

Wrexham to Bidston Congested Infrastructure Capacity Enhancement Plan









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Part A: Executive Summary

This is the second report in the Wrexham – Bidston Congested Infrastructure workstream and fulfils the requirements of Regulation 28 'Capacity Enhancement Plan' of the Railways (Access, Management and Licensing of Railway Undertakings) Regulations, 2016. This report builds on the Capacity Report¹ already published on the Network Rail website to present a capacity enhancement plan to alleviate the capacity constraints on the Wrexham – Bidston Line and facilitate additional services.

The capacity enhancement plan focuses on three phases of service growth in line with stakeholder commitments and aspirations to identify the interventions each one requires. The phases build upon each other as the volume of services increases. The three phases are:

- Phase 1 Two passenger services per hour (one calling at all stations and one limited-stop) in addition to an hourly freight opportunity.
- Phase 2 Two passenger services per hour (both calling at all stations) in addition to an hourly freight opportunity.
- Phase 3 Future Aspirations Four Passenger services per hour (calling at all stations) in addition to an hourly freight opportunity.

Phases 1 and 2 both require the same infrastructure interventions on the line. These are an improvement to the entrance at Padeswood Cement Works and a reduction in the line's headways as set out in section D.02.

Phase 3 requires the same intervention at Padeswood Cement Works as the first 2 phases however it requires a more significant signalling improvement to achieve a minimum headway of 7 minutes.

There are costs for the infrastructure required for each of these phases which are set out in section D.02. These have been developed through the strategic development work led by Transport for Wales over the past two years.

Although not integral to the introduction of additional services the increase of line speeds between Wrexham and Bidston is relatively easy to achieve and would facilitate significant performance benefits.

¹ Wrexham – Bidston Capacity Report: <u>Wrexham -Bidston – Congested Infrastructure Report (networkrail.co.uk)</u>





This report sets out the solutions to unlocking additional capacity on the line but there is no funding currently identified to deliver these solutions. The relevant parties and stakeholders will have to come together to find suitable funding opportunities to enable these interventions to be made, and as such create the capacity to facilitate the additional services in the three phases.





Part B: Introduction

B.01: Background

The Wrexham – Bidston Line (also known as the Borderlands Line) is shown on the map below. The line runs from the Welsh city of Wrexham in the south to Bidston on the Wirral Peninsula, where interchange onto Merseyrail services to West Kirby and central Liverpool is possible.



Figure 1: a map of the Wrexham – Bidston Line





The current level of service on the Wrexham-Bidston line of route, as it has been for many years, is 1 passenger train per hour, operated by Transport for Wales Rail Limited (TfW) as well as various freight services to the Padeswood Cement Works and Dee Marsh.

As part of the Wales & Borders Rail Service Contract which commenced in 2018, a commitment was made to run additional services and introduce new and cascaded rolling stock across the Wales & Borders network. These commitments included a 2 trains per hour (tph) service between Wrexham and Bidston originally planned from December 2021. The Rail Service Contract was let by TfW Authority on behalf of the Welsh Government under an agency agreement with the Department for Transport (DfT), and as such the Network Rail (NR) involvement was different from a typical DfT franchise, and via Competitive Dialogue which meant there was not the opportunity at the time for NR to carry out in depth timetable or performance analysis.

However, the NR Advanced Timetable Team did carry out some high-level analysis of any new services proposed by bidders. This analysis was heavily caveated, based on a 2-hour weekday morning window, and provided an outline view of network capacity. All bidders were also advised that any proposals were still subject to the standard industry timetable bidding processes despite the analysis. Relating specifically to additional services on Wrexham-Bidston, the clashes with freight paths were identified as being a potential risk to delivering the proposed passenger services.

Further analysis was undertaken in June 2020 by Network Rail to understand feasibility of the uplift proposed by TfW. This was based on Wednesdays only, using the Class 230 timing load and found that it was only possible to run a regular, clockface, 2tph service at certain periods of the day when no freight services were operating. It was not possible to run a regular pattern in conjunction with the freight trains and challenges accommodating specific freight services and TfW's aspirations were highlighted as part of this work.

