational stations at Royal Wootton Bassett and Corsham (Wiltshire), will require joint development and investment by a partnership of local authorities and Local Enterprise Partnerships. This includes Oxfordshire Local Enterprise Partnership (OxLEP), Oxfordshire County Council, Vale of White Horse District Council, South Oxfordshire District Council, Swindon Wiltshire Local Enterprise Partnership (SWLEP), Wiltshire Council, Swindon Borough Council and possibly the West of England Combined Authority. However it would incrementally add more than a single station's revenue stream to the business case that may have been made to a DfT-sponsored new Reading – Bristol 'Local' Service.

The possibility of introducing a local Reading - Bristol service is remote, given the likely need for additional infrastructure to create the capacity to accommodate the trains, particularly between Didcot Parkway and Reading. The service would not be competitive in terms of journey times for through journeys between Reading and Bristol so would rely heavily on the revenue generated at new intermediate stations serving smaller communities such as Wantage and Grove, Royal Wootton Bassett and Corsham.

Significant investment would be required to provide additional infrastructure that allowed the local trains to be overtaken by faster services en-route. The capital cost of these enhancements would have to be underwritten mainly, if not entirely, through the additional revenue that such a service would generate. It is thought unlikely to have a strong enough business case.

The train operator, Great Western Railway, is unlikely to support a local service calling at new intermediate stations, given the additional risks to operation of the timetable that slower local trains would import.

3.5 INTERCITY EXPRESS SERVICE

Provision of a main line service is even less likely. The route modernisation programme is built around optimising centre-to-centre journey times, and increasing on-train capacity to cater for future growth.

Inserting a stop at Wantage & Grove in London to Bristol/South Wales services has operational and commercial disbenefits that could harm the existing rail market. Extending journey times will potentially make rail a less attractive choice for the majority of existing passengers, whilst introducing additional risk to the operation of the timetable can reduce overall reliability. This would be contrary to government and rail industry policy to improve performance and journey times. For that reason, inserting any additional stops in existing services would negate many of the benefits being gained from investment in electrification and new InterCity Trains.

The only way that Wantage & Grove station could be served without extending journey times is by substituting a stop there for one at Didcot Parkway. This is unlikely to be acceptable as it would leave only two main line trains per hour at Didcot Parkway. With a bigger population and significant growth on the horizon, the disadvantages of reducing the number of trains at Didcot are likely to outweigh any advantages gained by stopping one train per hour at Wantage & Grove.

3.6 INFRASTRUCTURE CONSTRAINTS

Since the previous Oxford to Bristol service operated in the early 2000s, capacity across the network has changed significantly. There are more passengers than ever before travelling by train and there are more freight and passenger trains using the same infrastructure. Passenger

demand is forecast to continue growing with a 25-30% increase in passengers at Reading and London Paddington by 2024 with a 100% increase by 2043. To accommodate more passengers, more trains, longer trains will be required, increasing pressure on the network.

The focus initially will be on making better use of the existing infrastructure and any spare capacity by harmonising train speeds and rolling stock using the same lines, adopting a standardised calling pattern and reducing conflicting movements caused by trains switching between tracks and at key junctions. However, these options alone will not deliver the change needed to meet future demand and eventually new infrastructure will have to be built.

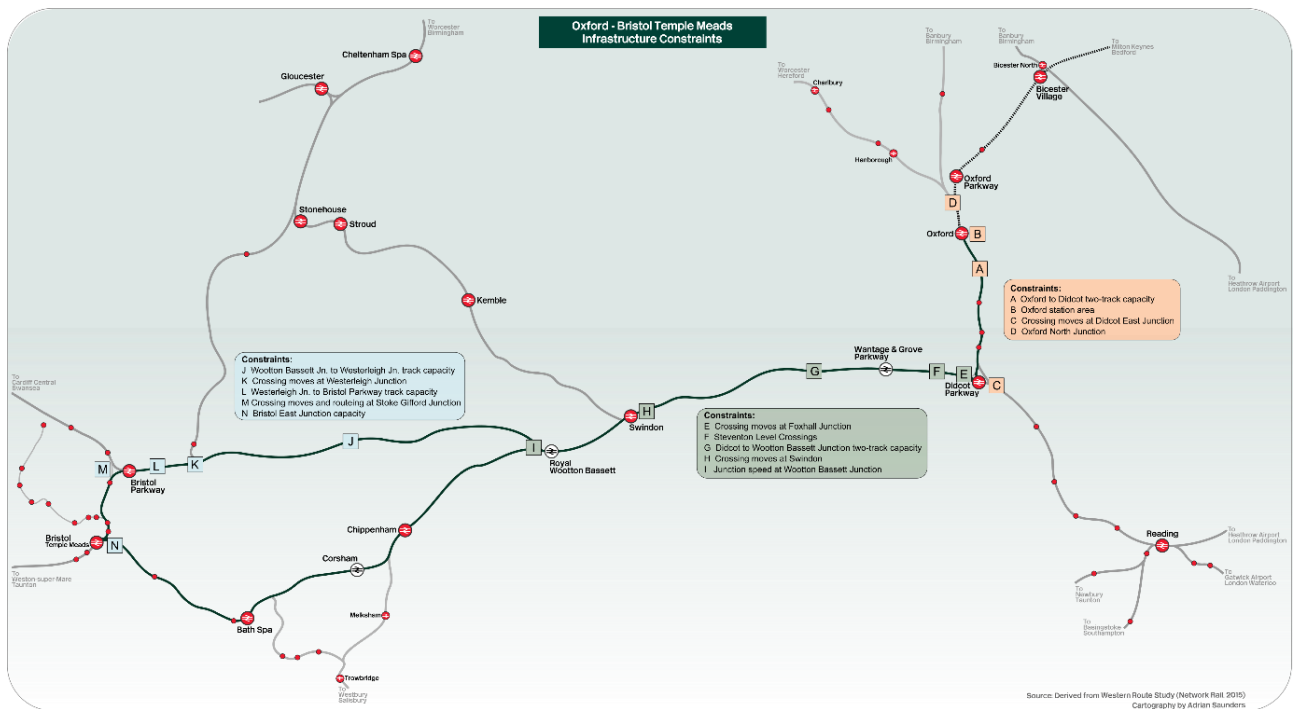


FIGURE 3.2 CONSTRAINTS IDENTIFIED BY NETWORK RAIL OXFORD-BRISTOL (SOURCE WESTERN ROUTE STUDY)

Oxford North to Didcot

The 10 miles of railway between Oxford and Didcot consists of two-tracks with a theoretical capacity of 11 trains per hour in each direction. The line is used by long-distance non-stop passenger trains, local trains serving intermediate stations and slower speed freight trains, and it is the mix of train types that significantly reduces capacity. Network Rail has said that all available capacity will be used by 2019 making it impossible to alter stopping patterns or introduce new services beyond those that are currently planned for 2019 without investing in new infrastructure.

Network Rail’s long-term planning work has identified the key constraints as being:

- The configuration and number of platforms and track layout at Oxford station;
- The variable speed and calling pattern of services between Oxford and Didcot;
- The crossing moves from the main line to the relief line at Didcot East for services heading to Oxford as these conflict with services heading towards London; and
- The capacity at Oxford North Junction should new services be introduced after the opening of East West Rail.
- There are several options for increasing capacity and capability; including:
- Re-signalling is underway to reduce the headway (or time gap) between trains;

- A major expansion of Oxford station with two additional through platforms, and a larger multi-level station building;
- Four-tracking between Oxford and Didcot, which is likely to be delivered in several phases;
- A flyover or dive-under at Didcot East to remove conflicting moves and reduce journey times by up to 5 minutes; and
- Segregation of trains south of Oxford by their route after the station, so trains going to East West Rail would use tracks and a platform on the east side of the station to avoid crossing moves at Oxford North.

