30 October 2020

Gareth Clancy
Head of Access and Licensing
By email only

Dear Gareth

Grand Union Trains Section 17 Application between London and Carmarthen: Capacity and Performance Assessment

I am writing in response to your letter of 16 October 2020.

Network Rail has been working on assessing the Grand Union Trains Ltd (GUTL) applications in good faith. We have taken a methodical and logical progression of work to assess the applications. A timeline showing the work undertaken by Network Rail to assess the GUTL applications is in Annex 1. This demonstrates the volume of work which has been undertaken to assess the applications, as well as the considerable effort by Network Rail to assist GUTL in finding compliant proposals for train slots. It is only with the latest iteration of the proposed service specification that Network Rail and GUTL are in a position to understand which parts of the proposition can have a compliant train and platform plan; this will now allow meaningful performance modelling to be carried out. The static performance analysis conducted so far on the various GUTL applications using historic performance data shows there is a potential performance risk which is why the detailed modelling is required.

The Coronavirus pandemic has significantly impacted the railway industry, with a collapse in passenger numbers, which has been sustained for several months. As service levels were reduced, there was an immediate improvement in punctuality and performance on the network. Indeed, during the early months of the pandemic, punctuality reached record levels with the proportion of trains arriving on time, to the minute, rising to 80-90 % and around 95 % of trains routinely arriving within 5-10 minutes of their scheduled time. The industry has been challenged to continue to maintain the high levels of punctuality and performance which have been seen over the last few months. Network Rail is committed to 'building back better' and to embed improved performance. This is in line with the Government's expectations and is in the interests of passengers. As a consequence of these requirements, Network Rail is working across the industry to consider carefully increases in train services prior to their inclusion or reintroduction in the timetable.

We set out our responses to the questions you raise in your letter in Annex 2, however in summary, we cannot at this time support the proposed services in GUTL's application. In particular, GUTL's application goes beyond the capability of the infrastructure enhancements on GWML to meet the passenger train services applicable from the December 2019 timetable change for GWR and Crossrail (Elizabeth Line) train services. Analysis of the proposed train slots shared by GUTL against the May 2020 timetable shows that 6 of 7 of the 'pairs' of train slots can be made to be Timetable Planning Rules (TPR) compliant through extensive flexing of other operator's services and the use of Line 2 out of Paddington in the up direction. However, there are concerns remaining with the application and we need to undertake further performance modelling and analysis prior to a decision being made on whether Network Rail can support any part of the application.

To address this, we proposed that detailed performance analysis of the timetable should now take place. This will able us to answer your question on PPM impact more comprehensively. To undertake modelling on a timetable which has non-compliances and without fully worked up platforming at Paddington would likely lead to a misleading result. This kind of modelling takes time to set up and carry out, and we estimate it is likely to take six to eight weeks to complete such analysis. This will be confirmed in our follow-up to this correspondence by 6 November.

I am copying this letter to: Martin Jones, David Reed and Ian Williams, ORR; Ian Yeowart, Grand Union Trains; Mark Langman, Mike Gallop, Chris Rowley, Charlene Wallace and Dan Fredriksson, Network Rail.

Yours sincerely

Paul McMahon
Managing Director, System Operator

Annex 1: Timeline of Applications and Associated Analysis

June 2018 - July 2019

GUTL consult a section 17 application for up to 14 services each way between Cardiff Central and London Paddington using Class 91 rolling stock

- **July 2019**, the application is withdrawn by GUTL

August 2019 - May 2020

GUTL consult a section 17 application for up to 7 services each way between Cardiff Central and London Paddington using Class 91 rolling stock until May 2023.

From May 2023 the service pattern is up to 14 services each way between London Paddington and Llanelli using class 802 rolling stock.

- **September 2019**, Grand Union Paddington Cardiff report produced by Network Rail
  - Provides indicative running times for GUTL
- **November 2019**, ORR requests Network Rail's representations on GUTL's application
- **December 2019**, Grand Union Trains Paddington – Cardiff Path Analysis report completed by Network Rail
  - GUTL consulted during this work
  - All 12 paths proposed by GUTL were non compliant, of these 9 were considered to be potentially feasible with moderate to significant flexing to existing servies.
  - Platforming at Paddington and Cardiff not considered at this stage
  - The impact on performance was not considered at this stage
- **December 2019**, Network Rail provides its response to ORR
- **May 2020**, the application is withdrawn by GUTL

May 2020 - Present

GUTL consult a section 17 application for up to 7 services each way between Cardiff Central and London Paddington using Class 91 rolling stock until December 2023.

From December 2023 the service pattern is up to 7 services each way between London Paddington and Carmarthen using Class 802 rolling stock.

- **May 2020**, ORR requests NR's representations on GUTL's application.
- **May 2020**, Grand Union Trains Timetable Evaluation report completed by Network Rail
  - Used train paths proposed by GUTL and overlaid these onto the May 2020 timetable.
  - 2 of the 14 proposed paths could be made compliant within the boundaries of the analysis
  - Significant flexing was required to make these paths complaint
  - Performance concerns highlighted variablity of existing services impacting on GUTL's paths and short turnarounds at Cardiff Central and Paddinton being of particular concern.
  - Platforming at Paddington and Cardiff is not considered in detail at this stage although it is noted the platform plan as provided by GUTL is not compliant and requires further work.
- **June 2020**, Network Rail responds to ORR regarding GUTL's application
- **July 2020**, Grand Union Trains analysis Technical Note issued by Network Rail
  - Paths between London Paddington and Cardiff Central analysed in collaboration with GUTL against the May 2020 timetable
  - Five pairs of paths were able to be planned compliantly
  - The platforming at London Paddington and Cardiff Central was not assessed
  - The performance impact of the paths found, and the performance impact of the required flexes, was not assessed.
  - 93 different flexes were required to services to create the compliant paths found Platforming at Paddington and Cardiff not considered at this stage
  - Two pairs of paths were not able to be planned compliantly
- **August 2020**, Grand Union Trains from Wales to London Paddington – Paddington Platforming issued by Network Rail
  - A platforming solution could be found for one pair of services at Paddington. No viable solution was found for any other pairs of servies
  - Use of line 2 inbound was discounted for this study due to the performance risk of utilising it
  - GUTL requested further work to collaboratively investigate alternative methods of platforming Paddington
- **October 2020**, Grand Union Trains – London Paddington Platforming Assessment completed by Network Rail in draft and shared with GUTL
  - Platforming at London Paddington collaboratively analysed by NR and GUTL
  - It was possible to platform all the services at Paddington in accordance with the TPRs
  - The performance impact of the required changes has not been assessed
  - Use of line 2 for inbound services is required throughout the day, this necessitates the signaller manually overruling the ARS system and introduces a performance risk
  - 120 changes are required to platforming, routing and flexing
  - Turnround times for some services are reduced
  - Requires the use of North Pole depot

Annex 2: Responses to ORR Questions

Below are the more detailed responses to the specific questions set out in ORR's letter of 16 October

> 1. *Is Network Rail (NR) able to support the application, or any subset of the application? If NR cannot support the application, or parts of it, please explain with evidence for all areas it cannot support.*

Network Rail cannot support the proposed services in GUT's application at present. The infrastructure enhancements on the GWML installed by Network Rail between 2010 and 2019 were specified to meet the passenger train levels applicable from the December 2019 timetable change for GWR and Crossrail (Elizabeth Line) train services. The application by GUTL goes beyond that capability.

Analysis of the proposed train slots shared by GUTL against the May 2020 timetable shows that 6 of 7 of the 'pairs' of train slots can be made to be Timetable Planning Rules (TPR) compliant through extensive flexing of other operator's services and the use of Line 2 out of Paddington in the up direction (annex 3: 'Grand Union Trains analysis Technical note') . GUTL and Network Rail worked collaboratively to develop the proposals in detail, demonstrating Network Rail's drive to progress the application. However, there are significant areas of concern remaining with the application and Network Rail cannot in good faith support the additional paths without satisfying itself as to the effect on the railway.

The areas which NR has considered when coming to its view are set out below. Further detail is also given in answer to specific questions from ORR.

TPR compliance
Six of the seven pairs of services can be made TPR compliant with extensive flexing of other operator's services and the insertion of pathing time, most notably between Ladbroke Grove and London Paddington. As a result some GWR services have extended journey times, with over 2 minutes pathing inserted, resulting services coming to a standstill. Where this currently happens in the timetable, negative performance impacts have been seen. NR does not believe any contract breaches will occur as a result of these alterations to other operator's services.

Paddington Platforming
A TPR compliant platform plan for Paddington has been worked through between NR and GUT which included 138 changes to services to work and use of Line 2 in the up direction to allow a compliant platforming plan for 5 pairs of GUTL's services (annex 4: 'GUT- Paddington Platforming Report DRAFT').

The ARS system controlling Paddington overwrites all Line codes so line 2 is only used for down services and line 3 is used for up services. To override this the signaller will have to take control away from ARS every time the moves occur. NR does note that the Concept Train Plan being developed for ESG 5 (Crossrail) which was provided to GUTL contains similar moves. The CTP is a draft document which is in development by the ESG and the sub-optimal moves contained within it, such as using line 2 in the up, are being scrutinised. It is unlikely the wrong-direction moves on line 2 will be incorporated into the production timetable; the December 2020 SX timetable has two services routed up line 2, one can be rerouted to a different line and the other is a test train.

As part of the proposed performance analysis to be done on the compliant train plan Paddington platforming will be examined so the effects of using Line 2 in the up are more fully understood.

Cardiff Central Platforming
Cardiff Central platforming has not yet been assessed in detail by Network Rail and GUTL as it is considered less of a constraint than Paddington platforming or the line capacity between Paddington and Cardiff. The train plan developed by GUTL and Network Rail is not compliant with the TPRs at Cardiff Central when overlaid onto the December 2020 timetable and significant flexing of other services is likely to be required to accommodate the GUTL trains.

Network Rail also has concerns about the stabling of trains at Cardiff if they require assistance along non-electrified lines to a depot as this would create the requirement for additional paths and attaching/detaching at Cardiff. Network Rail is seeking to assess these concerns in the coming weeks, in line with timescales required to undertake performance modelling.

Performance

Network Rail is not in a position where it can support the application as the impact on performance is not understood to the degree necessary. Where compliant train pairs can be demonstrated, there are flexes required to other operators and inherently risky operational movements, such as a reliance on using Line 2 in the Up direction at Paddington Station.

At a system level, Network Rail has undertaken analysis work to understand the performance impact of high levels of congestion across the Great Western Mainline (annex 5: ' WCI OPSG position paper FINAL 4-9). There are concerns with increasing utilisation of infrastructure which, prior to the Covid-19 pandemic, was not a high performing railway. The infrastructure at that time was not supporting the full level of rights which have been sold on the route.

As more comprehensive response to question 2 Network Rail is proposing that detailed performance analysis of the timetable should take place now that TPR compliant paths have been identified for many of the proposed services. We are aiming to conduct the more detailed modelling which would allow us to answer ORR's question on PPM impact more comprehensively. This kind of modelling does take significant amounts of time to set up and carry out. It is likely that we are looking at a timeline of six weeks to complete such analysis. This will be confirmed in our follow-up to this correspondence by 6 November.

In the meantime, Network Rail has undertaken analysis based on actual train running (Path Variance Analysis), which is detailed in question 2 (annex 6: 'Grand Union Trains Path Variance'). The outcome of which has indicated that there are performance risks associated with four of the six pairs of trains for which compliant paths have been identified.

Effect on other operator's services

Network Rail believes all the flexes identified are contractually allowed by the track access contracts in place, although this would be verified during the timetable production process and the Network Code applied as required. There are alterations required to other operator's services as a result of GUTL's trains. In particular GWR sees four of its services with journey times extended by between 2.5 and 5 minutes and six Heathrow Express services have journey times of over 15 minutes once they are flexed. Changes to GWR may impact on the business case of the GWML route modernisation. There are also platforming changes required at Paddington to accommodate GUTL's trains.

Specified Equipment

As set out in Network Rail's initial representations to the latest GUTL application, the Route Clearance processes have not yet concluded for the Specified Equipment (Class 91 Electric Locomotive, Mark 4 Driving Van Trailer and up to 9 Mark 4 Passenger Vehicles and Class 802 with up to 9 vehicles). Therefore, rolling stock compatibility has not been demonstrated throughout the route specified for all the rolling stock specified in the application.

GUTL has commissioned a gauging study and Electromagnetic Compatibility assessment as part of their progress towards demonstrating compatibility with the Network. We recognise that this is an ongoing process and does not insist that the compatibility process conclude before decisions on the sale of access rights conclude.

To reiterate the original representations, if the findings indicate that the rolling stock can demonstrate gauge compatibility with reduced or special clearances, then Network Rail would not support working to those, as this is likely to lead to increases in costs in maintaining the network. If the compatibility process determines that interventions are required to clear the vehicles for operation on the route, then it is incumbent on the proposer to engage with Network Rail on commissioning works to deliver the required capability.

2. *Please set out modelled performance impacts of the proposed services, in PPM terms. Please provide this per path where possible.*

Network Rail has not yet been in a position to model performance impacts of the proposed services, as the capacity analysis has only recently been completed to the extent necessary to undertake meaningful performance modelling. Prior to the completion of the London Paddington platforming assessment (annex 4: GUT - Paddington Platforming Report DRAFT'), it was not clear whether the 6 trains in each direction, which were identified in the capacity analysis, could be platformed compliantly alongside existing train services. If modelling is undertaken using a timetable which is not Timetable Planning Rule (TPR) compliant, which is undeliverable with the existing infrastructure, then the outcome of any modelling is likely to indicate a significant deterioration in performance.

Now that Network Rail and GUTL have determined that it is possible to include 6 trains in each direction between London Paddington and Cardiff alongside exiting quantum rights, it is seeking to undertake performance modelling which would provide an indication of the impact of those services. Network Rail anticipates that it will need to update ORR on the timescales for undertaking any such assessment by 6 November 2020. It is not going to be feasible to conclude such detailed modelling work within the timeframe set out by ORR.

We have been assessing the options available to undertake the more detailed modelling which would enable a projection of potential PPM impact. In summary the options assessed are:
1. Base work on Dec 2019 Timetable performance assessment:
   a. Existing Model Geography: Paddington to Bristol
2. Base work on Dec 2021 (Crossrail Phase 5 Concept Train Plan)
   a. Existing Model Geography: Paddington to Didcot
3. Bespoke assessment looking at whole application – Paddington to Cardiff
   a. Existing Models: Not available in entirety - time required to create a more complete infrastructure model

There is a trade-off to be made between time and accuracy across the different options available. Network Rail It is likely that we will be commissioning work to undertake modelling of the impact of GUT paths based on the geography modelled for the introduction of the December 2019 timetable. However, it comes with certain disadvantages, in that there are parts of the application beyond Bristol which would not receive the same level of modelling. To mitigate these, Network Rail will undertake analysis of the proposals, similar to the Path Variance Analysis included as part of this submission.

The range of timescales between the options is a lower range of six weeks for options 1 and 2, and an upper range of approximately 12 weeks for the bespoke assessment. These are reasonable timescales to deliver the kind of detailed modelling which is being described.

Path Variance Analysis

As part of Network Rail's assessment of the latest proposals developed collaboratively with GUT, Network Rail has undertaken Path Variance Analysis (annex 6: 'Grand Union Trains Path Variance') of the 12 paths for which timetable compliant proposed train slots have been created. The assessment reviewed the train planned to operate immediately before the proposed GUT path. This analysis indicates the level of risk associated with each of the train slots in terms of whether they would likely be impacted by the train in front, and therefore increase or create additional reactionary delay. The outcome of which has indicated that there is a high risk associated with four of the six pairs of trains for which compliant paths have been identified. Two pairs of train slots have been identified as low risk in terms of path variance, this indicates further performance analysis of these slots will be beneficial to show the effects of the flexing and platform alterations required on performance

It is noted that 1L75 is pathed behind 1P22, which stops at Slough and then is followed on a two-minute headway by 1A76. The two-minute headway is applicable to trains at line speed, which 1L75 will not be able to achieve due to catching up to 1P22 at Slough. A similar move currently exists at Maidenhead in the peak timetable which results in delay and further performance analysis is required to understand if a similar effect will be seen in this instance.

   3. *Please set out any impacts that NR believes the proposal would have on existing services (this should include all services that currently hold access rights, even if they are not running under the current reduced timetable). If NR is willing to support a subset of the application, please set out the impacts of this subset.*

The capacity analysis report undertaken in July 2020 (Annex 3; 'Grand Union Trains analysis technical note') has indicated that there would be a requirement to introduce 36 significant flexes to existing services in accommodating 6 of 7 of the proposed Grand Union Trains services. A significant flex in this context is defined as a variation which would amend a passenger train service to depart origin or intermediate stations earlier or arrive at a destination or intermediate points later. It also includes a variation to a freight train service which would require an amendment to its departure slot.

The average variation of those significant flexes is 2 minutes per amended train, with a maximum flex of 6 minutes in one service. The consequential amendments required to be made to existing services in order to accommodate 6 of the 7 trains in the application have been assessed against the relevant contractual obligations,

and all of the amendments would allow NR to deliver its obligations within the track access contracts with the affected TOC or FOC.

4. *In discussions with ORR, NR agreed to forward further documents. Please forward all relevant documents that remain outstanding, including the performance report and platforming assessment.*

[Network Rail anticipates that this will be covered off by the reports prepared as part of the other queries]

5. *Please provide full detail on the underlying and existing performance issues NR has identified in the draft performance work shared with ORR, with particular reference to the evening period in the Didcot area. How will the GUT proposal "exacerbate" these issues?*

The report which is referenced in this query is the 'Grand Union Timetable Evaluation v2.0', which was undertaken as part of the evaluation of the previous proposal to operate trains between London Paddington and Cardiff / Llanelli. Many of the proposed train slots were subsequently amended and developed by Grand Union Trains and Network Rail as part of the capacity assessment which was shared with ORR in August (annex 3: 'Grand Union Trains analysis technical note'). However, as set out in Network Rail's response on performance assessments, Network Rail has undertaken an updated Path Variance analysis, which sets out a similar risk with several of the most recently developed train slots. The analysis indicates that 2 of 6 of the compliant train pairs have a Low risk of exacerbating reactionary delay in the timetable, as the train schedule they follow operate with a high level of right time operation, whilst 4 of the compliant train pairs have at least one train with a High risk of being impacted and exacerbate the likelihood of train delays.