For the December 2021 timetable, TfW Rail submitted an access proposal to operate an increased service of 2tph, with the second service proposed to run as a semi-fast service. However, the bid from TfW was based on their use of slower Class153 rolling stock and sectional running times (SRT's). Analysis highlighted performance concerns, due to the slower SRTs of the Class 153s compared to Class 230s.

Assessment of the bids during the December '21 development highlighted several rejections for TfW services due to direct clashes with freight services which either had firm rights or equal rights but higher weighting with application of the Decision Criteria.

It was noted that between completion of the advance work and the Dec 21 bid submission, additional Cement freight flows had been introduced into the timetable via the Rolling Spot Bid process.

Due to concerns with the final diagramming, operability, and performance of the offered services and as TfW was not proposing to introduce the service increase until April 2022, it was agreed to maintain the 1tph service for the December 21 timetable and focus on the plan for May 22.





For the May '22 timetable, TfW again submitted an access proposal to operate the increased 2tph service, vice 1tph, on the Wrexham-Bidston route. This was based on their use of cl.153rolling stock and sectional running times (SRT's).

Upon assessment of the bid during the development period, it was apparent that due to issues with performance due to the use of slower rolling stock and direct schedule clashes with freight services, a number of which had existing firm rights, Network Rail could not accommodate TfW's aspirations for additional services on the Wrexham-Bidston route.

The additional services were all rejected in the May '22 timetable offer on performance grounds, in addition to several specific rejections identified due to clashes with freight services.

Through the validation work and liaison with passenger and freight operators on the December '21 and May '22 timetables, it also became apparent that the Train Planning Rules (TPR's) did not fully reflect the geography on the line of route and that more detailed rules were required to accurately plan the increased services and properly understand available capacity. There were also queries regarding the utilisation of the existing freight paths included within the timetable.

While TfW disputed Network Rail's May '22 timetable offer, the dispute was not progressed on the basis that a project plan was developed by Network Rail to review these issues, take account of TfW's changing rolling stock assumptions and assess whether the aspirations of all operators could be accommodated.

Congested infrastructure was declared for the line on August 1st 2022 due to the clashes in the December and May timetables. This triggered a 12-month window within which Network Rail must produce an enhancement plan. The first step towards this was for Network Rail's Advanced Timetable team to produce and publish a report looking at the line's capacity on the Network Rail website², this was completed January 31st 2023.

The ORR reviewed the passenger and freight bids for the Line and concluded on November 30th 2022 that Network Rail should grant GBRf all of the rights it applied for and TfW twenty four of the twentysix rights for which it applied. TfW should not be granted those rights which conflict with the firm rights granted to GBRf. The congested infrastructure workstream will identify what's needed to introduce services in addition to those granted by the ORR.

² Wrexham – Bidston Capacity Report: <u>Wrexham -Bidston – Congested Infrastructure Report (networkrail.co.uk)</u>





B.02: Purpose

The purpose of the Capacity Enhancement Plan is to demonstrate how sufficient capacity can be found on the Wrexham – Bidston line to accommodate the relevant passenger and freight aspirations. The Capacity Enhancement Plan builds upon the Capacity Report which was produced by Network Rail's Advanced Timetable Team and was published on the Network Rail website on 31st January 2023.

The contents which a Capacity Enhancement Plan need to meet are set out under Regulation 28 of the Railway Regulations Act. Regulation 28 states that the enhancement plan must identify:

- a) Reasons for the congestion;
- b) The likely future development of traffic;
- c) Constraints on infrastructure development;
- d) Options for and costs of enhancing capacity, including the potential effect on charges;
- e) Details of the action to be taken to enhance the capacity of the congested infrastructure (following cost benefit analysis); and
- f) A timetable for completion of the detailed measures identified.