Unfortunately, Network Rail is not funded to develop these future schemes in the current control period to 2019. If the situation in Control Period 6 (CP6: 2019 to 2024) is the same, it could delay delivery of important new infrastructure until 2029. This would be a major risk to achieving a new station and train service for Wantage and Grove.

Didcot to Swindon

The 24 miles of railway between Didcot and Swindon consists mainly of two-tracks with a passing loop at Steventon and another between Wantage Road and Challow. The majority of trains are 125mph passenger trains, although the number of 75mph freight trains has increased. The limited opportunities for fast passenger trains to pass slower freight trains is the biggest issue.

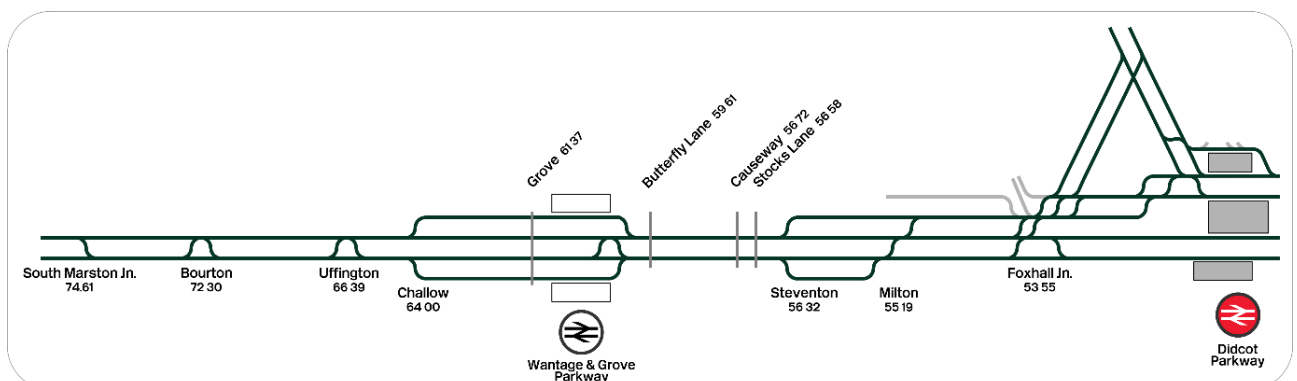


FIGURE 3.3 – TRACK LAYOUT DIDCOT PARKWAY-SWINDON (SOURCE: NETWORK RAIL SECTIONAL APPENDIX)

Network Rail’s long-term planning work has identified the key constraints as being:

- Foxhall Junction, where trains from Oxford towards Swindon avoiding Didcot Parkway have to cross all four main line tracks to reach the passing loop;
- Steventon level crossings are pinch-points making it more difficult to provide extra tracks;
- The speed difference of passenger and freight trains between Didcot and Swindon, which is a particular problem west of Challow where a freight train takes three times longer to cover the 11 miles to the outskirts of Swindon;
- Crossing moves and platform configuration at Swindon station; and
- Crossing moves and junction speeds at Wootton Bassett Junction (where the line to Chippenham diverges from the line to Bristol Parkway).

There are several options for increasing capacity and capability; including:

- A central recess loop at Foxhall Junction so trains do not have to cross all four main line tracks in one movement. In the longer term, the provision of new relief lines or a flyover may be required dependant on the routeing and frequency of train services;
- Extending the existing four mile passing loop west from Challow to Bourton to create a 12-mile dynamic loop capable of handling the indicative 2033 train service, which includes an East West Rail Oxford to Bristol service;
- By 2043, a further extension towards Swindon and Steventon will be needed to create a predominately four-track railway, with the capacity for 11 passenger trains and six freight trains per hour in each direction;
- Additional platform and/or turnback siding at Swindon to accommodate terminating trains from London Paddington;
- Reconfiguring Wootton Bassett Junction to enable the current linespeed of 75mph to be increased. This could happen as part of planned renewals in 2036.

In developing a train service to serve Wantage & Grove Station (and other new stations proposed at Corsham and Royal Wootton Bassett) promoters will need to consider wider capacity issues on the railway, as a number of infrastructure interventions are likely to be required before a new service can be introduced.

Given the scale of the investment needed it is unlikely that all these options will be delivered at the same time, or at all. They are all subject to further feasibility to determine whether they are deliverable, affordable and provide good value for money. Many of the schemes are unlikely to be completed before Control Period 7 (CP7: 2024 to 2029) or beyond.

4 INITIAL DEMAND FORECASTING (SYSTRA)

4.1 METHODOLOGY

Initial demand forecasting work has been undertaken by Systra Ltd. and this is set out in full at Appendix A. For the purpose of demand forecasting a new Bristol to Oxford ‘Western Rail’ service has been assumed, with potential for extension to Milton Keynes or Cambridge as this is the most likely train service option for Wantage & Grove Station (and other potential stations at Royal Wootton Bassett and Corsham) in the context set out in Chapter 3 of this report.

The indicative demand and business case for Wantage & Grove Station was tested by comparing demand for a Bristol to Oxford service, one and two trains per hour (Option A), and a Bristol to Cambridge via Oxford service, one and two trains per hour (Option B), both calling at Didcot Parkway. These tests were used to examine both the impact of service frequency and also the direct links to Cambridge via EWR.

The forecasting methodology used in this work has been based around a detailed assessment of the demand that exists at Didcot Parkway Station, using 2011 Census data, supported by the National Rail Travel Survey (NRTS) data and LENNON information (rail industry ticketing data). Due to the model’s dependence upon Didcot Parkway trip rates as a proxy for the new station, it is not possible to forecast journeys between a new Wantage & Grove Station and Didcot Parkway as that would require a bespoke model and more resource than was available for this study. Where necessary, adjustments have been made to fares revenue to account for changes in distance travelled.

To obtain the changes in demand, a generalized journey time approach was used based on guidance set in the DfT-required/rail industry standard Passenger Demand Forecasting Handbook (PDFH).

4.2 RESULTS

Table 4.1 below shows a summary of the demand and revenue at Wantage and Grove Station associated with each option at 2030 allowing for build up to full use from an assumed opening date of 2025, expressed in single passenger trips, together with an assessment of the total and ‘new to rail’ daily return passenger and net revenues after abstraction.

100% Build up by 2030	Option A Bristol to Oxford		Option B Bristol to Cambridge via EWR	
	1tph	2tph	1tph	2tph
Abstracted Trips <i>(i.e. transferred from Didcot Parkway)</i>	118,909	127,997	118,921	128,010
Newly Generated Trips	628,000	683,903	628,566	684,518
Trips generated by new developments	284,854	311,645	285,155	311,972
Total Station Trips p.a.	1,031,762	1,123,544	1,032,641	1,124,499
Return passengers/day	1,607	1,750	1,608	1,358
Net ‘new to rail’ p.a.	912,853	995,547	913,721	996,489
Return passengers/day	1,422	1,551	1,081	1,179
Net Revenue p.a	£10.495m	£11.236m	£10.527m	£11.271m

TABLE 4.1 – DEMAND LEVELS AND REVENUE WITH AND WITHOUT EWR SERVICES AT 1 AND 2 TPH - 2030

As Table 4.1 indicates Wantage and Grove Station is likely to accommodate a significant number of trips for a base case option of 1 tph Bristol to Oxford, c. 86% being new to rail, with substantial net revenue of £10.495m p.a. once established by 2030.

Total station trips of 1,031,762 at 100% build up in 2030, for example, are not dissimilar to Warwick Parkway at 659,428 and Oxford Parkway at 809,812 in 2016-2017 (source: Office of Rail and Road – Estimates of Station Usage 2016-2017).