The performance analysis undertaken as part of the position paper regarding GWML (annex 5: 'WCI OPSG position paper FINAL 4-9') indicates that there are challenges throughout the day between especially between Didcot and Wootton Bassett Jn, in particular during the PM peak where we see as low as 30% of trains arriving early or on time at Didcot Parkway and around the 40% mark for the same measure at Wootton Bassett Junction.

6. *Is NR content with the ability to platform GUT services at Cardiff Central in Phase 1 and Phase 2. We note platforming analysis was not conducted as part of the Capacity Analysis. If any outstanding concerns remain regarding this, what are they and how do NR plan overcome them?*

Network Rail has overlaid the most recent train plan developed by GUTL and Network Rail onto the December 2020 timetable. None of the proposed paths were able to be platformed compliantly. A solution for the platforming has not yet been developed and significant flexing of other services is likely to be required. This will be developed further during the course of the proposed performance modelling.

Use of class 91 electric traction is a concern as much of the railway around Cardiff Central is not electrified. The effect of this will depend on the stabling strategy for the trains; if assistance is required over non-electrified sections of the railway the additional paths and time for attachment/detatchment of the assisting locomotive will impact on the timetable.

There are two capacity reports incorporating elements of the Grand Union Trains at Cardiff Central station which have either concluded or are in development. Neither has specifically looked to incorporate the services into the existing timetable, as both were looking at future timetable aspirations. Both studies indicate that there is capacity for GUT within the scope of the studies.

The Wales Event Steering Group for the development of proposals for Dec 2022 has included GUTL services. Whilst this work is ongoing, it is indicating that the proposed train slots can be included from a capacity perspective. The Event Steering Group has not undertaken any performance analysis work.

The second capacity assessment which include GUTLs services is the South Wales Continuous Modular Strategic Plan (CMSP) (annex 7: South Wales CMSP final report). This work was limited in scope to reviewing a small window in the development timetable, using the outputs from the capacity assessment 'Grand Union Trains analysis technical note'. Two of the GUTL services were included in the analysis in scope. They had platforms allocated to them as part of the assessment, but the services were incomplete in the sense that the ECS were not accounted for.

Network Rail believes it needs to undertake a targeted exercise to gain confidence that sufficient capacity exists beyond Cardiff to accommodate the Phase 2 element of the application.

7. *Please provide the Paddington Platforming analysis. What is the current position on the ability to accommodate GUT services in Paddington station?*

Network Rail and GUTL have worked collaboratively to develop options for platforming at Paddington. The report has been shared with GUTL in draft (annex 4: 'GUT - Paddington Platforming Report DRAFT'), and GUTL have provided feedback on the report, which is being reviewed and considered by Network Rail.

As outlined in the response to ORR question 1, it is possible to develop TPR compliant paths and platforming combinations at London Paddington. The challenge with the existing solution is the reliance on arriving on line 2 on the approach to the station. The ARS system controlling Paddington overwrites all Line codes so line 2 is only used for down services and line 3 is used for up services. To override this the signaller will have to take control away from ARS every time the moves occur.

In order to develop the TPR compliant paths, the study has indicated that there would need to be 138 changes to services, which involve a combination of platforming, routing or flexing, are required to accommodate 6 of 7 of the proposed train slots in each direction. Some of the existing services would see journey and turnround time degradations in excess of 2 minutes whilst a substantial number seeing degradations below 2 minutes. Changing platform occupancy dynamics could introduce performance risk, although the extent to which this might impact on performance metrics has not yet been assessed.

8. *Please provide evidence of how the proposed services increase reactionary delay and new services "amplify" delay. Please refer to operations and performance issues, not ticket acceptance and other commercial issues.*

The wording in this query seems to draw from a report which was prepared as part of the previous application by GUTL to run services between London Paddington and Llanelli. The term "amplify" appeared in the passage, "The resilience of the train service has been analysed by looking at the recovery time within the journey and at the turnrounds. These are limited stop express services therefore if they lose their path this could amplify a minor delay into a more significant one if they end up behind a slower service." There is limited value in drawing reference from this report when considering the latest proposals developed by Network Rail and GUTL, as the majority of the proposed train slots are proposed to operate in different train slots.

The assessments undertaken as part of the updated Path Variance Analysis did indicate that there would likely be increases in delays in 4 of the 6 proposed train pairs as detailed in the response to question 2.

9. *Please provide updated Train Graphs, as included in the 7 May 2020 timetable evaluation in a legible format.*

The Train Graphs referred to in this query relate to the report which Network Rail provided to ORR and GUTL in its evaluation of the previous section 17 application for operating services between London Paddington and Llanelli. The evaluation and development of the current Section 17 application has led to different paths being developed, many of which do not correspond to the paths which appeared in the Train Graphs which were shared in the report dated 7th May 2020. The Train Graphs presented in the report dated 7th May were outputs from a system which does not yet have the functionality to display a more legible train graph when the information is exported from the system.

10. *What impact do the revised timescales for the introduction of GUT services have on timetable planning process?*

Grand Union Trains made the decision to withdraw a previous application to operate services between London Paddington and Llanelli from SCD 2021, and submit the current application starting in PCD 2021. This decision has meant that there was an opportunity to assess the new application in detail, allowing the impact of the train services of the initial phase of the application to be understood as part of advanced timetable assessments. Network Rail does not expect that the GUTL application will impact more broadly on the timetable planning process. GUTL is engaged with the necessary processes, such as the development of Timetable Planning Rules, in preparation to engage in the twice-yearly timetable development process for the December 2021 timetable.

11. *What is the status of the additional GWR Bristol services?*

Network Rail has undertaken a rights review with GWR regarding the London-Bristol 'Superfasts' in light of some of those services not starting to operate since they were introduced and granted access rights. Not all of the services were introduced in the December 2019 timetable change, due to the Programme Management Office

(PMO) requesting that some of the services were not introduced to mitigate risks associated with the potential performance impact of a major timetable chance and the potential electrical interference of the vehicles being two of the key concerns.

Those services were due to be activated in the May 2020 timetable, however, owing to Covid-19, there has been a further delay to the introduction of the full quantum of services. GWR requested that the services which are not operating should be maintained in the timetable and the rights retained in the Track Access Contract until at least December 2021, when the operator is confident that the services will be required.

The DfT has approved the non-use of these services for the duration of the December '20 timetable owing to the COVID-19 related driver training restrictions. Network Rail has agreed to support this request and believes that it is in line with its obligations under Network Code Part J 4.

12. *What is the latest progress on the Western Train Planning Rules Forum?*

A report has been prepared by Capacity Planning using Observed Data Analytics ('ODA Sprint 71 Review: Cardiff Central - Didcot Parkway Headways)'. ODA is a technique for assessing the technical capability of infrastructure by using signal berth occupancy data. An outline plan has been developed for this information to be reviewed in conjunction with the relevant Timetable Planning Rules in these locations.

Initially Network Rail will be reviewing the headways between Pilning and Cardiff as part of the May 2022 rules. This will be followed by a review of the Didcot area. Operators will be involved in this process, as part of regular review forums which will include provision of the appropriate ODA data. In addition to this work, GUTL have been engaged in the TPR consultation on the Sectional Running Times for its proposed rolling stock in preparation for the PCD in December 2021.

13. *What is the current position on the Rules of the Depot work?*

The information provided as part of the initial section 17 application did not entail specific details about the ECS and depot plans to support the services. To date, Network Rail and GUTL have not worked collaboratively on detailed plans for stabling and ECS arrangements. Network Rail is aware that Grand Union Trains is developing its proposals for where the vehicles are likely to be stabled and maintained. Network Rail will keep working closely with GUTL on its developing plans to ensure that any arrangements are operationally robust and deliverable.

14. *What progress has been made on reviewing technical headways between Didcot and Cardiff? Are there any initial conclusions? How do these compare to planning headways?*

See details of question 12.

15. *Please provide answers to the questions below:*
   a. *How is the service recovery process anticipated to be undertaken/amended at both the Western and Wales Route Controls following any introduction of an additional operator?*
      - There is currently a process in place whereby contingency plans are developed in collaboration with all of our Route Operators and these plans then form the basis of any service recovery should it be required. The plans are regularly reviewed and updated to reflect previous learnings and would be subject to a similar review in the event of a new operator being on the Route. This process has not yet taken place with GUTL.
   b. *What policies are in place on this route regarding the Sale of Access Rights? Are there dates beyond which these will not be sold?*
      - There are no local supplements to Network Rail's Access Rights Policy currently in place affecting this line of route.

   c. *Will HS2 construction at Old Oak Common have an impact upon capacity? If so, what will the impact be on existing and potential future services?*
      - The latest plans indicate that Old Oak Common spoil will be transferred by road to Willesden, from where it may be transferred by Rail. Any HS2 train slots included in the timetable have been included in capacity assessments, and incorporated in a TPR compliant proposal. Network Rail is not aware of any construction plans at Old Oak Common which would affect the GUTL proposals

d. *Will Western Rail Access to Heathrow construction and any subsequent introduction of services affect GUT services? What is the anticipated impact/effect of these on the GUT proposals?*
- The plans for the construction and staging of Western Rail Link to Heathrow should not have significant impact either during construction or from the service introduction on the proposals put forward by GUTL. The way the works are planned to take place, it is not anticipated that there will be any temporary linespeed restrictions affecting mainline services on GWML. The introduction of services will not impact on GUTLs aspirations]

e. *Stakeholders have expressed concerns that PAD-RDG, DID-SWI and STJ-CDF are all operating at capacity. Please confirm if this is the case, providing supporting evidence. Please link to other points regarding TPRs*
- The capacity studies undertaken to date have indicated that, whilst not all 7 trains in each direction can be accommodated compliantly with the TPRs, the capacity report 'Grand Union Trains analysis technical note' (annex 3), indicates that it is possible to create a concept train plan which has capacity for 6 trains in each direction between London Paddington and Cardiff. Network Rail's view is that those sections are operating at close to the theoretical maximum capacity, and already past the point at which high levels of performance can be maintained. In light of the anticipated applications for access over the next year, Network Rail is considering whether it must declare a section of the railway as Congested Infrastructure.. Some of the key performance considerations are set out in the report Network Rail shared with industry colleagues (annex 5: 'WCI OPSG position paper FINAL 4-9')

f. *SWA: is there capacity at the station for GUT services? If required, is there capacity to shunt trains to and from depot (both Maliphant and Landore)?*
- Detailed analysis has not been undertaken to understand the current available capacity at Swansea station. The Wales Event Steering Group (ESG) is in place which will be assessing a number of proposals for the December 2022 timetable, which includes phase 1 of GUT specification. Additional work would need to be undertaken to understand the impact of the proposed extensions.

g. *A recent Network Change has been published relating to reinstating SWA platform 4 to full length. What impact does this have on accommodating GUT services? [see response to question 15f]*

3. Capacity Report Paddington to Cardiff

Capacity Analysis report assessing 7 train slots in each direction between London Paddington and Cardiff Central.
Note: *Sent as separate email attachment*

Summary of Train 'Pairs' showing how 6 trains can be accommodated in a way which is Timetable Planning Rule compliant:

Pair	Up Service	Arrival at London Paddington	Status	Down Service	Departure from Paddington	Status
1	1L73	09:34	Path conflict free	1B70	09:58	Path conflict free
2	1L75	11:26	Path conflict free	1B72	11:59	Path conflict free
3	1L77	12:31	Path conflict free	1B75	12:59	Path conflict free
4	1L81	14:30	Path conflict free	~~1B77~~	~~15:12~~	~~Conflicts not resolved~~
	~~1L83~~	~~16:31~~	~~Conflicts not resolved~~	1B80	17:15	Path conflict free
5	1L85	17:29	Path conflict free	1B82	18:15	Path conflict free
6	1L89	19:27	Path conflict free	1B84	20:15	Path conflict free

4. GUT- Paddington Platforming Report DRAFT (V0.3)

Platforming assessment of London Paddington, the document is in draft form, and has been shared with Grand Union Trains. Feedback has been received and is being assessed ahead of a final draft being produced.

Note: *File sent as separate email attachment*

5. Report Assessing Performance on GWML

Report on performance and capacity concerns on GWML

Note: *File sent as separate email attachment*

6. Path Variance Analysis

Path Variance Analysis: Summary table of the risk of existing train services impacting on GUTLs trains (and consequently impacting other services).

Note: *File s*ent as separate email attachment

Pair	Up Service	Arrival at London from Paddington	Reactionary Delay Risk Path Variance	Down Service	Departure from London Paddington	Reactionary Delay Risk from Path Variance
1	1L73	09:36	High	1B70	09:58	Low
2	1L75	11:26	Low	1B72	11:59	Low
3	1L77	12:31	Low	1B75	12:58	Low
4	1L81	14:30	Medium	~~1B77~~	~~15:12~~	N/A
4	~~1L83~~	~~16:31~~	N/A	1B80	17:15	High
5	1L85	17:31	High	1B82	18:15	High
6	1L89	19:27	High	1B84	20:15	Low

7. South Wales and Cardiff Capacity

Capacity analysis report which considered a number of aspirational service changes in South Wales, including the GUT aspiration to operate to Cardiff.

Note: *File s*ent as separate email attachment

Grand Union Trains analysis

Capacity Analysis – System Operator

Technical Note

27/07/2020

Author:

L Jones

Document Owner:

C Priestman

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Overview

What we did?

Following on from analysis carried out by Network Rail in May 2020, this analysis was designed to undertake a further, more detailed evaluation to understand if there is sufficient capacity to operate the proposed 14 Grand Union Trains services. Working in collaboration with Grand Union Trains, these services were analysed within the May 20 timetable to evaluate required capacity.

What we found?

- It was possible to find compliant paths for 5 pairs of paths with these relying heavily on the ability to flex a large number of existing services
    - All 5 are dependent on suitable platforms being available at London Paddington and Cardiff Central stations
- It was not possible to find compliant paths for 2 out of the 7 pairs of paths assessed, despite flexes to surrounding services
- The performance impact of these flexes and additional paths has not been assessed. As part of the discussions regarding the South Wales to Paddington applications, various packages of work were agreed to be delivered by Network Rail and Grand Union Trains. These extend to areas such as Timetable Planning Rules assessments of Sectional Running Times and a platform capacity assessment at London Paddington.

What were the assumptions?

- Geographic Scope
    - London Paddington to Cardiff Central
- Timetable Planning Rules (TPRs) used
    - 2020 Version 4.1
    - Proposed deviations to the TPRs have been stipulated in the findings
- Rolling stock
    - The track access application states the rolling stock will be a Class 91 with a Driving Van Trailer (DVT) and 9 Mk4 coaches
    - The current proposal is for a Class 91 with a DVT and 7 Mk4 coaches to allow sectional running times comparable with the GWR Class 800s with adjustment allowances where necessary
    - Class 91 with 7 Mk4 timings are currently under consultation and might not be able to achieve the Class 802 running times
    - The services are planned to be operated by Class 802 units at a point in the future and the analysis has been based on this rolling stock with additional adjustments to compensate for slower acceleration from stops
- Source timetables
    - May 2020 timetable at offer

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- o Grand Union Trains proposed service timings provided by Grand Union Trains in pif format
- Platforming at London Paddington and Cardiff Central was not included in this analysis.

What are the risks?
- This analysis was undertaken looking at whether the timetable could support the increased quantum of services from a capacity perspective only. There have not been any performance considerations made when carrying out this evaluation.
- Network Rail is undertaking a separate piece of analysis assessing London Paddington station platforming against the Elizabeth Line Phase 5 concept train plan which is developing a timetable for the introduction of Elizabeth Line services through the tunnel. This includes Grand Union Trains proposed paths at Paddington.
- Network Rail is also undertaking the following assessments regarding capacity of the infrastructure on the Great Western main line: an assessment of the Timetable Planning Rules headway values between Didcot and South Wales and reviews of rights and path utilisation across much of the Route.

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DOCUMENT ADMINISTRATION

Change Record			
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0.1	08/07/2020	L Jones	First draft
0.2	08/07/2020	L Jones	Reviewed by M Darms
0.3	09/07/2020	L Jones	Reviewed by C Priestman
0.4	09/07/2020	L Jones	Reviewed by E Pocock
0.5	10/07/2020	L Jones	Updated with internal feedback
0.6	20/07/2020	L Jones	Updated with internal feedback
0.7	22/07/2020	L Jones	Updated with internal feedback
0.8	24/07/2020	L Jones	Updated with internal feedback
1.0	24/07/2020	L Jones	Final
1.1	27/04/2020	L Jones	Minor amendments

References				
Ref.	Document Name	Document Ref. No.	Date	Rev
1	Grand Union Timetable Evaluation	FSI report	07/05/2020	2.0
2	Grand Union Trains train paths Paddington – Cardiff	Dec 19 CA report	12/12/2019	0.8
3	Western and Wales 2020 TPRs	TPRs	12/07/2019	4.1

Abbreviations	
Acronym	Meaning
DVT	Driving Van Trailer
ECS	Empty Coaching Stock
GWR	Great Western Railway
Mk4	Mark 4 coaches
SRT	Sectional Run Time
TPR	Timetable Planning Rules

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Part A: Findings

Grand Union Trains is an aspirant Open Access operator seeking access rights to 14 train slots per day between Cardiff Central and London Paddington from May 2021.