The aspirations for the corridor were captured in three phases for the purposes of this work. They build upon each other as the volume of services increases. These phases mean that the interventions needed for each increase in services can be identified. The three phases are:

- Phase 1 Two passenger services per hour (one calling at all stations and one limited-stop) in addition to an hourly freight opportunity.
- Phase 2 Two passenger services per hour (both calling at all stations) in addition to an hourly freight opportunity.
- Phase 3 Future Aspirations Four Passenger services per hour (calling at all stations) in addition to an hourly freight opportunity.

The subsequent sections of this report detail how capacity and performance has been identified for the above phases.





B.03: Consultation with interested parties

A collaborative approach was taken with the Wrexham – Bidston Congested Infrastructure workstream. As part of this approach working groups were held to support the workstream and were attended by representatives from:

- TfW Authority
- TfW Rail Limited (the operator)
- GB Railfreight
- Mott MacDonald
- Welsh Government
- Liverpool City Region Combined Authority

Briefings were also given at the following forums to the stakeholders they represent to share the work carried out for comment:

- Growth Track 360 Board
- Wrexham Bidston Rail Users' Association (WBRUA)
- Program Development and Delivery Group (PDDG)
- Wales Route Investment Review Group (WRIRG)
- Great Western and Wales Programme Board

We'd like to extend our thanks to all of the stakeholders who contributed to this workstream over the last year.





B.04: Strategic Fit

National Fit

The Well-being of Future Generations Act 2015³ sets out Welsh Government's vision for 'improving the social, economic, environmental and cultural well-being of Wales'. The Act sets out a number of goals of which the following are especially relevant for improving the Wrexham – Bidston Line:

- A prosperous Wales: by relieving congested infrastructure on the line there would be an opportunity to contribute to an 'innovative, productive and low carbon society' by driving modal shift of both freight and passengers to rail on the additional services.
- A Wales of cohesive communities: the additional passenger services across the phases proposed in the Congested Infrastructure workstream will contribute to 'attractive, viable, safe and well-connected communities' by giving passengers more choice and flexibility.

Relieving Congested Infrastructure on the line will also meet the DfT's priorities⁴:

- **Boosting economic growth and opportunity:** the Wrexham Bidston Line could achieve this through the recommendations of this workstream by facilitating additional passenger and freight services to boost economic opportunities in the region.
- **Building a One Nation Britain:** the recommendations of this work are compatible with extending services north of the line to Liverpool providing better connectivity between Wales and England.
- **Improving journeys:** additional passenger services will give passengers more flexibility and choice.
- **Safe, secure and sustainable transport:** this would be achieved through freight modal shift to rail with the provision of additional freight paths and through a better passenger service provision to encourage passenger modal shift.

The Union Connectivity Review⁵ is a national review into how to best improve connectivity between the countries that make up the United Kingdom. This workstream's recommendations tie in with the aim to 'support improved connectivity to, from and via Wales by improving the quality of passenger services from North Wales to England'. The recommendations of this workstream are also compatible with aspirations to extend services south from Liverpool delivering further improvements in cross nation connectivity.

³ <u>well-being-of-future-generations-wales-act-2015-the-essentials.pdf (gov.wales)</u>

⁴ About us - Department for Transport - GOV.UK (www.gov.uk)

⁵ <u>Union Connectivity Review (publishing.service.gov.uk)</u>





<u>Regional Fit</u>

TfW is currently working with Mott MacDonald on the early development of potential interventions for the Wrexham – Bidston Line. This work includes:

- A new entrance to Padeswood Cement Works
- Signalling improvements for the line
- Interventions needed to extend the Class 777s south from Liverpool onto the Wrexham Bidston Line

The outputs from the Congested Infrastructure workstream support the need for the interventions being developed by TfW and provides yet further evidence for their advancement.

Growth Track 360 campaign for improvements to the rail network across North Wales and into the North of England. The Congested Infrastructure recommendations if carried forward would unlock the service aspirations of Growth Track 360. Growth Track 360's service aspirations for the line are⁶:

• 2tph Borderlands service with journey time improvements and extension to Liverpool.