It is notable that the 2030 results suggest an almost identical level of demand at Wantage and Grove Station with or without extension of the service eastwards beyond Oxford to Milton Keynes and Cambridge. It is likely that this is due to the model's necessary early dependence upon Didcot Parkway trip rates as a proxy for the new station, and hence the current low level of trip making from Didcot Parkway to East-West Rail destinations as in 2018 these all require travel via London or Birmingham. It also reflects the challenge within standard rail demand forecasting methodology, especially in the earliest stages of modelling such as undertaken for this report, of assessing transformational change such as that offered by East West Rail in offering wholly new forms of strategic connectivity.

Indicative work undertaken for Oxfordshire County Council in Spring 2017 by SLC Rail and Systra looking at the economic value of that transformational connectivity along the Bristol-Oxford-Cambridge corridor, (as distinct from the business case) indicated an additional £50.95m Gross Value Added to the economy between Bristol and Cambridge per annum and 1,070 new jobs generated by 1 train per hour between Bristol, Oxford and Cambridge. In considering and supporting the specific case for Wantage and Grove Station this wider economic value warrants further development.

4.3 SCHEME APPRAISAL

An initial appraisal of the station following the principles set out in DfT WebTag guidance was conducted over a 60-year period with an assumed opening date of 2025.

For the purpose of this initial assessment three categories of costs were included:

- Capital cost of constructing the station;
- Station operating costs;
- Cost of operating a Bristol – Oxford service, split between the three new stations it would serve based on the forecast level of demand at each station;
- 51% Optimism Bias.

Table 4.2 (over) shows a summary of the scheme appraisal over 60 years for the four options utilising an assumed capital cost of £18.23m and an overall cost of £27.52m with optimism bias included.

This shows a Benefit Cost Ratio of 2.48 for a base case service of 1 tph Bristol to Oxford. 2 tph services show a lower BCR of between 1.58 and 1.62 given the additional operational costs.

60 year Appraisal	Option A Bristol to Oxford		Option B Bristol to Cambridge via EWR	
	1tph	2tph	1tph	2tph
Present Value of Costs	£138m	£240m	£111m	£184m
Present Value of Benefits	£341m	£379m	£477m	£534m
Net Present Value	£203m	£139m	£366m	£350m
Benefit Cost Ratio	2.48	1.58	2.49	1.62

TABLE 4.2 BCR CALCULATIONS

4.4 DEMAND FORECASTING CONCLUSIONS

Wantage & Grove Station would be viable with a Benefit Cost Ratio 2.48 achieving “high value for money” (source: Value for Money Assessment: Advice Note for Local Transport Decision Makers – Department for Transport, 2013) with an hourly Bristol to Oxford service, and over 1,031,000 passenger trips per annum, or c. 1,607 passengers per day, at full demand build up at 2030, assuming station opening in 2025, of which 1,422 – 88% - are new to rail.

Increasing the frequency to half-hourly significantly increases operational costs (i.e. more trains and staff are required) which is unlikely to be covered by any marginal increase in fares revenue.

5 STATION SITE

5.1 SELECTION PROCESS

Six potential sites for a new Wantage & Grove Station had been identified by Oxfordshire County Council, and on Thursday 27th April 2017 members of SLC Rail, Fereday Pollard Architects, OCC and VOWHDC held site visits. Each potential site was walked and photographed to gather information in preparation for a site evaluation workshop which was planned for early June. At the request of Vale of White Horse District Council, a seventh potential site was included and a further site visit and teleconference took place in early 2018.

Each potential site was reviewed in regard to its location and connectivity to the local road network, ease of access by cycle/footpaths and existing or new bus links. Land availability for the station, car parking and access, planning and ecological constraints were also considered. The key to making the station a cost-effective proposition will be the interface with the railway and the need to minimise any impact on track and signalling and lineside equipment.

The seven sites considered are illustrated below: -



FIGURE 5.1 – SITE OPTIONS MAP

- Site A - Grove Park (South)
- Site B - Grove Park (North)
- Site C - Bradfield
- Site D - Grove Wick Farm
- Site E - Monks Farm
- Site F - Denchworth Road
- Site G - Grove Wick Farm North

The Site Evaluation Workshop was held on 2nd June 2017 with specialists on rail development, master planning, ecology and traffic management from Vale of White Horse District Council, Oxfordshire County Council, Fereday Pollard Architects and SLC Rail. This considered site options A to F, with Site G similarly discussed during the teleconference in early 2018.

5.2 ASSESSMENT METHODOLOGY

Each of the potential sites was considered against a series of criteria grouped under three main headings:

Connectivity

- a) How well the site fits with the existing and proposed local road network;
- b) Existing or potential links with public transport (i.e. bus services);
- c) Active travel choices - walking and cycling.

Land and Planning

- a) Land availability for a station;
- b) Planning policy;
- c) Strategic fit with existing and proposed housing and employment developments;
- d) Ecology and environmental constraints, including flood risk;

Railway Infrastructure

- a) How the site interfaces with the operational railway, including track layout, signalling, lineside equipment, overhead electrification equipment and structures.

Within each grouping, each site was scored from 0 (Very Poor) to 5 (Very High). The maximum score possible was 15. Given the pre-GRIP status of this report, it should be remembered that these are initial assessments only and no detailed engineering or technical assessments have been carried out; these will be required in a subsequent stage of scheme development.

5.3 SITE ASSESSMENTS

Site A – Grove Park (South)

Connectivity		Score: 4
Advantages	<ul style="list-style-type: none"> • A338 makes the site easily accessible from the road network from the north and east, increasing its catchment area. • Relatively accessible by public transport with potential to serve the site with a new town bus service via a short double-run into the station forecourt. • Good accessibility by existing commercial bus services Gold S8 and Gold S9 especially if new bus stops are located closer to the site on the A338 (some form of pedestrian crossing would be required). • New access road from Williams Roundabout should incorporate stepped cycle track and footway in accordance with the Oxfordshire Walking and Cycling Design Standards and tie-in with local cycle/footway network. 	
Disadvantages	<ul style="list-style-type: none"> • Access by road from the west less direct and could involve detour through rural villages. • The 50mph speed limit on the A338 and visibility for drivers over the bridge may compromise provision of new bus stops for access to the site. • There is no segregated cycle track or footpath along the A338 north of the site. • The site is a long way to walk from most of the existing and planned residential and employment areas, although it is noted that it is relatively close to the Williams Engineering employment site. 	
Land and Planning		Score: 5
Advantages	<ul style="list-style-type: none"> • Relatively undeveloped site (apart from rail infrastructure) with space for reasonable parking facilities. • Stopping up of Grove Park Drive could reduce traffic flows at the A338 junction. 	
Disadvantages	<ul style="list-style-type: none"> • The site is not well located in relation to planned housing and employment. • Significant land acquisition will be required for a new access road from the Williams Roundabout, and for the station itself. 	
Railway Infrastructure		Score: 0
Advantages	<ul style="list-style-type: none"> • None 	
Disadvantages	<ul style="list-style-type: none"> • An overhead line autotransformer feeder is located in the centre of the site location that has not long been installed. This is significant equipment which is difficult and prohibitively expensive to relocate. 24hr emergency access is also required. • There are numerous masts and gantries associated with electrification. • The site includes the junction where the railway transitions from four to two tracks. The track layout (S&C) does not lend itself to the provision of station platforms due to clearances, train speeds, maintenance and other operational issues. 	
Site A Summary		Total Score: 9
<p>Although there is good access to the site from the A338, it is an extremely challenging site from a rail operational aspect and therefore unlikely to be supported by the rail industry. It will be prohibitively expensive to overcome the many infrastructure constraints, and for this reason the site was not taken forward.</p>		

Site B – Grove Park (North)