Following on from analysis carried out by Network Rail in May 2020, this analysis was designed to undertake a further, more detailed evaluation to understand if there is sufficient capacity to operate the proposed 14 Grand Union Trains services. Working in collaboration with Grand Union Trains, these services were analysed within the May 20 timetable to evaluate required capacity.

The 14 services were analysed in pairs with one service in the up direction and one in the down direction. This was done so that a train wouldn't be planned into London Paddington without a return journey.

Of the 7 pairs analysed;

- The 5 pairs found to be compliant are only considered so because existing services have been changed and are heavily reliant on the ability to flex associated services. It must also consider the large number of proposed flexes and the number of operators involved.

- Of the 5 compliant pairs, all are contingent on capacity being demonstrated at both Cardiff Central and London Paddington. Should further analysis show it is not possible for these services to be supported at either station this would cause these paths to be deemed as non-compliant.

- 2 pairs have been demonstrated to be non-compliant with unresolved conflicts even after a large number of associated services have had proposed flexes included.

A summary of these services is shown in
Table 1 on the following page.

A total of 82 services required flexing to accommodate the 12 compliant paths. The other two non-compliant services required flexes to 17 and 11 associated services. In both instances these flexes were unable to accommodate the proposed path resulting in unresolved conflicts.

Access rights were reviewed so that if applicable these could be considered. Through the course of the analysis, however, the proposed services were flexed around freight services working on the assumption that they were all running. No other freight assumptions have been used, however one of the freight services from this review has been noted in the relevant section (B.07.02).

Changes to the Timetable Planning Rules are required to accommodate some of the proposed Grand Union Trains services (detailed in B.01). Grand Union Trains has assumed that Heathrow Express services will revert to established longer turnarounds once Elizabeth Line services no longer need to use London Paddington mainline station, however currently the most significant of these is an assumed reduction of turnaround at London Paddington of several Heathrow Express services from 7 minutes down to 6 minutes that has been proposed by Grand Union

Trains as part of their input for this analysis. With regards to headways and junction margins, the TPRs were followed as written therefore the results of this analysis are not contingent on TPR exceptions.

Platforming at London Paddington and Cardiff Central was not included in this analysis, although a number of possible conflicts have been identified. Therefore, capacity at these stations has not been evidenced as part of this technical note. Network Rail is undertaking a separate piece of analysis assessing London Paddington station platforming against the Elizabeth Line Phase 5 concept train plan which is developing a timetable for the introduction of Elizabeth Line services through the tunnel. This includes Grand Union Trains proposed paths at Paddington.

This analysis was undertaken looking at whether the timetable could support the increased quantum of services from a capacity perspective only. There have not been any performance considerations made when carrying out this evaluation.

Network Rail is also undertaking the following assessments regarding capacity of the infrastructure on the Great Western main line: an assessment of the Timetable Planning Rules headway values between Didcot and South Wales; reviewing the rights and path utilisation across much of the Route.

Services identified as conflict free in the below table have not been reviewed for platform capacity at Cardiff Central or London Paddington. Network Rail is undertaking further analysis to look at platform capacity at London Paddington considering these services.

Pair	Up Service	Arrival at London Paddington	Status	Flexes required	Turnaround at London Paddington (minutes)	Down Service	Departure from London Paddington	Status	Flexes required
1	1L73	09:34	Path conflict free	3 services flexed	24	1B70	09:58	Path conflict free	3 services flexed
2	1L75	11:26	Path conflict free	10 services flexed	33	1B72	11:59	Path conflict free	1 service flexed
3	1L77	12:31	Path conflict free	17 services flexed	28	1B75	12:59	Path conflict free	5 services flexed
4	1L81	14:30	Path conflict free	10 services flexed	42	1B77	15:12	Conflicts not resolved	17 services flexed
5	1L83	16:31	Conflicts not resolved	11 services flexed	44	1B80	17:15	Path conflict free	3 services flexed

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| 6 | 1L85 | 17:29 | Path conflict free | 8 services flexed | 46 | 1B82 | 18:15 | Path conflict free | 7 services flexed |
| 7 | 1L89 | 19:27 | Path conflict free | 6 services flexed | 48 | 1B84 | 20:15 | Path conflict free | 8 services flexed |

Table 1: Analysis summary of proposed paths. Red text identified services which have unresolved timetable conflicts. Up services are travelling towards London Paddington, down services are travelling away from London Paddington

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Part B: Details of train paths

B.01   General TPR assumptions and exceptions

Grand Union Trains has assumed that turnarounds for Heathrow Express services will revert to the established longer turnarounds once Elizabeth Line services vacate London Paddington mainline station. For this analysis the turnarounds of several Heathrow Express services have been reduced to 6 minutes by Grand Union Trains. The minimum TPR is 7 minutes however there is an exception that allows a 5-minute minimum to be used, see Figure 1 for details. This would need to be agreed with Heathrow Express due to impacts on diagramming. Further assessment would need to be undertaken to determine whether the impact on performance would be acceptable.

5 minutes for a 4 or 5 car train or an 8 or 9 car train, with a change of driver.

Figure 1: Exceptions to 7-minute minimum turnaround for services arriving from Heathrow at London Paddington taken from Wales and Western TPR document

The TPRs specify that 1 minute of adjustment allowance should be included in schedules travelling from Swindon to Hullavington pass to pass, applied approaching Wootton Bassett Junction. At present this is applicable for 80x, 22x and D455 timing loads. It has not been applied within this analysis as there are inconsistencies within the timetable of application of this value which require investigation by the Western TPR Specialist.

The TPRs specify that 1 minute of engineering allowance should be applied to services approaching Newport. This has instead been applied approaching Maindee West Junction in line with existing GWR services. This applies to all down services (away from London).

An exception has been agreed to the timing load assumptions as stated in the remit for this analysis for the section between Cardiff Central and Long Dyke Jn. The class 91 timing load should be able to match the agreed Sectional Run Time (SRT) for class 802 timing load which would mean that the run time for this timing load should be line with the agreed run times within BPlan for virtually all existing passenger SRTs for this section. These are shown in an extract from BPlan for this section (**Error! Reference source not found.**). This has been supported by run time analysis undertaken by Tracsis and Network Rail.

Cardiff Central to Long Dyke Jn				
Traction	**Max**	**Valid**	**stop**	
Type	**Speed**	**From**	**pass**	**Description**
14x	75	27/12/2016	1'30	Class 141 to 144
150	75	27/12/2016	1'30	Class 150, 155 or 156
153	75	27/12/2016	1'30	Class 153
158	90	27/12/2016	1'30	Class 158
170	100	27/12/2016	1'30	Class 170

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Cardiff Central to Long Dyke Jn				
Traction	Max	Valid	stop	
Type	Speed	From	pass	Description
175	100	27/12/2016	1'30	Class 175
221	125	27/12/2016	1'30	Bombardier Tilt DMU
802-5D	125	15/12/2019	1'30	Class 802 5 Car Diesel
802-5E	125	17/05/2020	1'30	Class 802 5 Car Electric
802-9D	125	15/12/2019	1'30	Class 802 9 Car Diesel
802-9E	125	17/05/2020	1'30	Class 802 9 Car Electric
80210D	125	15/12/2019	1'30	Class 802 10 Car Diesel
80210E	125	17/05/2020	1'30	Class 802 10 Car Electric
CH100	100	27/12/2016	2'00	Charter Class 47 100 mph 455 tonnes
CH95	95	27/12/2016	2'00	Charter Class 47 95 mph 455 tonnes
HST	125	27/12/2016	1'30	High Speed Train (2+8) (125 mph)
HSTGW4	110	13/12/2020	2'30	GWR 2 + 4 HST
HSTPDJ	125	27/12/2016	1'30	HST 2 Track - Paddington to Dolphin Jn 2T
HSTPSW	125	27/12/2016	1'30	HST 2 Track - Paddington to Slough West ML
HSTRDJ	125	27/12/2016	1'30	HST 2 Track - Reading to Dolphin Jn ML
HSTRSW	125	27/12/2016	1'30	HST 2 Track - Reading to Dolphin Jn ML

Table 2: An extract from BPlan showing SRTs (period: 2021 Subsidiary (May21))

It was originally agreed that 30 seconds would be added to schedules on departure from several stations to compensate for differences between the Class 802 timing loads used and the initial Class 91 rolling stock proposed. This included Cardiff Central (see section D.04 for details). This extra time had caused a 30 second headway non-compliance for two of the Up Grand Union Trains services (1L83 and 1L89, detailed in sections B.07 & B.09).

Grand Union have provided data for the modelled technical run times for this section. Standard Indicative Run Time methodology has been applied to the run times for both the proposed class 91 rolling stock formation and the class 802 formation timing load used for this analysis and the Indicative Run Times have been found to be the same between the two types of rolling stock.

B.02 Path by path review

The following sections detail all of the paths that have been reviewed. This contains a summary of the other operators that have been flexed in order to incorporate the Grand Union Trains services into the timetable and unresolved conflicts.

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B.03   1L73 07:34 Cardiff Central to London Paddington

Headcode	Operator	ODT	Origin	Origin Time	Destination	Destination Time
1A09DA	Great Western Railway	SX	Taunton	06:55	London Paddington	09:28
1K07DA	Great Western Railway	SX	Bedwyn	08:31	London Paddington	09:37
1P03DA	Great Western Railway	SX	Hereford	06:43	London Paddington	09:42
1L09DA	Great Western Railway	SX	Swansea	06:58	London Paddington	09:44

Table 3: Summary of services flexed for 1L73

B.03.01   Grand Union Trains path conflicts

Any platform end conflicts identified have been detailed in Appendix B. Network Rail is undertaking further analysis to review platforming capacity for the Grand Union Trains paths at London Paddington.

B.03.02   Flexed services

No conflicts were identified that were caused by the flexes to existing services.

Services with significant flexes or a potential impact to turnaround:

- 1K07DA arrives 3 minutes later at London Paddington
- 1P03DA runs 5 minutes later from Reading to London Paddington

B.04   1L75 09:31 Cardiff Central to London Paddington

Headcode	Operator	ODT	Origin	Origin Time	Destination	Destination Time
2N09DD	Transport for Wales	SX	Bridgend	09:10	Ebbw Vale Town	10:34
2F24DB	Transport for Wales	SX	Ebbw Vale Town	10:38	Cardiff Central	11:33
1V37DB	Transport for Wales	SX	Manchester Piccadilly	08:31	Milford Haven	14:28
1B09DA	Great Western Railway	SX	London Paddington	09:48	Swansea	12:34
6M42FA	GB Railfreight	WO	Avonmouth Hanson SDG GBRF	09:20	Penyffordd Cement GBRF	19:24
2M15DA	Great Western Railway	SX	Westbury	09:45	Swindon	10:32
1A15DA	Great Western Railway	SX	Bristol Temple Meads	10:00	London Paddington	11:38

Headcode	Operator	ODT	Origin	Origin Time	Destination	Destination Time
1P22DA	Great Western Railway	SX	Great Malvern	08:56	London Paddington	11:24
1D20DA	Great Western Railway	SX	London Paddington	10:20	Oxford	11:13
1A76DA	Great Western Railway	SX	Penzance	06:04	London Paddington	11:29

Table 4: Summary of services flexed for 1L75

B.04.01 Grand Union Trains path conflicts

No conflicts were found with the proposed path once proposed flexes had been included.

B.04.02 Flexed services

No conflicts were identified that were caused by the flexes to existing services.

Services with significant flexes or a potential impact to turnaround:

- 2N09DD runs 1 minute later throughout

- 2M15DA arrives 1.5 minutes earlier at Swindon

- 1A15DA arrives 2 minutes earlier at London Paddington

B.05 1L77 10:38 Cardiff Central to London Paddington

Headcode	Operator	ODT	Origin	Origin Time	Destination	Destination Time
0B21DA	DB Schenker Rail (UK) Limited	SX	Margam T.C.	09:57	Alexandra Dock Jn. T.C.	11:04
1A17DA	Great Western Railway	SX	Bristol Temple Meads	11:00	London Paddington	12:39
1F08DA	Great Western Railway	SX	Portsmouth Harbour	07:21	Cardiff Central	10:47
1F13DA	Great Western Railway	SX	Cardiff Central	10:27	Portsmouth Harbour	13:51
1H28DA	Great Western Railway	SX	Bristol Temple Meads	11:22	London Paddington	12:45
1K15DA	Great Western Railway	SX	Bedwyn	11:41	London Paddington	12:52
1L15DA	Great Western Railway	SX	Cardiff Central	10:55	London Paddington	12:42
1L72DA	Great Western Railway	SX	Cheltenham Spa	10:58	London Paddington	12:59
1P25DA	Great Western Railway	SX	Oxford	12:02	London Paddington	12:54
1V35DB	Transport for Wales	SX	Manchester Piccadilly	07:30	Carmarthen	12:28

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Headcode	Operator	ODT	Origin	Origin Time	Destination	Destination Time
1W56DB	Transport for Wales	SX	Fishguard Harbour	07:50	Manchester Piccadilly	14:08
1Y50DA	Heathrow Express	SX	Heathrow Terminal 5	12:12	London Paddington	12:33
1Y51DA	Heathrow Express	SX	Heathrow Terminal 5	12:27	London Paddington	12:48
2N11DB	Transport for Wales	SX	Cardiff Central	10:31	Ebbw Vale Town	11:33
4E18GA	Freightliner Heavy Haul	SX	Fairwater Yard	09:47	Doncaster Wood Yard	21:47
4V70QJ	Network Rail Virtual Freight Company	MSX	Ratcliffe Powergen	05:12	Avonmouth National Power	12:06
3S59BB	DB Schenker Rail (UK) Limited	TO	Bristol Kingsland Road	19:42	Bristol Kingsland Road	12:46

Table 5: Summary of services flexed for 1L77

B.05.01   Grand Union Trains path conflicts

No conflicts were identified with the proposed path once proposed flexes had been included.

B.05.02   Flexed services

No conflicts were identified that were caused by the flexes to existing services.

Services with significant flexes or a potential impact to turnaround:

- 1A17DA arrives 1 minute earlier at London Paddington

- 1H28DA arrives 1 minute later at London Paddington

- 1L15DA entire schedule altered

- 1Y50DA/1Y51DA arrive 1 minute later at Paddington

- 2N11DB departs Cardiff Central 3 minutes earlier

- 4V07QJ up to 8 minutes later from Westerleigh Junction to Avonmouth

B.06   1L81 12:38 Cardiff Central to Paddington

Headcode	Operator	ODT	Origin	Origin Time	Destination	Destination Time
1A21DA	Great Western Railway	SX	Bristol Temple Meads	13:00	London Paddington	14:39
1F17DA	Great Western Railway	SX	Cardiff Central	12:27	Portsmouth Harbour	15:50

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Headcode	Operator	ODT	Origin	Origin Time	Destination	Destination Time
1H36DA	Great Western Railway	SX	Bristol Temple Meads	13:23	London Paddington	14:45
1K19DA	Great Western Railway	SX	Bedwyn	13:41	London Paddington	14:51
1L19DA	Great Western Railway	SX	Cardiff Central	12:54	London Paddington	14:42
1P29DA	Great Western Railway	SX	Oxford	14:02	London Paddington	14:54
1Y58DA	Heathrow Express	SX	Heathrow Terminal 5	14:12	London Paddington	14:34
1Y59DA	Heathrow Express	SX	Heathrow Terminal 5	14:27	London Paddington	14:49
2N15DB	Transport for Wales	SX	Bridgend	12:07	Ebbw Vale Town	13:33
6M63FA	Direct Rail Services	SX	Bridgwater F.D	12:00	Crewe Coal Sidings (DRS)	18:31

Table 6: Summary of services flexed for 1L81

B.06.01 Grand Union Trains path conflicts

No conflicts were found with the proposed path once proposed flexes had been included.

B.06.02 Flexed services

Any platform end conflicts identified have been detailed in Appendix B.

No other conflicts were identified that were caused by the flexes to existing services.

Services with significant flexes or a potential impact to turnaround:

- 1A21DA 3 minutes later from Chippenham to London Paddington
- 1F17DA 3 minutes earlier Cardiff Central to Newport
- 1H36DA 1 minute later Reading to London Paddington
- 1K19DA arrives 1 minute later at Paddington
- 1Y58DA and 1Y59DA arrive 2 minutes later at London Paddington

B.07 1L83 14:31 Cardiff Central to London Paddington

Headcode	Operator	ODT	Origin	Origin Time	Destination	Destination Time
1A25DA	Great Western Railway	SX	Bristol Temple Meads	15:00	London Paddington	16:39
1F21DA	Great Western Railway	SX	Cardiff Central	14:27	Portsmouth Harbour	17:52

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Headcode	Operator	ODT	Origin	Origin Time	Destination	Destination Time
1H44DA	Great Western Railway	SX	Weston-super-Mare	15:03	London Paddington	16:45
1K23DA	Great Western Railway	SX	Bedwyn	15:41	London Paddington	16:51
1L23DA	Great Western Railway	SX	The Cardiff Central	14:54	London Paddington	16:42
1Y66DA	Heathrow Express	SX	Heathrow Terminal 5	16:12	London Paddington	16:34
1Y67DA	Heathrow Express	SX	Heathrow Terminal 5	16:27	London Paddington	16:49
2F46DB	Transport for Wales	SX	Ebbw Vale Town	15:38	Bridgend	17:00
2N19DB	Transport for Wales	SX	Cardiff Central	14:35	Ebbw Vale Town	15:34
4C02DA	Freightliner Heavy Haul	SX	East Usk Yard (FHH)	14:22	Portbury Coal Terminal FHH	16:37
6A16DA	GB Railfreight	SX	Haverfordwest FD GBRf	09:56	Bicester MOD GBRf	18:09

Table 7: Summary of services flexed for 1L83

B.07.01 Grand Union Trains path conflicts

A 30 second headway noncompliance to the flexed version of 2N19DB at Cardiff Central station was identified in this analysis but an exception to the timing load assumptions for this analysis (section D.04) has been agreed and this is no longer deemed a conflict. This exception is discussed in more detail in B.01.