<u>Local Fit</u>

The Wrexham-Bidston Rail Users' Association is a strong advocate for the improvement of service provision on the Wrexham – Bidston Line. The recommendations of the congested infrastructure workstream would go a long way to meeting some of the aims⁷ of the Association by increasing service levels, providing performance benefits and being compatible with the extension of the Class 777s from Liverpool. Their aims include:

- Opportunities to improve current service performance, passenger satisfaction and passenger numbers.
- Opportunities for an improved service frequency.
- The introduction of a through service between Wrexham and Liverpool, if and when suitable rolling stock (such as IPEMUs) becomes available.

⁶ Layout 1 (growthtrack360.com)

⁷ Home I Wrexham-Bidston Rail Users' Association (wbrua.org)





Part C: Factors Driving Congestion

C.01: Reasons for the Congestion

The Network Rail Advanced Timetable Team undertook a detailed analysis of the Wrexham – Bidston line to identify the reasons for congestion. This work is outlined in detail in the Capacity Report which can be found on the Network Rail website⁸. The Advanced Timetable Team tested three phases to identify what the future growth of services on the line might trigger. These phases were:

- Phase 1 Two passenger services per hour (one calling at all stations and one limited-stop) in addition to an hourly freight opportunity. This reflects TfW's franchise commitment.
- Phase 2 Two passenger services per hour (both call at all stations) in addition to an hourly freight opportunity.
- Phase 3 Four Passenger services per hour (calling at all stations) in addition to an hourly freight opportunity.

The Capacity Report identified the following key capacity constraints on the line which constrain the ability to introduce additional services onto the line:

Padeswood Cement Works entrance – The existing entrance to the Padeswood Cement Works is incredibly restrictive because freight services accessing the site from the Down Main Line must stop on the main line in order to reverse into the Cement Works. Due to the short sidings in the Padeswood complex trains also need to be split and joined on the mainline in order to fit. These movements mean that whenever a freight service accesses the Cement Works, the Down Main Line is blocked for up to 40 minutes creating a significant constraint on the Wrexham – Bidston Line's capacity and lengthening the journey time for the freight services.

The Signalling System – The signalling system on the line is a mixture of semaphore and colour-light signals which are generally arranged in line with absolute block principles which only allow one train in a block at a time. Each end of the block section is defined as a timing point in the timetable. The second train can only be timed to enter the block section after the first train has arrived at the end of the block section (the "AB" time) plus an allowance for the signaller to replace and clear the necessary signals and the second train to receive an unrestricted approach to the block section. Since the "AB" time is the transit time of the first train, minimum headway between services is largely dependent on the speed of the first train, which affects how long it takes to clear the block section.

⁸ Wrexham – Bidston Capacity Report: <u>Wrexham -Bidston – Congested Infrastructure Report (networkrail.co.uk)</u>





The headways below are based on TfW's Class 230s with a 30 second stop at stations. (With the value in brackets indicating the minimum headway following an all-stations passenger train):

- Bidston West Jn to Dee Marsh Signal Box planned to AB+2 (24.5 minutes).
- Penyffordd to Dee Marsh Signal Box planned to AB+2 (15.5 minutes).
- Wexham Exchange Jn to Penyffordd planned to AB+2 (19.5 minutes).
 - When Penyffordd box is switched out Absolute Block to apply between Wrexham Exchange Junction (CN51/75 signals) and Dee Marsh Junction (DM3/23 signals) (When signal box is closed it takes 30.5 minutes).
- Wrexham Central to Wrexham Exchange planned to one train in section.

Level Crossings – The Wrexham – Bidston Line has a high number of level crossings. An uplift of freight and passenger services on the line has potential safety implications for its crossings. Therefore, upgrades and the closure of crossings is likely to be needed to mitigate the safety risk of a service uplift. Work has/is being undertaken to improve the crossings on the line so that there isn't a significant uplift in risk when the additional TfW paths granted by the ORR are introduced.