Connectivity		Score: 4
Advantages	<ul style="list-style-type: none"> • A338 makes the site easily accessible from the road network from the north and east, increasing its catchment area. • Good accessibility by existing commercial bus services Gold S8 and Gold S9 via a short double-run into the station forecourt. • New access road leading from a new roundabout on A338 should incorporate stepped cycle track and footway in accordance with the Oxfordshire Walking and Cycling Design Standards. 	
Disadvantages	<ul style="list-style-type: none"> • Access by road from the west less direct and could involve detour through rural villages. • A new roundabout on the A338 may require lowering of 50mph speed limit on the A338. • There is no segregated cycle track or footpath along the A338. • The site is a long way to walk from most of the existing and planned residential and employment areas, although it is noted that it is relatively close to the Williams Engineering employment site.. 	
Land and Planning		Score: 5
Advantages	<ul style="list-style-type: none"> • An undeveloped greenfield site with space for reasonable parking facilities. 	
Disadvantages	<ul style="list-style-type: none"> • The site is not well located in relation to planned housing and employment. • Land acquisition will be required for a new access road from the A338, and for the station itself. 	
Railway Infrastructure		Score: 0
Advantages	<ul style="list-style-type: none"> • None 	
Disadvantages	<ul style="list-style-type: none"> • There are numerous masts and gantries associated with power supply for the electrification. • The site includes the junction where the railway transitions from four to two tracks. The trackwork (S&C) does not lend itself to the provision of station platforms due to clearances, train speeds, maintenance and other operational issues. 	
Site B Summary		Total Score: 9
<p>Although there is good access to the site from the A338, it is an extremely challenging site from a rail operational aspect and therefore unlikely to be supported by the rail industry. It will be prohibitively expensive to overcome the many infrastructure constraints, and for this reason the site was not taken forward.</p>		

Site C – Bradfield

Connectivity		Score: 5
Advantages	<ul style="list-style-type: none"> • A338 makes the site easily accessible from the road network from the north and east, increasing its catchment area. • Good accessibility by existing commercial bus services Gold S8 and Gold S9 via a short double-run into the station. However, if station was built at the west end of the site (furthest from A338) it will be time-consuming, and possibly unviable, to divert buses off the main road into the station. • New access road leading from a new roundabout on A338 should incorporate stepped cycle track and footway in accordance with the Oxfordshire Walking and Cycling Design Standards. • Potential for complementary upgrade of footpaths and bridleways north of the railway to improve links with East and West Hanney. • Potential to provide direct walking and cycling routes by upgrading Hanneys Crossing (existing bridge) along with diversion of footpath at Letcombe Brook to allow closure of Wantage Level Crossing. <p style="text-align: center;">OR</p> <p>Replace Wantage Level Crossing with a new stepped and ramped footbridge to provide step-free access across the railway, although the scale of the structure may be a planning issue, and funding will have to be sought without affecting the viability of the station.</p>	
Disadvantages	<ul style="list-style-type: none"> • Access by road from the west less direct and could involve detour through rural villages. • A new roundabout on the A338 may require lowering of 50mph speed limit on the A338. • There is no segregated cycle track or footpath along the A338. • The site might be too far to walk from some areas of existing and planned residential and employment areas, but this will depend on the layout of new footpaths on both sides of the railway, and the replacement option for Wantage Level Crossing. 	
Land and Planning		Score: 4
Advantages	<ul style="list-style-type: none"> • Located outside existing planned development areas but the site relates well to them and to the railway boundary. • Adequate space for a multi-modal interchange for buses and cars. • It is a large greenfield site which could be considered for further development beyond the existing Local Plan period, subject to the usual planning considerations and procedures. • Potential for direct pedestrian access into Williams F1 site, subject to security and operational considerations. 	
Disadvantages	<ul style="list-style-type: none"> • Existing dwellings to the north of the site need to be considered. • Feasible in engineering terms for a decked car park but aspects of the site and its open rural setting may make this challenging in planning terms. • Land acquisition will be required for a new access road from the A338, and for the station itself. • Williams F1 have developed up to the railway boundary to the south of the site, which could impact on the location of certain station elements such as footbridge and lifts. Extra land may be required to provide a safety compliant platform width. 	

	<ul style="list-style-type: none"> • An increased use of the footpath to access a station may harm the setting of Letcombe Brook. • The size of proposed car park and an extensive area of the site being within Flood Zone 2 will require more complex drainage solutions.
Railway Infrastructure	
Score: 3	
Advantages	<ul style="list-style-type: none"> • Straight track geometry and no obvious signalling issues at this stage. • Potential to close Wantage Level Crossing to improve public safety.
Disadvantages	<ul style="list-style-type: none"> • There are masts and gantries associated with electrification; although these could be modified at a cost. • Signal SB988 protecting the junction where the railway transitions from four to two tracks may influence layout of platforms. • Land south of the railway for platform and footbridge might be restricted and this will require further discussion with Williams Grand Prix Engineering. • Proximity of Wantage Level Crossing and impact on users' sighting distance
Site C Summary	
Total Score: 12	
<p>A good location for the station with no major rail operational impacts, although the location of the platform will need further investigation in relation to the operation of the current railway and the availability of land within the rail boundary. The project might potentially need to negotiate with Williams F1 for additional land at the back of the old west bound platform. There is potential for good road access and plentiful space for a station and its car park. This option has therefore been taken forward and a general arrangement produced.</p>	

Site D – Grove Wick Farm

Connectivity		Score: 2
Advantages	<ul style="list-style-type: none"> • Good site to encourage active travel choices – i.e. walking and cycling from surrounding development. • Potential for complementary upgrade of footpaths and bridleways north of the railway to improve links with East and West Hanney. • Potential to provide direct walking and cycling routes by upgrading Hanneys Crossing (existing bridge) along with diversion of footpath at Letcombe Brook to allow closure of Wantage Level Crossing. <p style="text-align: center;">OR</p> <ul style="list-style-type: none"> • Replace Wantage Level Crossing with a new stepped and ramped footbridge to provide step-free access across the railway, although the scale of the structure may be a planning issue, and funding will have to be sought without affecting the viability of the station. The opportunity for one combined station/public bridge could be explored if this site is selected. • Site would be accessible from Grove Northern Link Road, which would enable easier access from outside the immediate local area, via A338, without traffic having an adverse impact on residential roads. • Bus services likely to be reliant on new services routing via the new strategic developments, including along the Grove Northern Link Road. 	
Disadvantages	<ul style="list-style-type: none"> • Access from settlements west of Grove could see high numbers of commuters using unsuitable rural lanes as a short cut to driving through the town centre, increasing traffic flows on Denchworth Bridge. • The site is completely reliant on new access road and/or changes to the width and layout of residential roads already shown in the Monks Farm indicative masterplan to facilitate access to the station. These need to be included in the Monks Farm masterplan. • No direct link with A338. • Unlikely the site could be served by existing commercial bus services Gold S8 and Gold S9 without a lengthy, and probably an unviable, diversion. Any future bus route would require extensive consultation with operators (linked to services coming forward in tandem with new development and road infrastructure). • The site might be too far to walk from some areas of existing and planned residential and employment areas. 	
Land and Planning		Score: 2
Advantages	<ul style="list-style-type: none"> • Central position in relation to new housing developments in North Grove. • Could link with Monks Farm indicative masterplan, but would require access roads to the station to be included, in particular for bus access from the proposed Grove Northern Link Road. • Land south of the railway in single ownership. 	
Disadvantages	<ul style="list-style-type: none"> • Environmentally sensitive and challenging site. • Station likely to have a negative impact on the rural setting of Letcombe Brook - 15m 'buffer' may constrain station layout options. • Cow Lane is a protected rural 'green' corridor and is designated common land which dictates access road will need to be built further east. 	