This may also be affected, in a positive way, by upcoming changes to rolling stock in Wales.

B.07.02 Flexed services

The flexed version of 1A25DA is non-compliant with required minimum headway to 6A16DA at Wootton Bassett Junction and Swindon. This freight train was included in the freight rights review and was found not to have not run recently but it still has access rights. As a government stores traffic flow, it has different operability rights, and was therefore not included as part of the most recent freight review for non-running services.

The flexed version of 1K23DA has a conflict with 1B24DA at Portobello Junction. Network Rail is undertaking further analysis to review platforming capacity for the Grand Union Trains paths at London Paddington.

Services with significant flexes or a potential impact to turnaround:

- 1A25DA 3 minutes later Chippenham to London Paddington
- 1F21DA 3 minutes earlier Cardiff Central to Newport
- 1H44DA 1 minute later Reading to London Paddington

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- 1K23DA 1 minute later Reading to London Paddington

- 1L23DA 1 minute later Didcot to London Paddington

- 1Y66DA and 1Y67DA arrive 2 minutes later at London Paddington

- 2F46DB 1 minute later Ebbw Vale to Long Dyke Junction

- 2N19DB 1 minute later throughout

- 4C02DA 4 minutes earlier East Usk to Pilning

- 6A16DA looped at Hullavington

B.08 1L85 15:38 Cardiff Central to London Paddington

Headcode	Operator	ODT	Origin	Origin Time	Destination	Destination Time
1A27DA	Great Western Railway	SX	Bristol Temple Meads	16:00	London Paddington	17:38
1A88DA	Great Western Railway	FSX	Penzance	12:15	London Paddington	17:27
1D32DA	Great Western Railway	SX	London Paddington	16:20	Oxford	17:13
1E60GS	Cross Country	SX	Southampton Central	15:46	Newcastle	21:44
1F23DA	Great Western Railway	SX	Cardiff Central	15:27	Portsmouth Harbour	18:54
1K57DA	Great Western Railway	SX	Newbury	16:35	London Paddington	17:20
2E14DA	Great Western Railway	SX	Didcot Parkway	17:03	Moreton-in-Marsh	18:09
2N21DB	Transport for Wales	SX	Bridgend	15:08	Ebbw Vale Town	16:33

Table 8: Summary of services flexed for 1L85

B.08.01 Grand Union Trains path conflicts

No conflicts were found with the proposed path once proposed flexes had been included.

B.08.02 Flexed services

Any platform end conflicts identified have been detailed in Appendix B. Network Rail is undertaking further analysis to review platforming capacity for the Grand Union Trains paths at London Paddington.

Services with significant flexes or a potential impact to turnaround:

- 1A27DA 3 minutes later Wootton Bassett Junction to London Paddington

- 1A88DA 2 minutes earlier Reading to London Paddington

- 1K57DA 5 minutes earlier Reading to London Paddington

- 2N21DB departs Bridgend 1 minute earlier

B.09 1L89 17:34 Cardiff Central to London Paddington

Headco de	Operator	ODT	Origin	Origin Time	Destination	Destination Time
1A31DA	Great Western Railway	SX	Bristol Temple Meads	18:00	London Paddington	19:39
1A32DA	Great Western Railway	SX	Bristol Temple Meads	18:30	London Paddington	20:07
1P38DA	Great Western Railway	SX	Great Malvern	16:30	London Paddington	19:29
1Y78DA	Heathrow Express	SX	Heathrow Terminal 5	19:12	London Paddington	19:33
2N25DB	Transport for Wales	SX	Bridgend	17:14	Ebbw Vale Town	18:36
6M47FZ	GB Railfreight	ThSX	Ludgershall MOD GBRf	13:48	Bicester MOD GBRf	21:01

Table 9: Summary of services flexed for 1L89

B.09.01 Grand Union Trains path conflicts

A 30 second headway noncompliance to the flexed version of 2N25DB at Cardiff Central station was identified in this analysis but an exception to the timing load assumptions for this analysis (section D.04) has been agreed and this is no longer deemed a conflict. This exception is discussed in more detail in B.01.

This may also be affected, in a positive way, by upcoming changes to rolling stock in Wales.

B.09.02 Flexed services

Any platform end conflicts identified have been detailed in Appendix B. Network Rail is undertaking further analysis to review platforming capacity for the Grand Union Trains paths at London Paddington.

Services with significant flexes or a potential impact to turnaround:

- 1P38DA arrives 1 minute later to London Paddington

- 1Y78DA arrives 1 minute later to London Paddington

- 6M47FZ dwell moved from Wantage Road to Didcot, timing changes from Swindon to Didcot

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B.10 1B70 09:58 London Paddington to Cardiff Central

Headcode	Operator	ODT	Origin	Origin Time	Destination	Destination Time
4V15DA	Legge Infrastructure Services	SX	Appleford FHH	09:49	Tytherington	14:20
4V21DA	Legge Infrastructure Services	SX	Oxford Banbury Road Sdgs	07:59	Tytherington	14:20
6M04FB	Freightliner Heavy Haul	SX	Avonmouth BBHT Coal Silos	10:52	Basford Hall S.S.M.	17:04

Table 10: Summary of services flexed for 1B70

B.10.01 Grand Union Trains path conflicts

No conflicts were found with the proposed path once proposed flexes had been included.

B.10.02 Flexed services

No conflicts were identified that were caused by the flexes to existing services.

Services with significant flexes or a potential impact to turnaround:

- 4V15DA and 4V21DA (Y paths with identical times throughout this section) 27-minute dwell added at Challow and existing dwell reduced at Hullavington to return to booked

B.11 1B72 11:59 London Paddington to Cardiff Central

Headcode	Operator	ODT	Origin	Origin Time	Destination	Destination Time
6B41DD	DB Schenker Rail (UK) Limited	TWFO	Westerleigh Puma DBC	11:19	Robeston Sdgs	19:00

Table 11: Summary of services flexed for 1B72

B.11.01 Grand Union Trains path conflicts

No conflicts were found with the proposed path once proposed flexes had been included.

B.11.02 Flexed services

No conflicts were identified that were caused by the flexes to existing services.

Services with significant flexes or a potential impact to turnaround:

- None

B.12   1B75 12:59 London Paddington to Cardiff Central

Headcode	Operator	ODT	Origin	Origin Time	Destination	Destination Time
1V54DB	Cross Country	SX	Dundee	06:34	Plymouth	16:47
2O78DA	Great Western Railway	SX	Great Malvern	12:42	Weymouth	17:06
6B86QJ	Network Rail Virtual Freight Company	SX	Portbury Coal Terminal FHH	13:10	Uskmouth Pwr Stn FLHH	15:50
4O57CA	Freightliner Intermodal	SX	Cardiff Wentloog IFT	13:29	Southampton M.C.T.	16:57
1H25DA	Great Western Railway	SX	London Paddington	13:15	Bristol Temple Meads	14:39

Table 12: Summary of services flexed for 1B75

B.12.01   Grand Union Trains path conflicts

Any platform end conflicts identified have been detailed in Appendix B. Network Rail is undertaking further analysis to review platforming capacity for the Grand Union Trains paths at London Paddington.

B.12.02   Flexed services

No conflicts were identified that were caused by the flexes to existing services.

Services with significant flexes or a potential impact to turnaround:

- None

B.13   1B77 15:12 London Paddington to Cardiff Central

Headcode	Operator	ODT	Origin	Origin Time	Destination	Destination Time
1B20DA	Great Western Railway	SX	London Paddington	15:18	Cardiff Central	17:09
1C20DA	Great Western Railway	SX	London Paddington	15:32	Bristol Temple Meads	17:08
1C88DA	Great Western Railway	FSX	London Paddington	16:04	Penzance	21:25
1H33FW	Great Western Railway	SX	London Paddington	15:15	Bristol Temple Meads	16:39
1V59DC	Cross Country	SX	Manchester Piccadilly	14:05	Paignton	18:52
2C83DA	Great Western Railway	SX	Cardiff Central	16:00	Taunton	18:01
2E29DA	Great Western Railway	SX	Paignton	18:24	Exeter St. David's	19:09

Headc ode	Operator	OD T	Origin	Origin Time	Destination	Destination Time
2F24D A	Great Western Railway	SX	Bristol Parkway	16:46	Warminster	18:04
2U22D A	Great Western Railway	SX	Taunton	15:15	Cardiff Central	17:19
4V22D C	Freightliner Heavy Haul	SX	Fiddlers Ferry P Stn FLHH	09:30	Stoke Gifford FHH	16:53
4V29D A	Legge Infrastructure Services	SX	Oxford Banbury Road Sdgs	14:50	Tytherington	18:52
6B11D A	Freightliner Heavy Haul	SX	Willesden S.W.S.	12:44	East Usk Yard (FHH)	17:46
6B11D B	Freightliner Heavy Haul	SX	Willesden S.W.S.	12:44	East Usk Yard (FHH)	17:46
6B41D D	DB Schenker Rail (UK) Limited	TW FO	Westerleigh Puma DBC	11:19	Robeston Sdgs	19:00
6C37D A	Colas Rail	SX	Westbury Tarmac Colas Rail	15:24	Aberthaw Tarmac Colas Rail	20:19
6V96D A	Freightliner Heavy Haul	MS X	Banbury Reservoir Tarmac	12:16	Bristol East Depot DBC	17:02

Table 13: Summary of services flexed for 1B77

B.13.01 Grand Union Trains path conflicts

Any platform end conflicts identified have been detailed in Appendix B. Network Rail is undertaking further analysis to review platforming capacity for the Grand Union Trains paths at London Paddington.

B.13.02 Flexed services

An additional 30 second non-compliance between 1B20DA & 6B04DD at Long Dyke Junction as a result of flexed version of 1B20DA.

Services with significant flexes or a potential impact to turnaround:

- 1H33FW 2 minutes later Reading to Bristol Temple Meads
- 1V59DC 1 minute later Worle Junction to Torquay
- 2C83DA later from Patchway to Taunton
- 2U22DA 1 minute later Patchway to Cardiff Central
- 4V22DA 1 minute later Westerleigh Junction to Stoke Gifford
- 6B11DA/DB later Hullavington to destinations
- 6C37DA 26-minute dwell added at Dr Day's Junction, dwell reduced at East Usk Junction to return to booked
- 6V96DA 3 minutes later Swindon to Bristol East

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B.14   1B80 17:15 London Paddington to Cardiff Central

Headcode	Operator	ODT	Origin	Origin Time	Destination	Destination Time
1B25DA	Great Western Railway	SX	London Paddington	17:13	Swansea	19:53
1B26DA	Great Western Railway	SX	London Paddington	17:18	Cardiff Central	19:15
6E78GD	GB Railfreight	MWO	Pengam Recepton Sdgs GBRf	18:19	Leeds Stourton RMC	28:07

Table 14: Summary of services flexed for 1B80

B.14.01   Grand Union Trains path conflicts

No conflicts were found with the proposed path once proposed flexes had been included.

B.14.02   Flexed services

No conflicts were identified that were caused by the flexes to existing services.

Services with significant flexes or a potential impact to turnaround:

- 1B25DA 2 minutes earlier London Paddington to Swindon

- 6E78GD depart Pengam 13 minutes earlier with 12 minutes of pathing added between Maindee North Junction and Panteg

B.15   1B82 18:15 London Paddington to Cardiff Central

Headcode	Operator	ODT	Origin	Origin Time	Destination	Destination Time
1B28DA	Great Western Railway	SX	London Paddington	18:13	Carmarthen	21:51
1B29DA	Great Western Railway	SX	London Paddington	18:18	Cardiff Central	20:16
1V64DB	Cross Country	FSX	Edinburgh	13:05	Plymouth	21:51
2L69DB	Transport for Wales	SX	Cheltenham Spa	18:45	Maesteg	21:05
2M23DA	Great Western Railway	SX	Westbury	18:39	Swindon	19:22
4M36EC	Direct Rail Services	SX	Cardiff Wentloog IFT	18:58	Daventry DRS (Tesco)	23:50
6C48DB/DC	Freightliner Heavy Haul	SX	Appleford Sidings	17:10	Whatley Quarry F Liner HH	20:48

Table 15: Summary of services flexed for 1B82

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B.15.01 Grand Union Trains path conflicts

Any platform end conflicts identified have been detailed in Appendix B . Network Rail is undertaking further analysis to review platforming capacity for the Grand Union Trains paths at London Paddington.

B.15.02 Flexed services

No conflicts were identified that were caused by the flexes to existing services.

Services with significant flexes or a potential impact to turnaround:

- 1B28DA 2 minutes earlier from London Paddington to Swindon

- 1B29DA 2 minutes later Bristol Parkway to Cardiff Central

- 2M23DA l minute later Chippenham to Swindon

- 4M36EC 9.5 minutes pathing moved from approach to Severn Tunnel Junction to approach to Chepstow

- 6C48DB/DC dwell at Swindon East loop increased by 11.5 minutes, dwell at Westbury reduced by 12.5 minutes to return to booked

Services with significant flexes or a potential impact to turnaround:

- 1F30DA 1 minute later Newport to Cardiff

- 2F83DB 6 minutes later Park Junction to Cardiff

B.16 1B84 20:15 London Paddington to Cardiff Central

Headcode	Operator	ODT	Origin	Origin Time	Destination	Destination Time
1V62DC	Transport for Wales	FSX	Manchester Piccadilly	18:31	Carmarthen	23:58
5D79DA	Northern Rail	SX	Didcot Parkway	20:10	Swindon Cocklebury	21:53
6C65DA	Freightliner Heavy Haul	SX	Hayes & Harlington Tarmac Sidings	17:04	East Usk Yard	23:21
6C65DB	Freightliner Heavy Haul	SX	Hayes & Harlington Tarmac Sidings	17:04	Stoke Gifford FHH	22:38
1L34DA	Great Western Railway	FSX	Swansea	19:22	London Paddington	22:09
5C28DB	Great Western Railway	SX	Weston-super-Mare	20:52	Stoke Gifford IEP Depot	21:42
5C25DA	Great Western Railway	FSX	Taunton	20:30	Stoke Gifford IEP Depot	21:57
1V69DA	Cross Country	SX	Manchester Piccadilly	19:05	Bristol Temple Meads	22:06

Table 16: Summary of services flexed for 1B84

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B.16.01 Grand Union Trains path conflicts

Platform end conflicts identified have been detailed in Appendix B. Network Rail is undertaking further analysis to review platforming capacity for the Grand Union Trains paths at London Paddington.

There is a platform conflict with 5C96DB at Cardiff with 5C96DB departing in the opposite direction. Platforming at Cardiff was not included in this analysis.

B.16.02 Flexed services

Conflicts were identified in the existing timetable when looking to flex 5C25DA to accommodate 1B84DA. A conflict was identified between the original 5C25DA and 1L36DA and between 5C25DA and 5M68DA. Grand Union Trains' proposed platform change for 5C25DA to avoid 1B84 removed the conflict with 1L36DA and had no impact on the conflict with 5M68DA therefore this platform change is viewed as causing no conflicts. These existing conflicts have been raised with Production for further investigation.

Services with significant flexes or a potential impact to turnaround:

- 5D79DA 9 minutes later arrival at Swindon Cocklebury

Part C: Background and aims

C.01 Background

Grand Union Trains are a new aspirant Open Access operator and are exploring the opportunity to run services between London Paddington and Cardiff Central with a view to extending these beyond Cardiff with the introduction of new rolling stock. Grand Union Trains are planning to start running these services in the December 2021 timetable.

Analysis has previously been conducted on the Grand Union Trains proposal by the Capacity Hunters team as part of Capacity Analysis and the Future Services Integration team in late 2019 and early 2020 respectively.

Both pieces of analysis concluded that the current paths proposed by Grand Union Trains conflict with services within the timetables used for the analysis.

C.02 Aims and Objectives

The aims of this analysis were to:

- Identify freight paths that interact with Grand Union Trains' proposed train slots so that the rights of these paths can be appropriately investigated by the relevant Network Rail team.

- Review how Grand Union Trains' proposed services fit within the May 2020 timetable and that all proposed flexes for other operator's services are included.

- Work collaboratively with a representative of Grand Union Trains to check feasibility and explore timetabling solutions for Grand Union Trains' proposed services.

- If possible, consider amendments to the proposed train slots which would begin to address performance concerns raised by Network Rail about the diagrams with tight turnarounds.

A high-level technical note was produced to report the findings of this analysis and include details of proposed services and flexes.

Part D: Appendix A – Assumptions

D.01 Geographic Scope

The geographic scope for this was from London Paddington to Cardiff Central, exclusive of platforming at these stations.

Please see Figure 2 for a map showing the geographic scope for analysis. Where flexed services have not been returned to booked at the edge of this scope they have been checked for conflicts beyond this scope.

Figure 2**: Geographical scope London Paddington to/from Cardiff**

D.02 Timetable Scope

The scope covered was all day on Wednesday.

D.03 Timetable Planning Rules

The Western and Wales 2020 v4.1 Timetable planning Rules (TPRs) were used for this analysis.

D.04 Timing Load Assumptions

Grand Union Trains initially plans to use class 91 locomotives with 7 Mark 4 carriages. Indicative Running Times have been calculated for this rolling stock and are currently out for industry consultation.

Comparison has previously been undertaken between this rolling stock and class 802 (electric) timing loads. This is both Grand Union Trains intended rolling stock for these services once extended beyond Cardiff and the rolling stock currently in use by Great Western Railway services on this route. This comparison indicated that the main difference in running times was lesser acceleration from a standing start for the class 91 formation.

In light of this comparison and in line with the previous analysis undertaken by the Future Services Integration Team this analysis used Class 802 timing loads under electric traction (802-9E) with 30 seconds of adjustment added on departure from London Paddington, Bristol Parkway, Severn Tunnel Junction and Cardiff Central stations.