C.02: Likely future development of traffic

Passenger Services

TfW's bid for the May 22 timetable change was the introduction of a second hourly passenger service onto the Wrexham – Bidston Line on weekdays and Saturdays. This second service was proposed as a limited stopping service to reduce the capacity needed for the service. Due to this being the proposal that triggered congested infrastructure it was considered as phase 1 in the capacity analysis. It isn't possible to introduce these additional passenger services in every hour due to clashes with freight paths to Padeswood Cement Works which hold firm rights on the Line. However it is possible to introduce them in the hours where freight services don't run.

The ORR concluded that Network Rail should grant GBRf all of the rights it applied for and TfW twenty four of the twenty-six rights for which it applied. TfW should not be granted those rights which conflict with the firm rights granted to GBRf. These additional passenger services will be introduced subject to rolling stock availability and that there is the capacity on the line to do so.

The medium-term aspiration for passenger services on the line is to have both hourly passenger services stop at all stations. This is an aspiration of Welsh Government and TfW. This passenger service pattern was considered as phase 2 in this workstreams capacity analysis.

The longer-term aspiration for passenger services held by Welsh Government, TfW and local stakeholders is to run four passenger services an hour on the line which is an important step towards realising the North Wales Metro vision. This passenger service pattern was considered as phase 3 in this workstreams capacity analysis.





There is also an aspiration for the passenger services on the line to be extended onto the Liverpool central loop using Class 777 rolling stock. Early indications from work carried out by TfW and Liverpool City Region concluded that this could be possible north of Bidston on a 2tph or a 4tph clock face pattern but not a 3tph as they would conflict with services already on the Liverpool central loop. These two service options north of Bidston align with the service patterns in phases 2 and 3 of this workstreams capacity analysis.

Freight Services

Freight on the Wrexham – Bidston Line has the potential for significant growth in the coming years. The Padeswood Cement Works has seen recent significant investment, with further planned. This could see an increase in materials being transported to/from the site. In 2015, Hanson invested in a new kiln to increase the output of site. As well as the new kiln Hanson have also invested in a new cement mill, three rail cement silos and a rail loading facility at the site. All these works totalled £24 million.

Hanson is planning further investment in the near future at the Padeswood Cement Works by constructing a carbon capture and storage facility. Costing £400 million⁹ this will make Padeswood Cement Works the first carbon capture enabled cement works in the UK. All this investment at the site shows the potential this site has for rail freight growth in the future as it looks to distribute its concrete and further reduce its carbon footprint. Hanson see gradual modal shift to rail as key to achieving their target of being carbon neutral by 2050¹⁰. Hanson has a target reduction of approximately 5,000 vehicle movements a year¹¹.

Currently only 20%¹² of cement currently leaves the Padeswood Cement Works by rail, showing the scope that rail freight has to grow from the site and contribute to modal shift. To try and support this modal shift to rail GBRf have aspirations to increase its operations to the site to 285 trains per annum by 2025¹³. This would require infrastructure improvements and additional paths to facilitate these additional freight trains.

Hanson has also been engaged with the development of the Padeswood options. They have indicated their support for enhancement which would enable the complete stabling of trains and reduce the mainline track dwell for freight services, and would need to be involved in discussions about further funding options.

Due to the potential that Padeswood Cement Works has for modal shift to rail an hourly freight path was included in all three phases of the capacity analysis carried out in this workstream.

⁹ Padeswood CCS | Padeswood CCS

¹⁰ <u>hanson-uk-committed-to-reaching-net-zero-carbon.pdf</u>

¹¹ wrexham-to-bidston-track-access-decision-2022-11-30 (3).pdf

¹² wrexham-to-bidston-track-access-decision-2022-11-30 (3).pdf

¹³ wrexham-to-bidston-track-access-decision-2022-11-30 (3).pdf





Part D: Options and costs for enhancing capacity

D.01: Timetable changes to drive improved performance and capacity

The Network Rail Advanced Timetable Team looked at whether timetable changes could be made to facilitate additional services but found that there are no such improvements without infrastructure interventions.