	<ul style="list-style-type: none"> • A new access road and/or changes to the width and layout of residential roads already shown in the Monks Farm indicative masterplan will be required to facilitate access to the station. These will need to be included in the Monks Farm masterplan. • Any new bridge over Letcombe Brook would need to be a single span structure elevated above the banks of the Brook but is unlikely to achieve planning consent and is contrary to local planning policy. • Risk to timing of delivery/completion of Grove Northern Link Road due to designation of Cow Lane as common land, but may still be able to deliver this new road within the timescale for delivering a new station. Without the link road, access to the station would be difficult and have an impact for other residential roads within the locality. • Proximity of Grade II listed Grove Wick Farmhouse may influence design and layout of station building and southern access road. • Land acquisition will be required for a new access road, and for the station itself. • Limited space to expand station car park should need arise in the future. • Diversion of existing public rights of way required to facilitate the closure of Wantage Level Crossing. • The size of proposed car park and areas of the site being within Flood Zones 2 and 3 will require more complex drainage solutions.
Railway Infrastructure	
Score: 3	
Advantages	<ul style="list-style-type: none"> • Straight track geometry and no obvious signalling issues at this stage. • Closure of Wantage Level Crossing to improve public safety.
Disadvantages	<ul style="list-style-type: none"> • There are masts and gantries associated with electrification; although these could be modified at a cost. • Signal gantry may influence layout of platforms. • Proximity of Wantage Level Crossing at the centre of the site and impact on users' sighting distance. • The existing bridge at Hanneys Crossing, and a telecom mast and drainage pond east of the bridge, may constrain layout options.
Site D Summary	
Total Score: 7	
<p>The site is difficult to access from outside the immediate local area, which may undermine the viability of a station. A new access road depends on delivery of the Grove Northern Link Road by a third party. Major changes to the bus network will be required to serve the site. There are many negative ecological impacts and the likelihood of harm to Letcombe Brook and the surrounding land. Whilst there are no major issues with the current operational railway, the magnitude of the ecological and planning concerns raised at the workshop were sufficient not to take the site forward.</p>	

Site E – Monks Farm

Connectivity		Score: 3
Advantages	<ul style="list-style-type: none"> • Good site to encourage active travel choices – i.e. walking and cycling from surrounding development. • Potential for complementary upgrade of footpaths and bridleways north of the railway to improve links with East and West Hanney. • Potential to provide direct walking and cycling routes by upgrading Hanneys Crossing (existing bridge) along with diversion of footpath at Letcombe Brook to allow closure of Wantage Level Crossing. • Site would be accessible from Grove Northern Link Road, which would enable easier access from outside the immediate local area, via A338, without traffic having an adverse impact on residential roads. • Bus services likely to be reliant on new services routing via the new strategic developments, including along the Grove Northern Link Road. 	
Disadvantages	<ul style="list-style-type: none"> • Access from settlements west of Grove could see high numbers of commuters using unsuitable rural lanes as a short cut to driving through the town centre, increasing traffic flows on Denchworth Bridge. • The site is completely reliant on new access road and/or changes to the width and layout of residential roads already shown in the Monks Farm indicative masterplan to facilitate access to the station. These need to be included in the Monks Farm masterplan. • No direct link with A338. • Unlikely the site could be served by existing commercial bus services Gold S8 and Gold S9 without a lengthy, and probably an unviable, diversion. Any future bus route would require extensive consultation with operators (linked to services coming forward in tandem with new development and road infrastructure). • The site might be too far to walk from some areas of existing and planned residential and employment areas. 	
Land and Planning		Score: 3
Advantages	<ul style="list-style-type: none"> • Central position in relation to new housing developments in North Grove. • Could link with Monks Farm indicative masterplan, but would require access roads to the station to be included, in particular for bus access. • Outside the approved planning consent boundary – scope to influence layout of future development phase. 	
Disadvantages	<ul style="list-style-type: none"> • Cow Lane is a protected rural ‘green’ corridor and designated common land which dictates new access road will need to be built further west. • A new access road and/or changes to the width and layout of residential roads already shown in the Monks Farm indicative masterplan will be required to facilitate access to the station. These will need to be included in the Monks Farm masterplan. • Risk to timing of delivery/completion of Grove Northern Link Road due to designation of Cow Lane as common land, but may still be able to deliver this new road within the timescale for delivering a new station. Without the link road, access to the station would be difficult and have an impact for other residential roads within the locality. • Protected species (Great Crested Newts) are known to occupy east end of site next to Hanneys Crossing. • Limited space to expand station car park should need arise in the future. 	

	<ul style="list-style-type: none"> • Site currently shown in Monks Farm indicative masterplan as being required for a drainage pond. • Land acquisition will be required for a new access road, and for the station itself.
Railway Infrastructure	
Score: 5	
Advantages	<ul style="list-style-type: none"> • Straight track geometry and no obvious signalling issues at this stage. • Good space for platforms, station and footbridge with ramps.
Disadvantages	<ul style="list-style-type: none"> • There are masts and gantries associated with electrification; although these could be modified at a cost. • Proximity of the level crossings and the impact on users' sighting distance. • The existing bridge at Hanneys Crossing may constrain layout options.
Site E Summary	
Total Score: 11	
<p>Concerns were raised about this site being reliant on the delivery of new roads within the Monks Farm development, without which the site is inaccessible, and the risk that commuters will use unsuitable rural roads to avoid the town centre. Whilst the ecology impacts can be mitigated, a station will alter the tranquil setting of Cow Lane which runs along the southern site boundary.</p> <p>The benefits of this site are the land availability and its strategic fit with the wider Monks Farm development and its proximity to other strategic development including the Grove Airfield site. It has fewer few ecological, planning or railway operational concerns than Site D. After comparing this site with the very similar Site F it was agreed not to take this site forward.</p>	

Site F – Denchworth Road

Connectivity		Score: 3
Advantages	<ul style="list-style-type: none"> • Good site to encourage active travel choices – i.e. walking and cycling from surrounding development. • Potential for complementary upgrade of Hanneys Crossing (existing bridge) and footpaths and bridleways north of the railway to improve links with East and West Hanney. • Site would be accessible direct from Grove Northern Link Road, which would enable easier access from outside the immediate local area, via A338, without traffic having an adverse impact on residential roads. 	
Disadvantages	<ul style="list-style-type: none"> • Access from settlements west of Grove could see high numbers of commuters using unsuitable rural lanes as a short cut to driving through the town centre, increasing traffic flows on Denchworth Bridge. • Partially reliant on new access road and/or changes to the width and layout of residential roads already shown in the Monks Farm indicative masterplan to facilitate access to the station. These need to be included in the Monks Farm masterplan. • No direct link with A338. • The site is remote from existing commercial bus services. Any future bus route would require extensive consultation with operators (linked to services coming forward in tandem with new development and road infrastructure). • The site might be too far to walk from some areas of existing and planned residential and employment areas. 	
Land and Planning		Score: 4
Advantages	<ul style="list-style-type: none"> • Central position in relation to new housing developments in North Grove. • Could link with Monks Farm indicative masterplan, but would require access roads to the station to be included, in particular for bus access. • No anticipated ecology or planning constraints. 	
Disadvantages	<ul style="list-style-type: none"> • Proximity of Grove Cemetery. • Overhead power supply lines cross the site but are buried below the railway (assume same will apply through housing development). • A new access road and/or changes to the width and layout of residential roads already shown in the Monks Farm indicative masterplan will be required to facilitate access to the station. These will need to be included in the Monks Farm masterplan. • SRisk to timing of delivery/completion of Grove Northern Link Road due to designation of Cow Lane as common land, but may still be able to deliver this new road within the timescale for delivering a new station. Without the link road, access to the station would be difficult and have an impact for other residential roads within the locality. • Limited space to expand station car park should need arise in the future without adding additional decking over surface-level car park. • Land acquisition will be required for a new access road, and for the station itself. • Diversion of existing public rights of way required to facilitate the closure of Grove Level Crossing. 	
Railway Infrastructure		Score: 5
Advantages	<ul style="list-style-type: none"> • Straight track geometry and no obvious signalling issues at this stage. • Adequate space for station building and associated facilities. • Closure of Grove Level Crossing to improve public safety. 	