A deviation has been agreed as part of this analysis for Long Dyke Jn to Cardiff Central, detailed in section B.01 of this technical note.

D.05 Turnarounds

Grand Union Trains have argued that the push-pull nature of a class 91 loco means that the 25-minute turnaround given in the Western & Wales TPRs for loco hauled services is excessive and that the 15-minute minimum specified for 80X traction is more appropriate.

In discussion with Grand Union Trains it was agreed that for the purposes of this analysis a 20-minute turnaround at Paddington between up and down services would be targeted, with 15 minutes used as a minimum value where 20 minutes was not achievable.

D.06 Source Timetable

This analysis was undertaken within the May 2020 timetable with the addition of Grand Union Trains' proposed services and proposed flexes to other operator's services.

D.07   Infrastructure

The assumed infrastructure for the May 2020 timetable analysis included electrification up to Cardiff Central.

Part E: Appendix B – London Paddington platform end conflicts

E.01 Summary of identified conflicts contingent on platform used at London Paddington

Grand Union Trains Service	London Paddington platform end conflicts identified
1L73	Platform end conflict with 1C08DA at London Paddington
1L75	None identified
1L77	None identified
1L81	The platform used by the flexed version of 1A21DA at London Paddington warrants further investigation, but the apparent conflict seems to have been caused by flexing of this service in previous analysis that has not been fully rectified.
1L83	None identified
1L85	The flexed version of 1A27DA has a platform end conflict with 1D91DA at London Paddington. The flexed version of 1K57DA has a platform end conflict with 1D76DA at London Paddington. The flexed version of 1K57DA also has a junction margin conflict with 1B26DA at Royal Oak Jn.
1L89	The flexed version of 1Y78DA has a platform end conflict with 1C31DA at London Paddington.
1B70	None identified
1B72	None identified
1B75	There is a junction margin conflict with 1Y52DA at Royal Oak Junction.
1B77	There is a platform end conflict with 1L20DA at London Paddington. There is a junction margin conflict with 1H83DA at Royal Oak Junction.
1B80	None identified
1B82	There is a platform end conflict with 1Y73DA at London Paddington. There is a junction margin conflict with 1Y73DA at Royal Oak Junction.
1B84	There is a platform end conflict at London Paddington and also a junction margin conflict at Royal Oak Junction with 1Y81DA.

Table 1: Summary of Grand Union Trains services and identified London Paddington Platform end conflicts

Part F: Appendix C - Full details of flexed services

F.01 Legend for flexed services

Schedule information written in black text in a cell with a white background is unchanged between the original service and the flexed version.

Arrival and departure times in blue text and cells with a red background are different between the original and flexed services.

Please note that the 'Running time' column is not the same as the SRT for that section.

F.02 Flexed services for 1L73

1K07DA Bedwyn to London Paddington - original service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Bedwyn		08:31:					5'00		2		
Hungerford	08:36:	08:37:					3'30	1'30			
Kintbury	08:41:	08:42:					5'30	1'00	2		
Newbury	08:47:	08:49:					3'30	1'30	2		
Thatcham	08:52:	08:53:					6'30	1'00			
Theale	09:00:	09:01:	1'00				3'00	1'30			
Southcote Jn		09:05:					1'00				
Oxford Road Jn		09:06:					2'30			UFM	
Reading	09:09:	09:11:					1'00	2'00	11	UML	
Kennet Bridge Jn		09:12:					3'00			ML	
Twyford		09:15:					3'30		2	ML	
Maidenhead		09:18:					3'00		2	ML	
Slough		09:21:					3'00		3	ML	
Stockley Junction		09:24:					0'30			ML	
Heathrow Airport Jn		09:25:					1'00			ML	
Southall		09:26:		0'30			1'30		2	ML	
Acton West		09:28:	1'00				2'30			ML	
Ladbroke Grove		09:31:					0'30			3	
Portobello Jn (London)		09:32:					1'00			3	
Royal Oak Junction		09:33:					1'00				
London Paddington	09:34:								10		

1K07DA Bedwyn to London Paddington - flexed service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Bedwyn		08:31:					5'00		2		
Hungerford	08:36:	08:37:					3'30	1'30			
Kintbury	08:41:	08:42:					5'30	1'00	2		
Newbury	08:47:	08:49:					3'30	1'30	2		
Thatcham	08:52:	08:53:					6'30	1'00			
Theale	09:00:	09:01:	1'00				3'00	1'30			
Southcote Jn		09:05:					1'00				
Oxford Road Jn		09:06:					2'30			UFM	
Reading	09:09:	09:11:					1'00	2'00	11	UML	
Kennet Bridge Jn		09:12:					3'00			ML	
Twyford		09:15:					3'30		2	ML	
Maidenhead		09:18:					3'00		2	ML	
Slough		09:21:		1'00			3'00		3	ML	
Stockley Junction		09:25:					0'30			ML	
Heathrow Airport Jn		09:26:		0'30			1'00			ML	
Southall		09:27:		1'30			1'30		2	ML	
Acton West		09:30:	1'00	0'30			2'30			ML	
Ladbroke Grove		09:34:					0'30			3	
Portobello Jn (London)		09:35:					1'00			3	
Royal Oak Junction		09:36:					1'00				
London Paddington	09:37:								10		

1P03DA Hereford to London Paddington - original service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Oxford North Jn.		08:42:					2'00			UML	
Oxford	08:44:	08:49:					3'00	5'30	3		
Kennington Jn		08:52:	1'00				5'00				
Didcot North Jn		08:58:					1'00				
Didcot East Jn		08:59:					5'00			ML	
Goring & Streatley		09:04:	1'00				4'30			ML	
Reading High Level Jn		09:10:					1'30			ML	
Reading	09:11:	09:13:					1'00	2'00	10	UML	
Kennet Bridge Jn		09:14:					3'00			ML	
Twyford		09:17:					3'30		2	ML	
Maidenhead		09:21:					3'00		2	ML	
Slough		09:24:					3'00		3	ML	
Stockley Junction		09:27:					0'30			ML	
Heathrow Airport Jn		09:27:					1'00			ML	
Southall		09:28:		0'30			1'30		2	ML	
Acton West		09:30:	1'00				2'30			ML	
Ladbroke Grove		09:34:					0'30			3	
Portobello Jn (London)		09:34:		0'30			1'00			3	
Royal Oak Junction		09:36:					1'00				
London Paddington	09:37:								2		

1P03DA Hereford to London Paddington - flexed service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Oxford North Jn.		08:42:					2'00			UML	
Oxford	08:44:	08:49:					3'00	5'30	3		
Kennington Jn		08:52:	1'00				5'00				
Didcot North Jn		08:58:					1'00				
Didcot East Jn		08:59:					5'00			ML	
Goring & Streatley		09:04:	1'00				4'30			ML	
Reading High Level Jn		09:10:					1'30			ML	
Reading	09:11:	09:18:					1'00	7'00	10	UML	
Kennet Bridge Jn		09:19:					3'00			ML	
Twyford		09:22:					3'30		2	ML	
Maidenhead		09:26:					3'00		2	ML	
Slough		09:29:					3'00		3	ML	
Stockley Junction		09:32:					0'30			ML	
Heathrow Airport Jn		09:32:					1'00			ML	
Southall		09:33:		0'30			1'30		2	ML	
Acton West		09:35:	1'00				2'30			ML	
Ladbroke Grove		09:39:					0'30			3	
Portobello Jn (London)		09:39:		0'30			1'00			3	
Royal Oak Junction		09:41:					1'00				
London Paddington		09:42:							2		

1A09DA Taunton to London Paddington - original service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Swindon		08:37:					5'30		UML		
Uffington		08:43:		1'00			1'30				
Challow		08:45:					1'30				
Wantage Road		08:47:	1'00	0'30			3'30				
Didcot Parkway		08:52:		1'30			4'00		2	ML	
Goring & Streatley		08:57:	1'00				4'30			ML	
Reading High Level Jn		09:03:					1'00			ML	
Reading		09:04:					1'00		10	UML	
Kennet Bridge Jn		09:05:					3'00			ML	
Twyford		09:08:					3'30		2	ML	
Maidenhead		09:11:					3'00		2	ML	
Slough		09:14:					3'00		3	ML	
Stockley Junction		09:17:					0'30			ML	
Heathrow Airport Jn		09:18:					1'00			ML	
Southall		09:19:					1'30		2	ML	
Acton West		09:20:	1'00				2'30			ML	
Ladbroke Grove		09:24:					0'30			3	
Portobello Jn (London)		09:24:		1'30			1'00			3	
Royal Oak Junction		09:27:					1'00				
London Paddington	09:28:								8		

1A09DA Taunton to London Paddington - original service

1A09DA Taunton to London Paddington – flexed service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Swindon		08:37:					5'30		UML		
Uffington		08:43:					1'30				
Challow		08:44:					1'30				
Wantage Road		08:46:	1'00	1'30			3'30				
Didcot Parkway		08:52:		1'30			4'00		2	ML	
Goring & Streatley		08:57:	1'00				4'30			ML	
Reading High Level Jn		09:03:					1'00			ML	
Reading		09:04:					1'00		10	UML	
Kennet Bridge Jn		09:05:					3'00			ML	
Twyford		09:08:					3'30		2	ML	
Maidenhead		09:11:					3'00		2	ML	
Slough		09:14:					3'00		3	ML	
Stockley Junction		09:17:					0'30			ML	
Heathrow Airport Jn		09:18:					1'00			ML	
Southall		09:19:					1'30		2	ML	
Acton West		09:20:	1'00				2'30			ML	
Ladbroke Grove		09:24:					0'30			3	
Portobello Jn (London)		09:24:		1'30			1'00			3	
Royal Oak Junction		09:27:					1'00				
London Paddington	09:28:								8		

F.03   Flexed services for 1L75

2N09DD Bridgend to Ebbw Vale Town – original service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Bridgend		09:10:					9'00		2		
Pontyclun		09:19:					8'00				
Leckwith Loop North Jn		09:27:	1'00			0'30	2'30			C	
Cardiff Central	09:31:	09:34:				0'30	1'30	3'00	0	B	
Long Dyke Jn		09:36:					6'00			ML	
Marshfield		09:42:				0'30	3'30			ML	
Ebbw Jn		09:46:					3'30				
Park Jn		09:49:					1'30				
Park North Jcn		09:51:					1'30				
Pye Corner	09:52:	09:53:					3'00	0'30			
Rogerstone	09:56:	09:57:					1'00	1'00			
Risca South Jcn		09:58:					2'00				
Risca & Pontymister	10:00:	10:00:					4'30	0'30			
Cross Keys	10:05:	10:06:					1'00	1'00			
Crosskeys Jcn		10:07:					6'30				
Newbridge (Ebbw Vale)	10:13:	10:14:					5'30	0'30			
Llanhilleth	10:19:	10:20:					8'00	0'30			
Ebbw Vale Parkway	10:28:	10:29:					4'00	1'00			
Ebbw Vale Town	10:33:										

2N09DD Bridgend to Ebbw Vale Town – flexed service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Bridgend		09:10:					9'00		2		
Pontyclun		09:19:					8'00				
Leckwith Loop North Jn		09:27:	1'00			0'30	2'30			C	
Cardiff Central	09:31:	09:35:				0'30	1'30	4'00	0	B	
Long Dyke Jn		09:37:					6'00			ML	
Marshfield		09:43:				0'30	3'30			ML	
Ebbw Jn		09:47:					3'30				
Park Jn		09:50:					1'30				
Park North Jcn		09:52:					1'30				
Pye Corner	09:53:	09:54:					3'00	0'30			
Rogerstone	09:57:	09:58:					1'00	1'00			
Risca South Jcn		09:59:					2'00				
Risca & Pontymister	10:01:	10:01:					4'30	0'30			
Cross Keys	10:06:	10:07:					1'00	1'00			
Crosskeys Jcn		10:08:					6'30				
Newbridge (Ebbw Vale)	10:14:	10:15:					5'30	0'30			
Llanhilleth	10:20:	10:21:					8'00	0'30			
Ebbw Vale Parkway	10:29:	10:30:					4'00	1'00			
Ebbw Vale Town	10:34:										

2F24DB Ebbw Vale Town to Cardiff Central – original service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Ebbw Vale Town		10:37:					2'30				
Ebbw Vale Parkway	10:39:	10:40:					8'00	0'30			
Llanhilleth	10:48:	10:48:					5'30	0'30			
Newbridge (Ebbw Vale)	10:54:	10:54:					6'00	0'30			
Crosskeys Jcn		11:00:					1'00				
Cross Keys	11:01:	11:02:					4'30	1'00			
Risca & Pontymister	11:07:	11:07:					2'00	0'30			
Risca South Jcn		11:09:					1'00				
Rogerstone	11:10:	11:11:					3'00	1'00			
Pye Corner	11:14:	11:15:				0'30	1'30	0'30			
Park North Jcn		11:17:					1'30				
Park Jn		11:18:					3'00				
Ebbw Jn		11:21:					2'30			ML	
Marshfield		11:24:	1'00				5'00			ML	
Long Dyke Jn		11:30:		1'00		0'30	1'30			D	
Cardiff Central	11:33:								3		

2F24DB Ebbw Vale Town to Cardiff Central – flexed service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Ebbw Vale Town		10:38:					2'30				
Ebbw Vale Parkway	10:40:	10:41:					8'00	0'30			
Llanhilleth	10:49:	10:49:					5'30	0'30			
Newbridge (Ebbw Vale)	10:55:	10:55:					6'00	0'30			
Crosskeys Jcn		11:01:					1'00				
Cross Keys	11:02:	11:03:					4'30	1'00			
Risca & Pontymister	11:08:	11:08:					2'00	0'30			
Risca South Jcn		11:10:					1'00				
Rogerstone	11:11:	11:12:					3'00	1'00			
Pye Corner	11:15:	11:16:				0'30	1'30	0'30			
Park North Jcn		11:18:					1'30				
Park Jn		11:19:					3'00				
Ebbw Jn		11:22:					2'30			ML	
Marshfield		11:25:	1'00				5'00			ML	
Long Dyke Jn		11:31:				0'30	1'30			D	
Cardiff Central	11:33:								3		

1V37DB Manchester Piccadilly to Milford Haven – original service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Pontrilas		10:46:					10'00				
Abergavenny	10:56:	10:57:					7'00	1'00			
Little Mill Jn		11:04:					4'30				
Cwmbran	11:09:	11:10:					7'00	1'00			
Maindee North Jn		11:17:	1'00				1'00				
Maindee West Jn		11:19:					1'00			ML	
Newport (South Wales)	11:20:	11:22:		1'00			2'30	2'00	2	ML	
Ebbw Jn		11:25:					2'30			ML	
Marshfield		11:28:	1'00	1'00			4'30			ML	
Long Dyke Jn		11:34:		1'00			1'30			D	
Cardiff Central	11:37:	11:46:					3'00	9'00	4A	E	
Leckwith Loop North Jn		11:49:					9'00				
Pontyclun		11:58:					7'30				
Bridgend	12:05:	12:07:					4'30	2'00	1		
Stormy		12:12:					2'30				
Margam Moors Jn.		12:14:					3'30				
Port Talbot Parkway	12:18:	12:19:					6'00	1'30			
Neath	12:25:	12:27:	1'00				9'00	1'30			
Swansea Loop East		12:37:					2'00				
Swansea	12:39:	12:43:					2'00	4'00	1		

1V37DB Manchester Piccadilly to Milford Haven – flexed service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Pontrilas		10:46:					10'00				
Abergavenny	10:56:	10:57:					7'00	1'00			
Little Mill Jn		11:04:					4'30				
Cwmbran	11:09:	11:10:					7'00	1'00			
Maindee North Jn		11:17:	1'00				1'00				
Maindee West Jn		11:19:					1'00			ML	
Newport (South Wales)	11:20:	11:22:		2'00			2'30	2'00	2	ML	
Ebbw Jn		11:26:					2'30			ML	
Marshfield		11:29:	1'00	0'30			4'30			ML	
Long Dyke Jn		11:35:		0'30			1'30			D	
Cardiff Central	11:37:	11:46:					3'00	9'00	4A	E	
Leckwith Loop North Jn		11:49:					9'00				
Pontyclun		11:58:					7'30				
Bridgend	12:05:	12:07:					4'30	2'00	1		
Stormy		12:12:					2'30				
Margam Moors Jn.		12:14:					3'30				
Port Talbot Parkway	12:18:	12:19:					6'00	1'30			
Neath	12:25:	12:27:	1'00				9'00	1'30			
Swansea Loop East		12:37:					2'00				
Swansea	12:39:	12:43:					2'00	4'00	1		

1B09DA London Paddington to Swansea – original service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Hullavington		10:52:	1'00				6'30				
Westerleigh Jn		10:59:		1'00			3'00				
Bristol Parkway	11:03:	11:05:					1'30	1'30	2		
Patchway		11:06:					2'30		2		
Pilning		11:09:					1'00		2		
Severn Tunnel East		11:10:					3'30				
Severn Tunnel West		11:13:					1'00				
Severn Tunnel Junction		11:14:					5'00		3	ML	
Llanwern West Junction		11:19:	1'00	1'30			2'00			ML	
Maindee West Jn		11:24:					1'00			ML	
Newport (South Wales)	11:25:	11:26:		0'30			2'30	1'30	2	ML	
Ebbw Jn		11:29:					2'30			ML	
Marshfield		11:32:	1'00	1'30			4'00			ML	
Long Dyke Jn		11:38:					1'30			D	
Cardiff Central	11:40:	11:43:					2'00	3'00	3	D	
Leckwith Loop North Jn		11:45:					8'00				
Pontyclun		11:53:					7'30				
Bridgend	12:00:	12:01:					6'30	1'00	1		
Stormy		12:08:					2'30				
Margam Moors Jn.		12:10:					3'30				
Port Talbot Parkway	12:14:	12:15:					6'00	1'00			
Neath	12:21:	12:22:	1'00				9'00	1'00			
Swansea Loop East		12:32:				0'30	1'30				
Swansea	12:34:								2		