D.02: Infrastructure changes to generate additional capacity

The Capacity Report identified infrastructure interventions required for each phase tested by the Advanced Timetable Team. Phases 1 and 2 both require an intervention at Padeswood Cement Works and a reduction in the Line's headways. Phase 3 also requires the same intervention at Padeswood and requires a more significant signalling solution to achieve at minimum a planning headway of 7 minutes along the Line. Something which was not identified as absolutely necessary in the capacity report but has significant performance benefits for the Line are the line speed increase being looked at by Network Rail's Route Asset Management team. The Line's level crossings will also need to be assessed to ensure that any additional services don't create a significant safety risk.

The infrastructure interventions needed for each phase considered in the capacity report are shown in the table below and more detail on each is given later in this section:







Infrastructure	Phase 1	Phase 2	Phase 3
New entrance at Padeswood Cement Works with cross over	$\checkmark\checkmark$	$\checkmark\checkmark$	$\checkmark\checkmark$
Insert intermediate block signals	$\checkmark\checkmark$	$\checkmark\checkmark$	×
Re-signalling to allow 7-minute headway	+	+	$\checkmark\checkmark$

Table 1. Infrastructure options

Key:

✓ ✓ = Essential

+ = Nice to have / beneficial

× = Not beneficial

Phases 1 and 2

The first intervention needed to facilitate the additional services in all three phases tested in the capacity analysis is an intervention at Padeswood Cement Works. The current entrance layout means that freight services accessing the site block the mainline for as much as 40 minutes. There is therefore a need for a new crossover and a new entrance to the Cement Works to cut the time that a freight service blocks the mainline for report.

TfW has been working with Mott MacDonald to consider the various options for improving the entrance to Padeswood Cement Works. The options considered will reduce the complexity of freight services accessing the site delivering the additional capacity needed for additional passenger services, and build upon options previously set out by Arcadis in earlier development work for TfW.

The various options were considered at an option workshop with a hybrid option identified as the preferred option. The preferred option for improving the entrance is shown in figure 2. The option includes the addition of a southward facing connection and Down-Up crossover on the Borderlands Line to the north of the existing connection; and the extension of the existing sidings northwards to allow all shunting to be undertaken on the Cement Works' internal rail infrastructure. The interventions will:

- Provide direct access to sidings from mainline, eliminating shunt moves on the mainline;
- Incorporate 24 cement wagons (supporting 2,400 tonne operation);
- Optimise the turnout speed, to enable timely access and egress;
- Not fundamentally change how the sidings are operated.



Figure 2: diagram of the preferred option for an improved entrance to Padeswood

The work carried out by Mott MacDonald estimated that the hybrid option has an estimated construction cost of £44.8 million. As a Quantified Risk Assessment (QRA) is yet to be carried out, this figure includes significant contingency/risk allowance and also inflation assumptions in reference to the Retail Price Index (RPI). As the work progresses through further stages of development these cost estimates could of course be subject to change. The initial economic case written by Mott MacDonald has shown the Padeswood interventions to have a positive BCR at this stage of development.

The work is currently at OBC stage with TfW currently scoping the next stage of development.

The second intervention also needed to facilitate the additional services in phases 1 and 2 is a signalling solution which inserts intermediate block signals to reduce the headways on the line. The headways below are based on TfW's Class 230s with a 30 second dwell at stations. (The value in brackets indicate the minimum headway following an all-stations passenger train):

- Bidston West Jn to Dee Marsh Signal Box planned to AB+2 (24.5 minutes).
- Penyffordd to Dee Marsh Signal Box planned to AB+2 (15.5 minutes).
- Wexham Exchange Jn to Penyffordd planned to AB+2 (19.5 minutes).
 - When Penyffordd box is switched out Absolute Block to apply between Wrexham Exchange Junction (CN51/75 signals) and Dee Marsh Junction (DM3/23 signals) (When signal box is closed it takes 30.5 minutes).
- Wrexham Central to Wrexham Exchange planned to one train in section.