Disadvantages	<ul style="list-style-type: none"> • There are masts and gantries associated with electrification; although these could be modified at a cost. • Proximity of Grove Level Crossing and the impact on users' sighting distance.
Site F Summary Total Score: 12	
<p>There were concerns about this site being reliant on the delivery of the Grove Northern Link Road, and the risk that commuters will use unsuitable rural roads to avoid the town centre. Compared to Site E, this site has limited environmental/ecological constraints and should reduce the use of residential streets by having direct access from the new link road. Along with Site C, this option has therefore been taken forward and a general arrangement produced.</p>	

Site G – Grove Wick Farm North

Connectivity		Score: 3
Advantages	<ul style="list-style-type: none"> • Goodsite to encourage active travel choices – i.e. walking and cycling from surrounding development. • Access to the car park can be provided via a new northern access road to the A338, which would restrict the amount of traffic routeing through the proposed developments to the south. • Potential for complementary upgrade of footpaths and bridleways north of the railway to improve links with East and West Hanney. • Potential to provide direct walking and cycling routes by upgrading Hanneys Crossing (existing bridge) along with diversion of footpath at Letcombe Brook to allow closure of Wantage Level Crossing. <li style="text-align: center;">OR • Replace Wantage Level Crossing with a new stepped and ramped footbridge to provide step-free access across the railway, although the scale of the structure may be a planning issue, and funding will have to be sought without affecting the viability of the station. The opportunity for one combined station/public bridge should be explored if this site is selected. • Bus services could be provided from the South, but reliant on new services routing via the new strategic developments, including along the Grove Northern Link Road. 	
Disadvantages	<ul style="list-style-type: none"> • Bus, drop-off and emergency access is completely reliant on new access road and/or changes to the width and layout of residential roads already shown in the Monks Farm indicative masterplan to facilitate access to the station. These need to be included in the Monks Farm masterplan. • Unlikely the site could be served by existing commercial bus services Gold S8 and Gold S9 without a lengthy, and probably an unviable, diversion. Any future bus route would require extensive consultation with operators (linked to services coming forward in tandem with new development and road infrastructure). • The site might be too far to walk from some areas of existing and planned residential and employment areas. 	
Land and Planning		Score: 2
Advantages	<ul style="list-style-type: none"> • Central position in relation to new housing developments in North Grove. • Could link with Monks Farm indicative masterplan, but would require access roads to the station to be included, in particular for bus access. • Reasonable space to expand station car parking in the future. • A road bridge over Letcombe Brook (north of the railway line) could be ecologically damaging but could be mitigated to achieve an ecological benefit if it includes restoration of the brook corridor north of the railway by reducing shading from trees/vegetation and ecological enhancements to the brook corridor. 	

Disadvantages	<ul style="list-style-type: none"> • Environmentally sensitive and challenging site. • Station likely to have a negative impact on the rural setting of Letcombe Brook – ‘Buffer’ zone may constrain station layout options. • The size of proposed car park, proximity to Letcombe Brook and an extensive area of the northern access road being within Flood Zone 2 will require more complex drainage solutions. • Northern access road to A338 would require new bridge over Letcombe Brook; this would need to be a single span structure elevated above the banks of the Brook, adding a risk to achieving planning consent as it is contrary to local planning policy, unless appropriate mitigation can be included. • Loss of trees due to the placement of the northern access road, but can be mitigated by placing bridge as close to the railway boundary as possible. • Cow Lane is a protected rural ‘green’ corridor and is designated common land which dictates southern access road will need to be built further east. • Risk to timing of delivery/completion of Grove Northern Link Road due to designation of Cow Lane as common land, but may still be able to deliver this new road within the timescale for delivering a new station. Without the link road, access to the station would be difficult and have an impact for other residential roads within the locality. • A new access road and/or changes to the width and layout of residential roads already shown in the Monks Farm indicative masterplan will be required to facilitate bus, drop-off and emergency access. These will need to be included in the Monks Farm masterplan. • Proximity of Grade II listed Grove Wick Farmhouse may influence design and layout of station building and southern access road. • Land acquisition will be required for new access roads and for the station itself. • Diversion of existing public rights of way required to facilitate the closure of Wantage Level Crossing.
Railway Infrastructure	
Score: 3	
Advantages	<ul style="list-style-type: none"> • Straight track geometry and no obvious signalling issues at this stage. • Closure of Wantage Level Crossing to improve public safety may be possible if public right of way is diverted to an existing overbridge or a new footbridge.
Disadvantages	<ul style="list-style-type: none"> • There are masts and gantries associated with electrification; although these could be modified at a cost. • Signal gantry may influence layout of platforms. • Proximity of Wantage Level Crossing at the centre of the site and impact on users’ sighting distance should the crossing remain. • The existing bridge at Hanneys Crossing, and a telecom mast and drainage pond east of the bridge, may constrain layout options.
Site G Summary	
Total Score: 8	
<p>The site is very similar to site D but by placing the car park to the north of the railway, access routes are improved and the traffic impact on residential roads is reduced. However, the road specifications in the surrounding residential development south of the railway will need to be suitable for bus and drop off access to the station building. A dependency on third-parties completing new road infrastructure is a significant risk.</p>	

The ecological impact represents a major risk for this site as much of the proposed layout is likely to impact Letcombe Brook. Particular attention would be required to ensuring there is no net loss of biodiversity as a result of the station development.

As with Site D, there are no immediate concerns with the railway infrastructure however a more detailed understanding of the signalling system would be required. However, the number and complexity of the ecological, planning and environmental issues noted above means this site is less suitable overall and ranked sixth out of the seven assessed sites, so was not taken forward.

5.4 SITE CONSTRAINTS

Having assessed each of the seven sites, this section explores the four key constraints which could impact on the station – ecological, railway, level crossings and public rights of way.

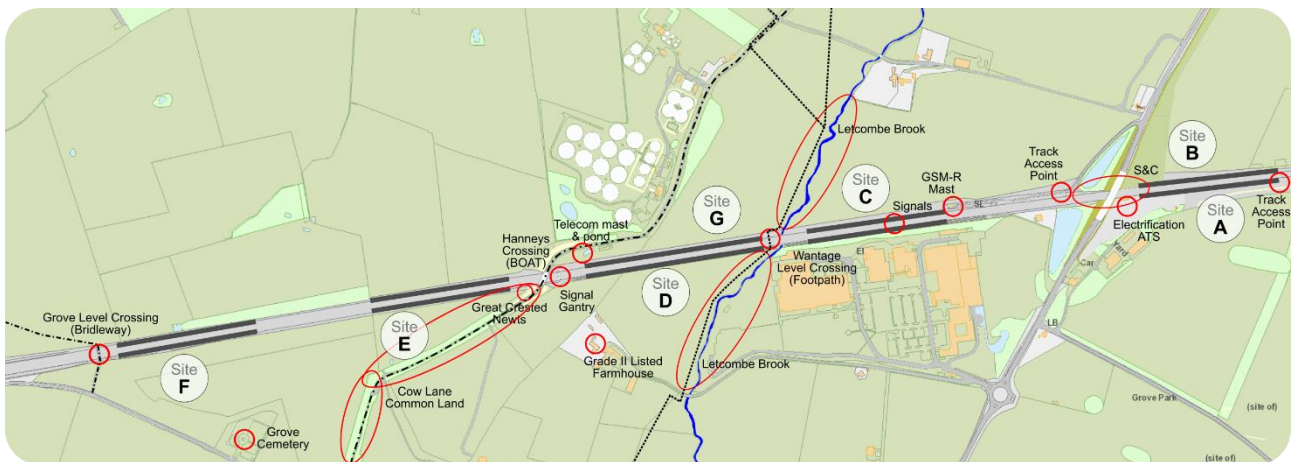


FIGURE 5.2 – SITE CONSTRAINTS MAP

5.4.1 Ecological

Letcombe Brook is a globally rare habitat - there are only two chalk streams in the whole of Oxfordshire and only 161 UK-wide. It is listed in Section 41 of the Natural Environment and Rural Communities Act as a ‘Habitat of Principal Importance’ (previously known as a UKBAP Priority Habitat). The clear waters are home to a number of protected species including water vole, otter and fish such as bullhead and wild brown trout that feed on invertebrates such as mayfly larvae and freshwater shrimps. Kingfishers and bats are commonly seen above the waters. The brook is a haven for wildlife.