1B09DA London Paddington to Swansea – flexed service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Hullavington		10:52:	1'00				6'30				
Westerleigh Jn		10:59:		1'00			3'00				
Bristol Parkway	11:03:	11:05:					1'30	1'30	2		
Patchway		11:06:					2'30		2		
Pilning		11:09:					1'00		2		
Severn Tunnel East		11:10:					3'30				
Severn Tunnel West		11:13:					1'00				
Severn Tunnel Junction		11:14:					5'00		3	ML	
Llanwern West Junction		11:19:	1'00	1'30			2'00			ML	
Maindee West Jn		11:24:					1'00			ML	
Newport (South Wales)	11:25:	11:26:		1'30			2'30	1'30	2	ML	
Ebbw Jn		11:30:					2'30			ML	
Marshfield		11:33:	1'00	1'00			4'00			ML	
Long Dyke Jn		11:39:					1'30			D	
Cardiff Central	11:40:	11:43:					2'00	2'30	3	D	
Leckwith Loop North Jn		11:45:					8'00				
Pontyclun		11:53:					7'30				
Bridgend	12:00:	12:01:					6'30	1'00	1		
Stormy		12:08:					2'30				
Margam Moors Jn.		12:10:					3'30				
Port Talbot Parkway	12:14:	12:15:					6'00	1'00			
Neath	12:21:	12:22:	1'00				9'00	1'00			
Swansea Loop East		12:32:				0'30	1'30				
Swansea	12:34:								2		

6M42FA Avonmouth Hanson Siding to PNYFDCG – original service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Avonmouth Hanson SDG GBRF		09:20:					6'00				
Hallen Marsh Jn		09:26:					7'00				
Filton West Jn	09:33:	10:09:					2'30	36'00			
Bristol Parkway	10:11:	10:13:					5'30	2'00	UPL		
Westerleigh Jn		10:19:					3'00				
Yate		10:22:					6'30				
Charfield		10:28:					13'30				
Standish Jn		10:42:	1'00				6'30				
Gloucester Yard Jn		10:49:					3'00				
Gloucester N.Y.	10:52:	13:58:					2'00	185'30			
Barnwood Jn		14:00:		2'00			6'00				
Cheltenham Spa		14:08:				2'00	3'00		2		
Cheltenham High Street	14:13:	14:21:					7'30	8'30			
Ashchurch		14:29:					11'00		1		
Abbotswood Jn		14:40:					11'30				
Stoke Works Jn		14:51:					2'30				
Bromsgrove		14:54:	1'00				5'00		2		
Barnt Green		15:00:		1'30			6'30			SL	
Longbridge		15:08:		3'00		1'30	2'30			FL	

6M42FA Avonmouth Hanson Siding to PNYFDCG – flexed service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Avonmouth Hanson SDG GBRF		09:20:					6'00				
Hallen Marsh Jn		09:26:					7'00				
Filton West Jn	09:33:	10:09:		5'30			2'30	36'00			
Bristol Parkway	10:17:	10:19:					5'30	2'00	UPL		
Westerleigh Jn		10:24:					3'00				
Yate		10:27:					6'30				
Charfield		10:34:					13'30				
Standish Jn		10:47:	1'00				6'30				
Gloucester Yard Jn		10:55:					3'00				
Gloucester N.Y.	10:58:	13:58:					2'00	180'00			
Barnwood Jn		14:00:		2'00			6'00				
Cheltenham Spa		14:08:				2'00	3'00		2		
Cheltenham High Street	14:13:	14:21:					7'30	8'30			
Ashchurch		14:29:					11'00		1		
Abbotswood Jn		14:40:					11'30				
Stoke Works Jn		14:51:					2'30				
Bromsgrove		14:54:	1'00				5'00		2		
Barnt Green		15:00:		1'30			6'30			SL	
Longbridge		15:08:		3'00		1'30	2'30			FL	

2M15DA Westbury to Swindon – original service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Westbury		09:45:					5'30		2		
Trowbridge	09:50:	09:51:		1'00		1'00	2'00	1'00			
Bradford Jn		09:55:					5'30				
Melksham	10:01:	10:02:					5'30	1'00			
Thingley Jn		10:07:					1'00			DM	
Thingley East Junction		10:08:				0'30	2'00				
Chippenham	10:11:	10:14:		2'30			9'00	3'00	2		
Wootton Bassett Jn		10:25:	1'00	1'00		0'30	6'00				
Swindon	10:34:								2		

2M15DA Westbury to Swindon – flexed service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Westbury		09:45:					5'30		2		
Trowbridge	09:50:	09:51:		1'00		1'00	2'00	1'00			
Bradford Jn		09:55:					5'30				
Melksham	10:01:	10:02:					5'30	1'00			
Thingley Jn		10:07:					1'00			DM	
Thingley East Junction		10:08:				0'30	2'00				
Chippenham	10:11:	10:14:		1'00			9'00	3'00	2		
Wootton Bassett Jn		10:24:	1'00	1'00		0'30	6'00				
Swindon	10:32:								2		

1A15DA Bristol Temple Meads to London Paddington – original service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Bristol Temple Meads		10:00:					1'00		13	DM	
Bristol East Jn		10:01:					1'00				
North Somerset Jn		10:02:				0'30	8'30				
Bath Spa	10:11:	10:13:					3'00	2'00	2		
Bathampton Jn		10:16:					6'00				
Thingley East Junction		10:22:					2'00				
Chippenham	10:24:	10:26:					7'00	2'00	2		
Wootton Bassett Jn		10:33:	1'00				4'00				
Swindon	10:38:	10:40:					6'30	2'30	3		
Uffington		10:47:					1'30				
Challow		10:48:					1'30				
Wantage Road		10:50:	1'00				4'30				
Didcot Parkway	10:55:	10:57:					5'30	1'30	2	ML	
Goring & Streatley		11:02:	1'00				4'30			ML	
Reading High Level Jn		11:08:					1'30			ML	
Reading	11:09:	11:12:					1'00	3'00	10	UML	
Kennet Bridge Jn		11:13:					3'00			ML	
Twyford		11:16:					3'30		2	ML	
Maidenhead		11:20:					3'00		2	ML	
Slough		11:23:					3'00		3	ML	
Stockley Junction		11:26:					0'30			ML	
Heathrow Airport Jn		11:26:					1'00			ML	
Southall		11:27:					1'30		2	ML	
Acton West		11:29:	1'00				2'30			ML	
Ladbroke Grove		11:32:					0'30			3	
Portobello Jn (London)		11:33:		1'00			1'00			3	
Royal Oak Junction		11:35:					1'00				
London Paddington	11:36:								6		

1A15DA Bristol Temple Meads to London Paddington – flexed service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Bristol Temple Meads		10:00:					1'00		13	DM	
Bristol East Jn		10:01:					1'00				
North Somerset Jn		10:02:				0'30	8'30				
Bath Spa	10:11:	10:13:					3'00	2'00	2		
Bathampton Jn		10:16:					6'00				
Thingley East Junction		10:22:					2'00				
Chippenham	10:24:	10:28:		0'30			7'00	4'00	2		
Wootton Bassett Jn		10:35:	1'00				4'00				
Swindon	10:40:	10:42:					6'30	2'00	3		
Uffington		10:49:					1'30				
Challow		10:50:					1'30				
Wantage Road		10:52:	1'00				4'30				
Didcot Parkway	10:57:	10:59:					5'30	1'30	2	ML	
Goring & Streatley		11:04:	1'00				4'30			ML	
Reading High Level Jn		11:10:					1'30			ML	
Reading	11:11:	11:14:					1'00	3'00	10	UML	
Kennet Bridge Jn		11:15:					3'00			ML	
Twyford		11:18:					3'30		2	ML	
Maidenhead		11:22:					3'00		2	ML	
Slough		11:25:					3'00		3	ML	
Stockley Junction		11:28:					0'30			ML	
Heathrow Airport Jn		11:28:					1'00			ML	
Southall		11:29:					1'30		2	ML	
Acton West		11:31:	1'00				2'30			ML	
Ladbroke Grove		11:34:					0'30			3	
Portobello Jn (London)		11:35:		1'00			1'00			3	
Royal Oak Junction		11:37:					1'00				
London Paddington	11:38:								6		

1A15DA Bristol Temple Meads to London Paddington – flexed service

1P22DA Great Malvern to London Paddington – original service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Reading High Level Jn		10:53:					1'30			ML	
Reading	10:55:	10:57:					1'00	2'00	10	UML	
Kennet Bridge Jn		10:58:					3'00			ML	
Twyford		11:01:					3'30		2	ML	
Maidenhead		11:04:					3'30		2	ML	
Slough	11:08:	11:09:					4'30	1'30	3	ML	
Stockley Junction		11:14:					0'30			ML	
Heathrow Airport Jn		11:14:					1'00			ML	
Southall		11:15:		1'00			1'30		2	ML	
Acton West		11:18:	1'00				2'30			ML	
Ladbroke Grove		11:21:					0'30			3	
Portobello Jn (London)		11:22:					1'00			3	
Royal Oak Junction		11:23:					1'00				
London Paddington	11:24:								2		

1P22DA Great Malvern to London Paddington – flexed service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Reading High Level Jn		10:53:					1'30			ML	
Reading	10:55:	10:57:					1'00	2'00	10	UML	
Kennet Bridge Jn		10:58:					3'00			ML	
Twyford		11:01:					3'30		2	ML	
Maidenhead		11:04:					3'30		2	ML	
Slough	11:08:	11:09:					4'30	1'30	3	ML	
Stockley Junction		11:14:					0'30			ML	
Heathrow Airport Jn		11:14:					1'00			ML	
Southall		11:15:					1'30		2	ML	
Acton West		11:17:	1'00				2'30			ML	
Ladbroke Grove		11:20:		1'00			0'30			3	
Portobello Jn (London)		11:22:					1'00			3	
Royal Oak Junction		11:23:					1'00				
London Paddington	11:24:								2		

1D20DA London Paddington to Oxford – original service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
London Paddington		10:20:					1'00		2	2	
Royal Oak Junction		10:21:				0'30	1'00			2	
Portobello Jn (London)		10:22:					0'30			2	
Ladbroke Grove		10:23:					2'30			ML	
Acton West		10:25:					2'00			ML	
Southall		10:27:					1'00		1	ML	
Heathrow Airport Jn		10:28:					4'00			ML	
Slough	10:32:	10:34:					4'00	1'30	2	ML	
Maidenhead		10:38:					4'00		1	ML	
Twyford		10:42:	1'00				2'00		1	ML	
Kennet Bridge Jn		10:45:					1'00			DML	
Reading	10:46:	10:49:					1'00	3'30	9	ML	
Reading High Level Jn		10:50:					5'30			ML	
Goring & Streatley		10:56:	1'00				4'30			ML	
Didcot East Jn		11:01:					1'00				
Didcot North Jn		11:02:					6'00				
Kennington Jn		11:08:	1'30				3'00				
Oxford	11:13:								4		

1D20DA London Paddington to Oxford – flexed service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
London Paddington		10:20:					1'00		2	2	
Royal Oak Junction		10:21:				0'30	1'00			2	
Portobello Jn (London)		10:22:					0'30			2	
Ladbroke Grove		10:23:					2'30			ML	
Acton West		10:25:					2'00			ML	
Southall		10:27:					1'00		1	ML	
Heathrow Airport Jn		10:28:					4'00			ML	
Slough	10:32:	10:34:					4'00	1'30	2	ML	
Maidenhead		10:38:					4'00		1	ML	
Twyford		10:42:	1'00				2'00		1	ML	
Kennet Bridge Jn		10:45:					1'00			DML	
Reading	10:46:	10:48:		0'30			1'30	2'00	7	FVL	
Reading High Level Jn		10:50:					0'30			FVL	
Reading West Jn		10:50:					4'30			RL	
Goring & Streatley		10:55:	1'00				6'00			RL	
Didcot East Jn		11:02:					1'00				
Didcot North Jn		11:03:					6'00				
Kennington Jn		11:09:	1'00				3'00				
Oxford	11:13:								4		

1A76DA Penzance to London Paddington – original service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Bedwyn		10:35:					8'00		2		
Newbury		10:43:					6'00				
Theale		10:49:	1'00				3'00				
Southcote Jn		10:53:		1'30			1'00				
Oxford Road Jn		10:55:					2'30			UFM	
Reading	10:58:	11:04:					1'00	6'00	11	UML	
Kennet Bridge Jn		11:05:					3'00			ML	
Twyford		11:08:					3'30		2	ML	
Maidenhead		11:11:					3'00		2	ML	
Slough		11:14:					3'00		3	ML	
Stockley Junction		11:17:					0'30			ML	
Heathrow Airport Jn		11:18:					1'00			ML	
Southall		11:19:					1'30		2	ML	
Acton West		11:20:	1'00				2'30			ML	
Ladbroke Grove		11:24:					0'30			3	
Portobello Jn (London)		11:24:		2'30			1'00			3	
Royal Oak Junction		11:28:					1'00				
London Paddington	11:29:								4		

1A76DA Penzance to London Paddington – flexed service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Bedwyn		10:35:					8'00		2		
Newbury		10:43:					6'00				
Theale		10:49:	1'00				3'00				
Southcote Jn		10:53:		1'30			1'00				
Oxford Road Jn		10:55:					2'30			UFM	
Reading	10:58:	11:04:					1'00	6'00	11	UML	
Kennet Bridge Jn		11:05:					3'00			ML	
Twyford		11:08:					3'30		2	ML	
Maidenhead		11:11:					3'00		2	ML	
Slough		11:14:		0'30			3'00		3	ML	
Stockley Junction		11:18:					0'30			ML	
Heathrow Airport Jn		11:18:					1'00			ML	
Southall		11:19:		1'00			1'30		2	ML	
Acton West		11:22:	1'00	0'30			2'30			ML	
Ladbroke Grove		11:26:					0'30			3	
Portobello Jn (London)		11:26:		0'30			1'00			3	
Royal Oak Junction		11:28:					1'00				
London Paddington	11:29:								4		

F.04   Flexed services for 1L77

0B21DA Margam TC to Alexandra Dock Jn TC – original service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Margam T.C.		09:57:					5'00				
Margam Moors Jn.		10:02:					5'00				
Stormy		10:07:					4'00				
Bridgend		10:11:					9'00		2		
Pontyclun		10:20:		11'0			9'00				
Leckwith Loop North Jn		10:40:	1'00				2'00			C	
Cardiff Central		10:43:					1'30		UML	C	
Long Dyke Jn		10:44:		2'00			8'00			RL	
Marshfield		10:54:		2'00			4'30			RL	
Ebbw Jn		11:01:					3'00			RL	
Alexandra Dock Jn. T.C.	11:04:										

0B21DA Margam TC to Alexandra Dock Jn TC – flexed service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Margam T.C.		09:57:					5'00				
Margam Moors Jn.		10:02:					5'00				
Stormy		10:07:					4'00				
Bridgend		10:11:					9'00		2		
Pontyclun		10:20:		5'00			9'00				
Leckwith Loop North Jn		10:34:	1'00				2'00			C	
Cardiff Central		10:37:		0'30			1'30		UML	C	
Long Dyke Jn		10:39:		7'30			8'00			RL	
Marshfield		10:54:	2'00				4'30			RL	
Ebbw Jn		11:01:					3'00			RL	
Alexandra Dock Jn. T.C.	11:04:										

1A17DA Bristol Temple Meads to London Paddington – original service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Bristol Temple Meads		11:00:					1'00		7	UM	
Bristol East Jn		11:01:					1'00				
North Somerset Jn		11:02:				0'30	8'30				
Bath Spa	11:11:	11:13:					3'00	2'00	2		
Bathampton Jn		11:16:					6'00				
Thingley East Junction		11:22:					2'00				
Chippenham	11:24:	11:26:					7'00	2'00	2		
Wootton Bassett Jn		11:33:	1'00				4'00				
Swindon	11:38:	11:40:					6'30	2'30	3		
Uffington		11:47:					1'30				
Challow		11:48:					1'30				
Wantage Road		11:50:	1'00				4'30				
Didcot Parkway	11:55:	11:57:					5'30	1'30	2	ML	
Goring & Streatley		12:02:	1'00				4'30			ML	
Reading High Level Jn		12:08:					1'30			ML	
Reading	12:09:	12:12:					1'00	3'00	10	UML	
Kennet Bridge Jn		12:13:					3'00			ML	
Twyford		12:16:					3'30		2	ML	
Maidenhead		12:20:					3'00		2	ML	
Slough		12:23:					3'00		3	ML	
Stockley Junction		12:26:					0'30			ML	
Heathrow Airport Jn		12:26:					1'00			ML	
Southall		12:27:					1'30		2	ML	
Acton West		12:29:	1'00				2'30			ML	
Ladbroke Grove		12:32:					0'30			3	
Portobello Jn (London)		12:33:		3'00			1'00			3	
Royal Oak Junction		12:37:					1'00				
London Paddington	12:38:								5		