The workstream being led by Mott MacDonald and TfW looking at the interventions needed to facilitate service uplifts on the line also includes signalling improvements. The estimated cost of upgrading the signalling to facilitate the service uplifts in phase 1 and 2 identified by the Mott MacDonald work is £38.9 million. As a Quantified Risk Assessment (QRA) is yet to be carried out, this figure includes significant contingency/risk allowance and also inflation assumptions in reference to the Retail Price Index (RPI). As the work progresses through further stages of development these cost estimates could of course be subject to change.





Phase 3

The third intervention which is only relevant for phase 3 is the need for a signalling solution which allows 7-minute headways on the Line. This would require a significant re-signalling of the whole line to deliver these headways which are considerably lower than the line's current headways.

The development work being carried out by Mott MacDonald and TfW has considered the signalling solutions required to facilitate 4tph on the line. The estimated cost of the signalling changes identified in their development work is £71.4 million. As a Quantified Risk Assessment (QRA) is yet to be carried out, this figure includes significant contingency/risk allowance and also inflation assumptions in reference to the Retail Price Index (RPI). As the work progresses through further stages of development these cost estimates could of course be subject to change.

Future digital signalling solutions may become available which offer an alternative way of meeting the headway reduction to traditional re-signalling.

Level Crossings

To facilitate additional services on the line steps will need to be taken to mitigate the additional risk at level crossings. Work is already being undertaken to facilitate the uplift already approved by the ORR. The work will ensure the safe introduction of the services in phases 1 and 2 looked at in this workstream.

This work includes the following actions which have and will be completed in the next few months:

- Gwersyllt An access path has been installed from Station Court allowing the closure of the crossing. Remedial works are due to be carried out in the coming months to the highway and bridge parapet to improve sighting from the steps.
- Cefn-y-Bedd Improved access path to barrow crossing has been delivered. New barrow crossing was installed on 1st April 2023.
- Hope a new footpath has been installed from Llwyn Alun. Barrow crossing was removed 25th March 2023.
- Penyffordd new access steps and a ramp have been installed. Installation of lighting for the new footpath and steps have also been carried out.
- Buckley a temporary footbridge is to be installed. Dates and design are imminent. Public right of way path has been closed in advance of the footbridge.
- Hawarden Improving access ramp to barrow crossing to be undertaken with the date TBC. New extended barrow crossing was installed April 2023.
- Hawarden Bridge Risk mitigation activities will be delivered by NR. These could include interventions such as anti-trespass matting. The date of these activities is TBC.

Should the level of service be increased to the service pattern in phase 3 there is a chance that additional measures may need to be taken at some of the level crossings subject to Network Rail assessing the change in risk.





Line Speed Improvements

Network Rail's Route Asset Management team have been working on proposals to increase the line speeds on the Wrexham – Bidston Line. Although these aspirational line speed improvements won't free up the capacity to facilitate additional services, they'll have a positive impact on the resilience of the line and the ability to recover from delays. The work isn't considered to be high cost, but funding is still needed for track and signalling assurance to confirm the final cost of implementing the line speeds. The current proposal is to increase the line speeds to 60mph where possible which aligns with the maximum speed of the Class 230s which will be operating on the line. 60mph is also the highest speed which can be achieved without increasing the track category which would increase the inspection and maintenance frequency required for the line for which there isn't adequate resources currently.



Figure 3 shows the proposed line speeds on the Wrexham – Bidston Line.

Figure 3: the aspirational line speed improvements for the Wrexham – Bidston Line

Extension of services north of Bidston

The aspiration of extending services north of Bidston to Liverpool was outside of this workstream's geographic scope. Although the interventions above will enable the services to run between Wrexham and Bidston infrastructure or timetabling interventions may be required north of Bidston if the services were to be extended.