South of the railway, there are planning policies that restrict the number of crossings over the brook to protect the wildlife corridor. The only new crossing permitted is the Grove Northern Link Road. In urban areas, development is not permitted within 15 metres of the stream, and in rural countryside, such as that north of the railway, the buffer zone is at least 50 metres.

Nearby, a Great Crested Newt habitat has been created adjacent to Hanneys Crossing.

The fields to the north of the railway are criss-crossed by hedgerows and ditches that may be of ecological value. Whilst trees and hedgerows are found across the country, they are an ecological/landscape resource integral to the local wildlife, as well as improving soil erosion and air quality. Proposals for the station will need to minimise the loss of hedgerow corridors by including new planting within the scheme.

5.4.2 Railway

The existing railway infrastructure plays a significant role in selecting a site for the station. The costs of moving a set of points and altering the operational arrangements for example will likely be prohibitive.

When looking to construct a new station there are some key elements that can determine the feasibility from the outset:

- a) **Track** – Stations must be located on as straight and flat a section of track as possible in order to comply with a number of standards set by the rail industry. On this particular section of track, this does not appear to be an issue as the track appears to be wholly straight, although formal confirmation of the gradients and radii will be required at a later stage. Generally, it is preferable to have a simple two or four track layout through a station. This reduces the complexities of signalling and track maintenance. Sites A and B are very close to the junction where the railway transitions from four to two tracks, which would seriously complicate a station layout for example.
- b) **Signalling** – Signalling is one of the costlier elements of rail infrastructure. Whilst it is difficult to confirm any potential issues at the outset, the physical position of the signal aspects is a good indicator. Within the study area, there is a signal gantry at the west end of Site D with signal aspects for the Loop (Signal SB987) and the Down Main Line (Signal SB989). In the opposite direction, there are three signals at the east end of Site C, with signals SB984 and SB986 used when trains need to cross between the Up Main and Down Main during disruption or engineering works, whilst Signal SB988 protects the junction east of the A338 where the four-track railway returns to being a two-track railway.

A station generally does not want to straddle two signal sections (the controlled space between two signals) as this may require significant changes to how the area operates especially if a train is stationary at a station and occupies both sections. At this point, none of the sites appear to have any obvious signalling risks.

- c) **Overhead Line Equipment (OLE)** – Electrification of the Great Western Main Line is underway and new structures are appearing all along the route. Within the study area there are 68 supporting structures, comprising of cantilever masts located on one side of the railway reaching across one or two tracks, and portal frames which span all four tracks.

The presence of OLE does add a further level of design to account for the additional clearance and bonding required at a station. Moving or modifying a number of structures is technically possible with careful planning, so is not a significant issue and can be expected in any station project where OLE is present. The cost of designing any changes, and for carrying out the works will fall to the project, as will any compensation to the train operators unable to operate their services.

It is less easy to modify or relocate where the power is supplied to the OLE system. Sites A and B were unsuitable as they included the location of an autotransformer (or switching station) which boosts the power supply to the OLE. These are located at 5-8km intervals along the track, and remove the need for larger, intrusive, feeder stations

supplied direct from the National Grid. Similar sites are located at Uffington and Shrivenham. These feeder stations are significant pieces of infrastructure that are complex and difficult to relocate.

- d) **Level Crossings** – there are two level crossings in the area. Grove Level Crossing is a public bridleway and Wantage Road Level Crossing is a public footpath. They both rely on the vigilance of users to stop, look and listen for trains. At Grove, a telephone is provided so that horse riders can contact the signaller for permission to cross. The four-track layout extends the crossing distance and the time users need to cross safely to the opposite side. Network Rail has calculated the crossing time as 16 seconds based on a minimum sighting distance of 840 metres. Other factors to consider are the difficulty people have in judging distances of trains approaching at high speed, the new electric trains being quieter than the existing diesel HSTs, and that from December 2018 there will be an extra six trains every hour passing the site.

Depending on its location, a new station could impact the operation of the crossings. It could encourage more people to use them as a way of getting to a platform on the north side (i.e. for trains to Didcot and Oxford), and the biggest hazard would be the risk that a stationary train obscures the sighting distance for crossing users, with the potential for users to step out behind the train into the path of another train travelling at 125mph.

During the upgrade of the Oxford to Bicester line, 37 of the 38 level crossings (the majority of them footpath or bridleway crossings) were either closed, combined with other crossings and/or replaced with bridges. With new housing developments north of Grove and the potential for a new railway station, consideration should be given to closing the level crossings and either diverting the public rights of way over Hanneys Crossing, a bridge which is conveniently located between the two crossings or a replacement footbridge at each level crossing or by allowing public use of any new station footbridge.

- e) **Public Rights of Way** – There are footpaths and bridleways in the study area that could be affected by a new railway station. Footpath 235/3 passes through Site D on the west side of Letcombe Brook and crosses the railway at Wantage Road crossing, before it diverges into three separate footpaths towards East and West Hanney. This footpath may also be affected by Site C. About 400 metres further west is Byway Open to All 235/12 which runs along Cow Lane on the southern edge of Site E, and crosses over the railway at Hanneys Crossing. At the western end of Site F is Bridleway 235/7 which crosses the railway at Grove Level Crossing and continues through fields to Denchworth.

5.4 SITE SELECTION – COMMENTARY AND CONCLUSIONS

Table 5.1 summarises the assessment and scoring of sites undertaken. Based on this assessment, it is proposed to take forward Sites C and F to the more detailed stage.

	Connectivity	Land & Planning	Railway Infrastructure	Total
Sites A & B Grove Park N & S	4	5	0	9

Site C Bradfield	5	4	3	12
Site D Grove Wick Farm	2	2	3	7
Site E Monks Farm	3	3	5	11
Site F Denchworth Rd	3	4	5	12
Site G Grove Wick Farm North	3	2	3	8

TABLE 5.1 – SITE ASSESSMENT SCORING

A commentary upon the assessment of each location indicated is as follows: -

- **Sites A & B Grove Park** - Although there is good access to these sites from the road, the recent installation of an overhead line feeder station, the erecting of masts/gantries for GWML Electrification and the passing loops re-joining the mainline to form a two-track railway makes them difficult from a rail operational aspect and expensive to overcome. On the basis of this, it is not proposed to take forward these sites to a more detailed stage.
- **Site C Bradfield** – Good location for the station footprint with access to the road network for bus connections, the site to the north fits well with the railway boundary. The project would potentially need negotiate with Williams F1 for additional land at the back of the old west bound platform. The location of the platform will need further investigation in relation to the operation of the current railway. This option is considered worth taking forward to a more detailed assessment.
- **Site D Grove Wick Farm** – Difficult to access outside the local area, a new link road and diverted bus service would be required. Ecologically, this proposal would have a negative impact on Letcombe Brook and the surrounding land, the access road would require a new bridge, which is unlikely to get planning permission. There are no major issues envisaged in regard to the current operational railway. However, given the ecological and planning concerns raised, it is not proposed to take forward this site to a more detailed stage.
- **Site E & F Monks Farm and Denchworth Road** - A few concerns have come out of the assessments in regard to the connectivity of these options, reliance on a new road provided by Monks Farm development and the risk of commuters using back roads to the station. However, the benefits of these sites in term of the land availability, their alignment with the Monks Farm development, proximity to other new development, particularly Grove Airfield, and relatively lower planning or railway operational concerns are the reasons that both sites scored positively. Given Site F has relatively fewer environmental/ecological issues than Site E, it is proposed that this site is taken forward to a more detailed stage.
- **Site G Grove Wick Farm North** – The site is very similar to site D but access is made easier by placing the car park to the north of the railway, which also reduces the traffic impact on residential roads. Bus, walking, cycling and drop-off will require appropriate road designs south of the railway. Ecologically, this site has a greater negative impact on Letcombe Brook and the surrounding land compared to site D, due to the access

roads on both sides of the railway, and new road bridge over Letcombe Brook. Drainage and the impact on the flood zone are also significant issues. As with site D, there are no immediate concerns with the railway infrastructure. However, given the number and complexity of the ecological, planning and environmental issues, it is not proposed to take forward this site to a more detailed stage.