1A17DA Bristol Temple Meads to London Paddington – flexed service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Bristol Temple Meads		11:00:					1'00		10	UM	
Bristol East Jn		11:01:					1'00				
North Somerset Jn		11:02:				0'30	8'30				
Bath Spa	11:11:	11:13:					3'00	2'00	2		
Bathampton Jn		11:16:					6'00				
Thingley East Junction		11:22:					2'00				
Chippenham	11:24:	11:28:		0'30			6'30	4'00	2		
Wootton Bassett Jn		11:35:	1'00				4'00				
Swindon	11:40:	11:45:					6'30	5'00	1		
Uffington		11:51:					1'30				
Challow		11:53:					1'30				
Wantage Road		11:54:	1'00				4'30				
Didcot Parkway	12:00:	12:02:					5'30	2'00	2	ML	
Goring & Streatley		12:07:	1'00				4'30			ML	
Reading High Level Jn		12:13:					1'30			ML	
Reading	12:14:	12:16:					1'00	2'00	10	UML	
Kennet Bridge Jn		12:17:					3'00			ML	
Twyford		12:20:					3'30		2	ML	
Maidenhead		12:24:					3'00		2	ML	
Slough		12:27:					3'00		3	ML	
Stockley Junction		12:30:					0'30			ML	
Heathrow Airport Jn		12:30:					1'00			ML	
Southall		12:31:					1'30		2	ML	
Acton West		12:33:	1'00				2'30			ML	
Ladbroke Grove		12:36:					0'30			3	
Portobello Jn (London)		12:37:					1'00			3	
Royal Oak Junction		12:38:					1'00				
London Paddington	12:39:								6		

1V35DB Manchester Piccadilly to Carmarthen – original service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Newport (South Wales)	10:28:	10:30:					2'30	2'00	2	ML	
Ebbw Jn		10:33:					2'30			ML	
Marshfield		10:35:	1'00				4'30			ML	
Long Dyke Jn		10:41:		1'30			1'30			D	
Cardiff Central	10:44:	10:47:					2'00	3'00	3	D	
Leckwith Loop North Jn		10:49:					9'00				
Pontyclun		10:58:					7'30				
Bridgend	11:05:	11:06:					4'30	1'00	1		
Stormy		11:11:					2'30				
Margam Moors Jn.		11:13:					3'30				
Port Talbot Parkway	11:17:	11:18:					6'00	1'00			
Neath	11:24:	11:25:	1'00				9'00	1'00			
Swansea Loop East		11:35:					2'00				
Swansea	11:37:	11:42:					2'00	5'00	1		
Swansea Loop East		11:44:					2'00				
Swansea Loop West		11:46:					5'00				
Gowerton		11:51:					4'30				
Llandeilo Jn		11:55:					1'30				
Llanelli	11:57:	11:59:					5'00	2'00	DPL		
Pembrey & Burry Port	12:04:	12:05:					5'30	1'00			
Kidwelly	12:10:	12:11:					5'00	0'30			
Ferryside	12:16:	12:16:	2'00				7'30	0'30			
Carmarthen Jn		12:26:					2'00				
Carmarthen	12:28:								2		

1V35DB Manchester Piccadilly to Carmarthen – flexed service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Newport (South Wales)	10:28:	10:30:					2'30	2'00	2	ML	
Ebbw Jn		10:33:					2'30			ML	
Marshfield		10:35:	1'00	0'30			4'30			ML	
Long Dyke Jn		10:41:		1'00			1'30			D	
Cardiff Central	10:44:	10:47:					2'00	3'00	3	D	
Leckwith Loop North Jn		10:49:					9'00				
Pontyclun		10:58:					7'30				
Bridgend	11:05:	11:06:					4'30	1'00	1		
Stormy		11:11:					2'30				
Margam Moors Jn.		11:13:					3'30				
Port Talbot Parkway	11:17:	11:18:					6'00	1'00			
Neath	11:24:	11:25:	1'00				9'00	1'00			
Swansea Loop East		11:35:					2'00				
Swansea	11:37:	11:42:					2'00	5'00	1		
Swansea Loop East		11:44:					2'00				
Swansea Loop West		11:46:					5'00				
Gowerton		11:51:					4'30				
Llandeilo Jn		11:55:					1'30				
Llanelli	11:57:	11:59:					5'00	2'00	DPL		
Pembrey & Burry Port	12:04:	12:05:					5'30	1'00			
Kidwelly	12:10:	12:11:					5'00	0'30			
Ferryside	12:16:	12:16:	2'00				7'30	0'30			
Carmarthen Jn		12:26:					2'00				
Carmarthen	12:28:								2		

1W56DB Fishguard Harbour to Manchester Piccadilly – original service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Port Talbot Parkway	10:12:	10:14:					4'00	1'30			
Margam Moors Jn.		10:18:					3'30				
Stormy		10:21:		0'30			3'30				
Bridgend	10:25:	10:27:		1'00			8'30	1'30	2		
Pontyclun		10:36:					8'00				
Leckwith Loop North Jn		10:44:	1'00				2'30			C	
Cardiff Central	10:48:	10:51:		0'30			1'30	3'00	2	B	
Long Dyke Jn		10:53:					5'00			ML	
Marshfield		10:58:					2'30			ML	
Ebbw Jn		11:00:					2'30			ML	
Newport (South Wales)	11:03:	11:05:					1'00	2'00	3	ML	
Maindee West Jn		11:06:					1'00				
Maindee North Jn		11:07:					7'30				
Cwmbran	11:14:	11:15:					5'30	1'00			
Little Mill Jn		11:21:					6'30				
Abergavenny	11:27:	11:28:					6'00	1'00			
Abergavenny Sig 38		11:34:					4'30				
Pontrilas		11:39:					4'30				
Tram Inn		11:43:	2'00			1'00	6'30				
Hereford	11:53:	11:55:					3'00	2'00	3		
Shelwick Jn		11:58:					2'00				
Moreton-on-Lugg		12:00:					7'00				
Leominster	12:07:	12:08:					6'00	1'00			
Woofferton		12:14:					4'00				

1W56DB Fishguard Harbour to Manchester Piccadilly – flexed service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Port Talbot Parkway	10:12:	10:14:					4'00	1'30			
Margam Moors Jn.		10:18:					3'30				
Stormy		10:21:					3'30				
Bridgend	10:25:	10:26:					8'30	1'30	2		
Pontyclun		10:35:					8'00				
Leckwith Loop North Jn		10:43:	1'00				2'30			C	
Cardiff Central	10:46:	10:49:					1'30	3'00	2	B	
Long Dyke Jn		10:51:					5'00			ML	
Marshfield		10:56:					2'30			ML	
Ebbw Jn		10:58:					2'30			ML	
Newport (South Wales)	11:01:	11:03:					1'00	2'00	4	ML	
Maindee West Jn		11:04:					1'00				
Maindee North Jn		11:05:		2'00			7'30				
Cwmbran	11:14:	11:15:					5'30	1'00			
Little Mill Jn		11:21:					6'30				
Abergavenny	11:27:	11:28:					6'00	1'00			
Abergavenny Sig 38		11:34:					4'30				
Pontrilas		11:39:					4'30				
Tram Inn		11:43:	2'00			1'00	6'30				
Hereford	11:53:	11:55:					3'00	2'00	3		
Shelwick Jn		11:58:					2'00				
Moreton-on-Lugg		12:00:					7'00				
Leominster	12:07:	12:08:					6'00	1'00			
Woofferton		12:14:					4'00				

1F08DA Portsmouth Harbour to Cardiff Central – original service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
North Somerset Jn		09:47:		1'00			1'00				
Bristol East Jn		09:49:					1'00			UM	
Bristol Temple Meads	09:50:	09:56:					1'00	5'30	9	UF	
Bristol East Jn		09:57:					0'30			RL	
Dr Day's Jn		09:57:					1'30			RL	
Narroways Hill Junction		09:59:					2'00			RL	
Horfield Junction		10:01:					1'30			RL	
Filton Abbey Wood	10:02:	10:05:		3'30			2'30	2'30	4		
Patchway		10:11:					3'00		2		
Pilning		10:14:					1'00		2		
Severn Tunnel East		10:15:					3'30				
Severn Tunnel West		10:18:					1'00				
Severn Tunnel Junction		10:19:					6'30		3	ML	
Llanwern West Junction		10:26:	1'00	2'30			2'00			ML	
Maindee West Jn		10:31:					1'00			ML	
Newport (South Wales)	10:32:	10:34:					2'30	2'00	2	ML	
Ebbw Jn		10:37:					2'30			ML	
Marshfield		10:39:	1'00				4'30			ML	
Long Dyke Jn		10:45:				0'30	1'30			E	
Cardiff Central	10:47:								4		

1F08DA Portsmouth Harbour to Cardiff Central – flexed service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
North Somerset Jn		09:47:		1'00			1'00				
Bristol East Jn		09:49:					1'00			UM	
Bristol Temple Meads	09:50:	09:56:					1'00	5'30	9	UF	
Bristol East Jn		09:57:					0'30			RL	
Dr Day's Jn		09:57:					1'30			RL	
Narroways Hill Junction		09:59:					2'00			RL	
Horfield Junction		10:01:					1'30			RL	
Filton Abbey Wood	10:02:	10:05:		3'30			2'30	2'30	4		
Patchway		10:11:					3'00		2		
Pilning		10:14:					1'00		2		
Severn Tunnel East		10:15:					3'30				
Severn Tunnel West		10:18:					1'00				
Severn Tunnel Junction		10:19:					6'30		3	ML	
Llanwern West Junction		10:26:	1'00	2'30			2'00			ML	
Maindee West Jn		10:31:					1'00			ML	
Newport (South Wales)	10:32:	10:34:					2'30	2'00	2	ML	
Ebbw Jn		10:37:					2'30			ML	
Marshfield		10:39:	1'00	0'30			4'30			ML	
Long Dyke Jn		10:45:					1'30			E	
Cardiff Central	10:47:								4		

OFFICIAL

1F13DA Cardiff Central to Portsmouth Harbour – original service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Cardiff Central		10:30:					1'30		2	B	
Long Dyke Jn		10:31:					5'30			ML	
Marshfield		10:37:					2'30			ML	
Ebbw Jn		10:39:					2'30			ML	
Newport (South Wales)	10:42:	10:44:					1'00	2'00	3	ML	
Maindee West Jn		10:45:					2'00			ML	
Llanwern West Junction		10:47:					6'00			ML	
Severn Tunnel Junction		10:53:					1'00		4		
Severn Tunnel West		10:54:					4'00				
Severn Tunnel East		10:58:					1'00				
Pilning		10:59:					3'30		1		
Patchway		11:02:	1'00				2'30		1		
Filton Abbey Wood	11:06:	11:07:					1'30	1'00	3	RL	
Horfield Junction		11:08:	1'00				1'30			RL	
Narroways Hill Junction		11:11:		1'30			1'30			RL	
Dr Day's Jn		11:14:					1'00			ML	
Bristol East Jn		11:15:					1'00			DM	
Bristol Temple Meads	11:16:	11:22:					1'00	6'00	13	UM	
Bristol East Jn		11:23:					1'00				
North Somerset Jn		11:24:					9'30				
Bath Spa	11:33:	11:35:					3'30	2'00	2		

1F13DA Cardiff Central to Portsmouth Harbour – flexed service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Cardiff Central		10:27:					1'30		2	B	
Long Dyke Jn		10:28:					5'30			ML	
Marshfield		10:34:					2'30			ML	
Ebbw Jn		10:36:		3'00			2'30			ML	
Newport (South Wales)	10:42:	10:44:					1'00	2'00	3	ML	
Maindee West Jn		10:45:					2'00			ML	
Llanwern West Junction		10:47:					6'00			ML	
Severn Tunnel Junction		10:53:					1'00		4		
Severn Tunnel West		10:54:					4'00				
Severn Tunnel East		10:58:					1'00				
Pilning		10:59:					3'30		1		
Patchway		11:02:	1'00				2'30		1		
Filton Abbey Wood	11:06:	11:07:					1'30	1'00	3	RL	
Horfield Junction		11:08:	1'00	1'30			1'30			RL	
Narroways Hill Junction		11:12:					1'30			RL	
Dr Day's Jn		11:14:					1'00			ML	
Bristol East Jn		11:15:					1'00			DM	
Bristol Temple Meads	11:16:	11:22:					1'00	6'00	13	UM	
Bristol East Jn		11:23:					1'00				
North Somerset Jn		11:24:					9'30				
Bath Spa	11:33:	11:35:					3'30	2'00	2		

2N11DB Cardiff Central to Ebbw Vale Town – original service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Cardiff Central		10:34:					1'30		0	B	
Long Dyke Jn		10:35:				0'30	6'00			ML	
Marshfield		10:42:				0'30	3'30			ML	
Ebbw Jn		10:46:					3'30				
Park Jn		10:49:					1'30				
Park North Jcn		10:51:					1'30				
Pye Corner	10:52:	10:53:					3'00	0'30			
Rogerstone	10:56:	10:57:					1'00	1'00			
Risca South Jcn		10:58:					2'00				
Risca & Pontymister	11:00:	11:00:					4'30	0'30			
Cross Keys	11:05:	11:06:					1'00	1'00			
Crosskeys Jcn		11:07:					6'30				
Newbridge (Ebbw Vale)	11:13:	11:14:					5'30	0'30			
Llanhilleth	11:19:	11:20:					8'00	0'30			
Ebbw Vale Parkway	11:28:	11:29:					4'00	1'00			
Ebbw Vale Town	11:33:										

2N11DB Cardiff Central to Ebbw Vale Town – flexed service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Cardiff Central		10:31:					1'30		0	B	
Long Dyke Jn		10:32:					6'00			ML	
Marshfield		10:38:				0'30	3'30			ML	
Ebbw Jn		10:42:		3'30			3'30				
Park Jn		10:49:					1'30				
Park North Jcn		10:51:					1'30				
Pye Corner	10:52:	10:53:					3'00	0'30			
Rogerstone	10:56:	10:57:					1'00	1'00			
Risca South Jcn		10:58:					2'00				
Risca & Pontymister	11:00:	11:00:					4'30	0'30			
Cross Keys	11:05:	11:06:					1'00	1'00			
Crosskeys Jcn		11:07:					6'30				
Newbridge (Ebbw Vale)	11:13:	11:14:					5'30	0'30			
Llanhilleth	11:19:	11:20:					8'00	0'30			
Ebbw Vale Parkway	11:28:	11:29:					4'00	1'00			
Ebbw Vale Town	11:33:										

3S59BB Bristol Kingsland Road to Bristol Kingsland Road - original service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Panteg	34:03:	34:27:				2'00	12'00	23'30			
Maindee North Jn	34:41:	34:48:					2'00	7'00			
Maindee East Jn		34:50:					3'00			RL	
Llanwern West Junction		34:53:		2'00			11'00			RL	
Severn Tunnel Junction		35:06:		2'00			1'00		4		
Severn Tunnel West		35:09:					5'00				
Severn Tunnel East		35:14:					2'00				
Pilning		35:16:		5'00			5'00		1		
Patchway		35:26:	1'00	2'30		0'30	2'00		1		
Filton Abbey Wood		35:32:		0'30			1'00		1	ML	
Horfield Junction		35:33:	1'00	1'00		3'00	3'00			ML	
Dr Day's Jn		35:41:		0'30			1'00			ML	
Bristol East Jn		35:43:					1'00			DM	
Bristol Temple Meads	35:44:	35:51:					1'00	7'00	DT	DT	
Bristol West Jn.		35:52:					3'00				
Parson Street		35:55:					3'00		1		
Ashton Jn	35:58:	36:00:					14'00	2'00			
Portbury Dock Stop Board	36:14:	36:18:					10'00	4'00			
Ashton Jn Signal B335	36:28:	36:30:					2'00	2'00			
Ashton Jn		36:32:					1'30				
Parson Street		36:33:					2'00			RL	
Bristol West Jn.		36:35:	1'00				1'00		CL	DT	
Bristol Temple Meads	36:37:	36:41:					5'00	3'30	DT		
Bristol Kingsland Road	36:46:										

3S59BB Bristol Kingsland Road to Bristol Kingsland Road - flexed service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Panteg	34:03:	34:27:				2'00	12'00	23'30			
Maindee North Jn	34:41:	34:48:					2'00	7'00			
Maindee East Jn		34:50:					3'00			RL	
Llanwern West Junction		34:53:		2'00			11'00			RL	
Severn Tunnel Junction		35:06:		1'00			1'00		4		
Severn Tunnel West		35:08:					5'00				
Severn Tunnel East		35:13:					2'00				
Pilning		35:15:					5'00		1		
Patchway		35:20:	1'00	9'00		0'30	2'00		1		
Filton Abbey Wood		35:32:		0'30			1'00		1	ML	
Horfield Junction		35:34:	1'00	0'30		3'00	3'00			ML	
Dr Day's Jn		35:41:		0'30			1'00			ML	
Bristol East Jn		35:43:					1'00			DM	
Bristol Temple Meads	35:44:	35:51:					1'00	7'00	DT	DT	
Bristol West Jn.		35:52:					3'00				
Parson Street		35:55:					3'00		1		
Ashton Jn	35:58:	36:00:					14'00	2'00			
Portbury Dock Stop Board	36:14:	36:18:					10'00	4'00			
Ashton Jn Signal B335	36:28:	36:30:					2'00	2'00			
Ashton Jn		36:32:					1'30				
Parson Street		36:33:					2'00			RL	
Bristol West Jn.		36:35:	1'00				1'00		CL	DT	
Bristol Temple Meads	36:37:	36:41:					5'00	3'30	DT		
Bristol Kingsland Road	36:46:										

4V70QJ Ratcliffe Powergen to Avonmouth National Power - original service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Bromsgrove		09:35:					2'00		4		
Stoke Works Jn		09:37:					9'00				
Abbotswood Jn		09:46:				1'00	9'00				
Ashchurch		09:56:	1'00	3'00			6'00		DGL		
Cheltenham Spa		10:06:		5'00			5'30		1		
Barnwood Jn		10:16:		2'00			1'00				
Gloucester Yard Jn		10:19:				1'00	6'30				
Haresfield Loop	10:27:	11:09:				1'00	3'00	42'00			
Standish Jn		11:13:					11'00				
Charfield		11:24:					6'00				
Yate		11:30:	1'00				2'00				
Westerleigh Jn		11:33:				1'30	4'30				
Bristol Parkway	11:39:	11:43:				0'30	2'30	4'00	DGL		
Filton West Jn		11:46:					6'00				
Hallen Marsh Jn		11:52:					6'00				
Avonmouth National Power	11:58:										