If Class 777s were to be extended south to Wrexham as is currently being considered, additional infrastructure would be needed on the line in the form of charging points or targeted third rail to recharge the Class 777s batteries. This was outside of the scope of this work but was included in the work commissioned by TfW and carried out by Mott MacDonald to look in detail at the interventions needed to facilitate the extension of Class 777s on the Line.





Part E: Conclusion

The Capacity Report identified that there isn't any capacity on the Wrexham – Bidston Line to accommodate any additional services beyond the ORR resolution made in November 2022. If there are to be any further service uplifts on the Line during the day, there will need to be infrastructure interventions.

If there are to be 2 passenger services every hour then an intervention is needed at Padeswood Cement Works to reduce the time it currently takes for freight services to access the site. There would also be a need to break up the restrictive headways on the Line. The interventions are the same whether the second passenger service is an all stopper or a skip stopper as tested in phases 1 and 2.

To achieve 4 passenger services an hour the intervention at Padeswood Cement Works is still required as well as a more significant signalling intervention to achieve at minimum a 7 minute headway on the Line.

The interventions identified for all 3 phases also unlock the opportunity to have an hourly freight path to facilitate freight growth on the Line.

The interventions will also provide the capacity needed on the Line should the Class 777s be extended south to Wrexham. Any infrastructure to charge these trains is however outside of the scope of this work as are any interventions needed north of Bidston. TfW and Liverpool City Region have however been undertaking work to look at these areas.

TfW is progressing the interventions identified in this report through further development work but none of them are currently funded to delivery. There was a bid submitted into the first two rounds of the Levelling Up Fund by Flintshire County Council which included an upgrade at Padeswood Cement Works. Although unsuccessful on both occasions a resubmission to a future round of the Levelling Up Fund may present an opportunity to fund an intervention at Padeswood and to unlock the significant benefits it would provide.

As well as the Levelling Up Fund there are other potential sources of funding available. If funds were to become available through The Union Connectivity Review for example, it is considered that a case could be made for this work's recommendations meeting the aspirations of Union Connectivity as set out in the strategic fit section of this report.

The Rail Network Enhancements Pipeline (RNEP) presents a potential option to make the case for rail enhancements on the line to the UK Government. Any of the recommendations could enter RNEP at the appropriate stage and progress through the pipeline towards full investment funding subject to





demonstrating that they satisfy RNEP's principles for investment, and subject to portfolio-wide affordability considerations.

Finally, it is possible that funding could be sought from third parties to finance the recommendations or to supplement funding from the sources set out above.

To carry forward the recommendations of this report the rail industry and the regions stakeholders will need to come together to make the case for its importance and identify funding opportunities. There is a strong sense of unity in the area embodied by groups such as Growth Track 360 and the Wrexham – Bidston Rail Users' Association who will be able to provide strong support for the interventions identified in this report.

The DfT has received this enhancement plan in advance of publication, and it is currently awaiting ministerial review.

The Wales Rail Board, jointly accountable to the Secretary of State for Transport and the Welsh Minister for Climate Change, is in the process of developing a shared vision and a prioritised set of proposals for rail infrastructure investment in Wales aligned with the strategic priorities of both governments. It is suggested that this report be considered by the Wales Rail Board in the development of its strategic programme.







Glossary

Term	Meaning		
Tph	Trains Per Hour		
Headways	The time between train services on a line		
Absolute block signalling	A signalling type where the line is split into sections which can only		
	have one train service in them at a time		
Train Planning Rules	The standard timings between stations and junctions together with		
	other matters enabling trains to be scheduled into the working		
	timetable for the various parts of the main rail network.		
NR	Network Rail		
DfT	Department for Transport		
TfW	Transport for Wales		
ORR	Office of Rail and Road		
RNEP	Rail Network Enhancements Pipeline		

Table 2: Glossary