5.5 CAPITAL COSTS

5.5.1 STATION BASE COST

GRIP 1 estimates have been prepared for each of the shortlisted options, based on the current drawings for the proposed station works.

It is assumed that the new station will comprise:

- A station building with café/retail unit, seating area, ticket machines with gates, toilets and staff office;
- Multi-mode access with footpaths, bus stops, cycle parking, a drop-off area and a 350-space car park with designated blue badge parking area;
- Two 142m platforms to accommodate a six-car train – with space for a potential extension to 244m in the future - with seating and waiting shelters; and
- Customer information screens and public-address system throughout.

An initial Quantity Surveyor assessment, based on current rail construction market conditions and costs has been produced for Site C and Site F. Quantities have been extracted from the drawings and have been multiplied against benchmarked cost data based on SLC Rail’s delivery of 2 new stations between Nuneaton and Coventry in 2016, and contractor prices for Kenilworth (due to open in 2017) and Worcestershire Parkway (due to open in 2018). The rates are set at 2nd Quarter, 2017 and have been selected from previous projects similar in size and location, and in some cases the rates have been assembled from first principles.

5.5.2 CONTINGENCY

The estimates include a 40% contingency for construction costs but do not account for wider risks to the project such as the requirement for land purchase, a change in specification or design standards. To budget for the many unknowns at this stage in the project a contingency should be added. Generally, a rail project in the early GRIP 1-3 stages would have a contingency of 30%.

5.5.3 ALLOWANCES

The net construction cost has been uplifted on a percentage basis to provide as much coverage as possible for a GRIP 1 estimate. The percentage uplifts are as follows:

Element	% Allowance
Contractor Overheads & Profit	10%
Preliminaries	26%
Design Costs	10%
Project Management Costs	10%
Network Rail Costs (All-Inclusive)	15%
Train Operator Compensation	5%

TABLE 5.4.1 ESTIMATING ALLOWANCES

The percentages detailed in the table above are typical of heavy rail construction works within the West Midlands area at current pricing levels (2017/18).

5.5.4 ESTIMATED PROJECT COSTS

As shown below, once the allowances and contingency are added to the base cost, the estimated project cost for Site C is £18.23m whilst Site F has an estimated project cost of £16.76m.

	Site C	Site F
Construction Base Cost	£7,399,455	£6,802,905
Allowances	£5,623,586	£5,170,208
Contingency @ 40%	£5,209,216	£4,789,245
ESTIMATED PROJECT COST	£18,232,257	£16,762,358

TABLE 5.4.2 ESTIMATED PROJECT COSTS

Various assumptions have been made in order to give as complete an estimated cost as is possible at this pre-GRIP stage of station development. Certain elements have not been costed, in particular land purchase costs, as the extent of land required has not been defined at this stage.

It has been assumed that some modification to the overhead electrification equipment will be required to increase its height above the station platforms, and some alterations to signalling equipment may also be required. As an engineering scoping study has not been carried out at this stage we have included a high-level indicative cost for these additional infrastructure interventions at this pre-GRIP stage.

A summary of how these costs are compiled is shown at Appendix B.

It should be noted, however, that on the basis of caution and the scheme being at the very earliest stage of conceptual development, that the Business Case has been assessed against the higher of the two estimates, i.e. a cost of £18.23m plus 51% Optimism Bias to a total of £27.52m.

6 OPINION AND NEXT STEPS

6.1 OPINION

The initial assessment and site evaluation workshop has provided a short list of two sites to be taken forward and Bradfield and Denchworth Road. Further work is needed to align these site options with the wider development plans for South East Vale sub-region. An engineering and technical review of the sites will also be required to validate their suitability.

Wantage & Grove Station exceeds the DfT's minimum benchmark requirement for adding a new station to the National Rail network as, with a Benefit Cost Ratio (BCR) of 2.49, it achieves a combined financial and economic BCR greater than 2.0. However, a totally new train service is required. This is in line with the findings of studies into the Corsham and Royal Wootton Bassett station aspirations, both of which are also on the GWML. This train service will require a stand-alone but integrated business case, to include all three new stations, in order to lobby Network Rail, Department for Transport and the Train Operating Company (TOCs).

The wider economic benefits of a Bristol-Oxford-Cambridge service should also be considered in making the business case for Wantage and Grove Station (and indeed for Royal Wootton Bassett and Corsham stations in Wiltshire). Indicative work undertaken for Oxfordshire County Council in Spring 2017 by SLC Rail and Systra indicated an additional £50.95m Gross Value Added to the economy between Bristol and Cambridge per annum and 1,070 new jobs generated by 1 train per hour between Bristol, Oxford and Cambridge.

6.2 NEXT STEPS

It is essential that the Wantage & Grove, Royal Wootton Bassett and Corsham station business cases and train service options, and their economic benefits, are developed together to create a single, compelling case that will convince the rail industry, LEPs and partner local authorities.

Assuming there is a shared ambition to develop an inter-regional train service and the new stations along the Oxford-Bristol rail corridor, there are six key steps necessary to progress a Wantage & Grove station:

- **ONE** - A more detailed engineering and technical review of the two shortlisted sites through a study including physical surveys to consider land and site boundaries, flood risk, ground conditions, gradients, access arrangements, the position of signalling and lineside equipment etc.).
- **TWO** - A workshop with external stakeholders (e.g. developers, landowners, bus operators, Network Rail, GWR, cycle groups, disabled persons organisations, local walking/rambling groups) to agree a single preferred site;
- **THREE** - Develop a fully-evidenced economic and financial business case for Wantage & Grove station that convincingly demonstrates the benefits a station can deliver in terms of adding extra capacity to the national rail network to cater for forecast growth up to 2043, AND what will happen if a station is not progressed;
- **FOUR** - Develop a wider and fully-evidenced assessment of the economic benefits to Wantage and Grove that better rail connectivity can bring, specifically in terms of GVA and jobs;
- **FIVE** - Establish an ambitious, united partnership of Oxfordshire County Council, Oxfordshire LEP, Vale of White Horse District Council, South Oxfordshire District Council, Swindon

Borough Council, Wiltshire Council and Swindon Wiltshire LEP with strong, clear political will to:

- Commence the detailed, lengthy and often tortuous and costly process of developing a train service specification, and gaining DfT, Network Rail and GWR support for its operational feasibility within the 2018/2019 GWML franchise timetable structure recognising that this can take a number of years to achieve;
 - Promote an evidenced rail agenda for the Oxford-Swindon corridor, including new stations;
 - Present the agenda to the rail industry and begin the similarly lengthy process of gaining its consent and enthusiasm for change.
- **SIX** - Secure the significant revenue funding for the development work necessary to achieve 1, 2, 3 and 4 above.

SLC Rail
Birmingham
August 2018

APPENDIX A - SYSTRA DEMAND FORECAST & INDICATIVE BUSINESS CASE REPORT

APPENDIX B – WANTAGE & GROVE STATION CAPITAL COST ESTIMATE

APPENDIX C- FEREDAY POLLARD VISUALS