4V70QJ Ratcliffe Powergen to Avonmouth National Power - flexed service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Bromsgrove		09:35:					2'00		4		
Stoke Works Jn		09:37:					9'00				
Abbotswood Jn		09:46:				1'00	9'00				
Ashchurch		09:56:	1'00	3'00			6'00		DGL		
Cheltenham Spa		10:06:		5'00			5'30		1		
Barnwood Jn		10:16:		2'00			1'00				
Gloucester Yard Jn		10:19:				1'00	6'30				
Haresfield Loop	10:27:	11:09:				1'00	3'00	42'00			
Standish Jn		11:13:					11'00				
Charfield		11:24:					6'00				
Yate		11:30:	1'00	6'00			2'00				
Westerleigh Jn		11:39:				1'30	4'30				
Bristol Parkway	11:45:	11:51:				0'30	2'30	6'00	DGL		
Filton West Jn		11:54:					6'00				
Hallen Marsh Jn		12:00:					6'00				
Avonmouth National Power	12:06:										

4E18GA Fairwater Yard to Doncaster Wood Yard - original service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Bristol East Jn		11:06:					1'00			RL	
Dr Day's Jn		11:07:					2'00			RL	
Narroways Hill Junction		11:09:					2'00			RL	
Horfield Junction		11:11:					1'00			ML	
Filton Abbey Wood		11:12:		2'00			2'30		2		
Bristol Parkway	11:16:	11:36:					7'30	20'00	UPL		
Westerleigh Jn		11:44:				2'00	15'30				
Hullavington	12:01:	12:16:				2'00	14'00	15'00	UGL		
Wootton Bassett Jn	12:32:	12:55:	1'00			0'30	8'30	22'30	UGL		
Swindon		13:05:					5'00		UML	UML	
Swindon Stratton Green	13:10:	13:30:					12'30	20'00			
Uffington		13:42:					2'00				
Challow		13:44:					5'00			RL	
Wantage Road	13:49:	14:11:					7'00	22'00			
Steventon		14:18:					4'30			RL	
Foxhall Jn		14:23:					2'00				
Didcot West Curve Jn	14:25:	14:45:					2'00	20'30			
Didcot North Jn		14:47:		0'30			7'00				
Kennington Jn		14:55:		1'00			2'00				

4E18GA Fairwater Yard to Doncaster Wood Yard - flexed service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Bristol East Jn		11:06:					1'00			RL	
Dr Day's Jn		11:07:					2'00			RL	
Narroways Hill Junction		11:09:					2'00			RL	
Horfield Junction		11:11:					1'00			ML	
Filton Abbey Wood		11:12:		2'00			2'30		2		
Bristol Parkway	11:16:	11:37:					7'30	20'30	UPL		
Westerleigh Jn		11:44:				2'00	15'30				
Hullavington	12:02:	12:16:				2'00	14'00	14'30	UGL		
Wootton Bassett Jn	12:32:	12:55:	1'00			0'30	8'30	22'30	UGL		
Swindon		13:05:					5'00		UML	UML	
Swindon Stratton Green	13:10:	13:30:					12'30	20'00			
Uffington		13:42:					2'00				
Challow		13:44:					5'00			RL	
Wantage Road	13:49:	14:11:					7'00	22'00			
Steventon		14:18:					4'30			RL	
Foxhall Jn		14:23:					2'00				
Didcot West Curve Jn	14:25:	14:45:					2'00	20'30			
Didcot North Jn		14:47:		0'30			7'00				
Kennington Jn		14:55:		1'00			2'00				

1L15DA Cardiff Central to London Paddington - original service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Cardiff Central		10:41:				0'30	1'30		2	B	
Long Dyke Jn		10:43:					4'00			ML	
Marshfield		10:47:					2'30			ML	
Ebbw Jn		10:49:					2'00			ML	
Newport (South Wales)	10:51:	10:53:					1'00	2'00	3	ML	
Maindee West Jn		10:54:					2'00			ML	
Llanwern West Junction		10:56:					6'30			ML	
Severn Tunnel Junction		11:03:					1'00		4		
Severn Tunnel West		11:04:					3'30				
Severn Tunnel East		11:07:					1'00				
Pilning		11:08:	1'00				2'30		1		
Patchway		11:12:					1'30		1		
Bristol Parkway	11:13:	11:20:					3'30	6'30	3		
Westerleigh Jn		11:23:					6'30				
Hullavington		11:30:		0'30			6'30				
Wootton Bassett Jn		11:37:	1'00	1'00		0'30	4'00				
Swindon	11:43:	11:49:					6'30	5'30	3		
Uffington		11:55:					1'30				
Challow		11:57:					1'30				
Wantage Road		11:58:	1'00	0'30			3'30				
Didcot Parkway		12:03:					4'00		2	ML	
Goring & Streatley		12:07:	1'00				4'30			ML	
Reading High Level Jn		12:13:					1'30			ML	
Reading	12:14:	12:16:					1'00	2'00	11	UML	
Kennet Bridge Jn		12:17:					3'00			ML	
Twyford		12:20:					3'30		2	ML	
Maidenhead		12:24:					3'00		2	ML	
Slough		12:27:					3'00		3	ML	
Stockley Junction		12:30:					0'30			ML	
Heathrow Airport Jn		12:30:					1'00			ML	
Southall		12:31:					1'30		2	ML	
Acton West		12:33:	1'00				2'30			ML	
Ladbroke Grove		12:36:					0'30			3	
Portobello Jn (London)		12:37:		1'00			1'00			3	
Royal Oak Junction		12:39:					1'00				
London Paddington	12:40:								8		

1L15DA Cardiff Central to London Paddington -flexed service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Cardiff Central		10:55:					1'30		2	B	
Long Dyke Jn		10:56:					4'00			ML	
Marshfield		11:00:					2'30			ML	
Ebbw Jn		11:03:					2'00			ML	
Newport (South Wales)	11:05:	11:06:					1'00	1'30	3	ML	
Maindee West Jn		11:07:					2'00			ML	
Llanwern West Junction		11:09:					6'30			ML	
Severn Tunnel Junction		11:16:					1'00		4		
Severn Tunnel West		11:17:					3'30				
Severn Tunnel East		11:20:					1'00				
Pilning		11:21:	1'00				2'30		1		
Patchway		11:25:					1'30		1		
Bristol Parkway	11:26:	11:28:					3'30	1'30	3		
Westerleigh Jn		11:31:					6'30				
Hullavington		11:38:					6'30				
Wootton Bassett Jn		11:44:	1'00			0'30	4'00				
Swindon	11:50:	11:52:					6'30	2'00	3		
Uffington		11:58:					1'30				
Challow		12:00:					1'30				
Wantage Road		12:01:	1'00				3'30				
Didcot Parkway		12:06:		0'30			4'00		2	ML	
Goring & Streatley		12:10:	1'00				4'30			ML	
Reading High Level Jn		12:16:					1'30			ML	
Reading	12:17:	12:19:					1'00	2'00	11	UML	
Kennet Bridge Jn		12:20:					3'00			ML	
Twyford		12:23:					3'30		2	ML	
Maidenhead		12:27:					3'00		2	ML	
Slough		12:30:					3'00		3	ML	
Stockley Junction		12:33:					0'30			ML	
Heathrow Airport Jn		12:33:					1'00			ML	
Southall		12:34:					1'30		2	ML	
Acton West		12:36:	1'00				2'30			ML	
Ladbroke Grove		12:39:					0'30			3	
Portobello Jn (London)		12:40:					1'00			3	
Royal Oak Junction		12:41:					1'00				
London Paddington	12:42:								8		

1L72DA Cheltenham Spa to London Paddington - original service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Stroud	11:26:	11:27:					4'30	1'00	1		
St. Mary's Level Crossing		11:31:					9'30				
Kemble	11:41:	11:43:	1'00				9'30	2'00	1		
Swindon Loco Yard		11:53:					2'00				
Swindon	11:55:	11:58:					6'30	2'30	1		
Uffington		12:04:					1'30				
Challow		12:06:					1'30				
Wantage Road		12:07:	1'00				4'30				
Didcot Parkway	12:13:	12:16:					5'30	3'00	2	ML	
Goring & Streatley		12:21:	1'00				4'30			ML	
Reading High Level Jn		12:27:					1'30			ML	
Reading	12:28:	12:34:					1'00	5'30	11	UML	
Kennet Bridge Jn		12:35:					3'00			ML	
Twyford		12:38:					3'30		2	ML	
Maidenhead		12:41:					3'00		2	ML	
Slough		12:44:					3'00		3	ML	
Stockley Junction		12:47:					0'30			ML	
Heathrow Airport Jn		12:48:					1'00			ML	
Southall		12:49:					1'30		2	ML	
Acton West		12:50:	1'00				2'30			ML	
Ladbroke Grove		12:54:					0'30			3	
Portobello Jn (London)		12:54:		2'30			1'00			3	
Royal Oak Junction		12:58:					1'00				
London Paddington	12:59:								9		

1L72DA Cheltenham Spa to London Paddington - flexed service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Stroud	11:26:	11:27:					4'30	1'00	1		
St. Mary's Level Crossing		11:31:					9'30				
Kemble	11:41:	11:43:	1'00				9'30	2'00	1		
Swindon Loco Yard		11:53:					2'00				
Swindon	11:55:	11:58:		2'00			6'30	2'30	1		
Uffington		12:06:					1'30				
Challow		12:08:					1'30				
Wantage Road		12:09:	1'00				4'30				
Didcot Parkway	12:15:	12:16:					5'30	1'30	2	ML	
Goring & Streatley		12:22:	1'00				4'30			ML	
Reading High Level Jn		12:27:					1'30			ML	
Reading	12:29:	12:34:					1'00	5'00	11	UML	
Kennet Bridge Jn		12:35:					3'00			ML	
Twyford		12:38:					3'30		2	ML	
Maidenhead		12:41:					3'00		2	ML	
Slough		12:44:					3'00		3	ML	
Stockley Junction		12:47:					0'30			ML	
Heathrow Airport Jn		12:48:					1'00			ML	
Southall		12:49:					1'30		2	ML	
Acton West		12:50:	1'00				2'30			ML	
Ladbroke Grove		12:54:					0'30			3	
Portobello Jn (London)		12:54:		2'30			1'00			3	
Royal Oak Junction		12:58:					1'00				
London Paddington	12:59:								9		

1H28DA Bristol Temple Meads to London Paddington - original service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Bristol Temple Meads		11:22:					1'00		8	UF	
Bristol East Jn		11:23:					1'00			ML	
Dr Day's Jn		11:24:					3'00			ML	
Horfield Junction		11:27:					1'00			ML	
Filton Abbey Wood		11:28:					2'00		2		
Bristol Parkway	11:30:	11:32:		1'00			3'30	2'00	3		
Westerleigh Jn		11:36:					6'30				
Hullavington		11:43:					6'30				
Wootton Bassett Jn		11:49:	1'30			0'30	3'30				
Swindon		11:55:					5'30		UML		
Uffington		12:00:					1'30				
Challow		12:02:					1'30				
Wantage Road		12:03:	1'00	1'00			3'30				
Didcot Parkway		12:09:					4'00		2	ML	
Goring & Streatley		12:13:	1'00				4'30			ML	
Reading High Level Jn		12:18:					1'00			ML	
Reading		12:19:					1'00		10	UML	
Kennet Bridge Jn		12:20:					3'00			ML	
Twyford		12:23:					3'30		2	ML	
Maidenhead		12:27:					3'00		2	ML	
Slough		12:30:					3'00		3	ML	
Stockley Junction		12:33:					0'30			ML	
Heathrow Airport Jn		12:33:					1'00			ML	
Southall		12:34:					1'30		2	ML	
Acton West		12:36:	1'00				2'30			ML	
Ladbroke Grove		12:39:					0'30			3	
Portobello Jn (London)		12:40:		2'00			1'00			3	
Royal Oak Junction		12:43:					1'00				
London Paddington	12:44:								6		

OFFICIAL

1H28DA Bristol Temple Meads to London Paddington - flexed service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Bristol Temple Meads		11:22:					1'00		8	UF	
Bristol East Jn		11:23:					1'00			ML	
Dr Day's Jn		11:24:					3'00			ML	
Horfield Junction		11:27:					1'00			ML	
Filton Abbey Wood		11:28:		1'30			2'00		2		
Bristol Parkway	11:31:	11:33:					3'30	1'30	3		
Westerleigh Jn		11:36:					6'30				
Hullavington		11:43:					6'30				
Wootton Bassett Jn		11:49:	1'00	1'30		0'30	3'30				
Swindon		11:56:		1'00			5'30		UML		
Uffington		12:02:					1'30				
Challow		12:04:					1'30				
Wantage Road		12:05:	1'00				3'30				
Didcot Parkway		12:10:					4'00		2	ML	
Goring & Streatley		12:14:	1'00				4'30			ML	
Reading High Level Jn		12:19:		1'00			1'00			ML	
Reading		12:21:					1'00		10	UML	
Kennet Bridge Jn		12:22:					3'00			ML	
Twyford		12:25:					3'30		2	ML	
Maidenhead		12:29:					3'00		2	ML	
Slough		12:32:					3'00		3	ML	
Stockley Junction		12:35:					0'30			ML	
Heathrow Airport Jn		12:35:					1'00			ML	
Southall		12:36:		0'30			1'30		2	ML	
Acton West		12:38:	1'00				2'30			ML	
Ladbroke Grove		12:42:					0'30			3	
Portobello Jn (London)		12:42:		0'30			1'00			3	
Royal Oak Junction		12:44:					1'00				
London Paddington	12:45:								6		

OFFICIAL

1P25DA Oxford Temple Meads to London Paddington - original service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Oxford		12:02:				0'30	3'00		3		
Kennington Jn		12:05:	1'00				5'00				
Didcot North Jn		12:11:					1'00				
Didcot East Jn		12:12:					5'00			ML	
Goring & Streatley		12:17:	1'00				4'30			ML	
Reading High Level Jn		12:23:					1'30			ML	
Reading	12:24:	12:26:					1'00	2'00	10	UML	
Kennet Bridge Jn		12:27:					3'00			ML	
Twyford		12:30:					3'30		2	ML	
Maidenhead		12:34:					3'30		2	ML	
Slough	12:37:	12:39:					4'30	1'30	3	ML	
Stockley Junction		12:43:					0'30			ML	
Heathrow Airport Jn		12:44:					1'00			ML	
Southall		12:45:					1'30		2	ML	
Acton West		12:46:	1'00				2'30			ML	
Ladbroke Grove		12:50:					0'30			3	
Portobello Jn (London)		12:50:		1'30			1'00			3	
Royal Oak Junction		12:53:					1'00				
London Paddington	12:54:								3		

1P25DA Oxford Temple Meads to London Paddington - flexed service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Oxford		12:02:				0'30	3'00		3		
Kennington Jn		12:05:	1'00				5'00				
Didcot North Jn		12:11:		0'30			1'00				
Didcot East Jn		12:13:					5'00			ML	
Goring & Streatley		12:18:	1'00				4'30			ML	
Reading High Level Jn		12:23:					1'30			ML	
Reading	12:25:	12:27:					1'00	2'00	10	UML	
Kennet Bridge Jn		12:28:					3'00			ML	
Twyford		12:31:					3'30		2	ML	
Maidenhead		12:34:					3'30		2	ML	
Slough	12:38:	12:39:					4'30	1'30	3	ML	
Stockley Junction		12:44:					0'30			ML	
Heathrow Airport Jn		12:44:					1'00			ML	
Southall		12:45:					1'30		2	ML	
Acton West		12:47:	1'00				2'30			ML	
Ladbroke Grove		12:50:					0'30			3	
Portobello Jn (London)		12:51:		1'00			1'00			3	
Royal Oak Junction		12:53:					1'00				
London Paddington	12:54:								3		

1P25DA Oxford Temple Meads to London Paddington - flexed service

1K15DA Bedwyn to London Paddington - original service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Bedwyn		11:41:					5'00		2		
Hungerford	11:46:	11:47:					3'30	1'30			
Kintbury	11:51:	11:52:					5'30	1'00	2		
Newbury	11:57:	11:59:					3'30	1'30	2		
Thatcham	12:02:	12:03:					6'30	1'00			
Theale	12:10:	12:11:	1'00				3'00	1'30			
Southcote Jn		12:15:		3'00			1'00				
Oxford Road Jn		12:19:					2'30			UFM	
Reading	12:22:	12:24:					1'00	2'30	11	UML	
Kennet Bridge Jn		12:25:					3'00			ML	
Twyford		12:28:					3'30		2	ML	
Maidenhead		12:32:					3'00		2	ML	
Slough		12:35:		0'30			3'00		3	ML	
Stockley Junction		12:38:					0'30			ML	
Heathrow Airport Jn		12:39:		0'30			1'00			ML	
Southall		12:40:		1'00			1'30		2	ML	
Acton West		12:43:	1'00				2'30			ML	
Ladbroke Grove		12:46:					0'30			3	
Portobello Jn (London)		12:47:		3'00			1'00			3	
Royal Oak Junction		12:51:					1'00				
London Paddington	12:52:								10		

1K15DA Bedwyn to London Paddington - flexed service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Bedwyn		11:41:					5'00		2		
Hungerford	11:46:	11:47:					3'30	1'30			
Kintbury	11:51:	11:52:					5'30	1'00	2		
Newbury	11:57:	11:59:					3'30	1'30	2		
Thatcham	12:02:	12:03:					6'30	1'00			
Theale	12:10:	12:11:	1'00				3'00	1'30			
Southcote Jn		12:15:		3'00			1'00				
Oxford Road Jn		12:19:					2'30			UFM	
Reading	12:22:	12:24:					1'00	2'30	11	UML	
Kennet Bridge Jn		12:25:					3'00			ML	
Twyford		12:28:					3'30		2	ML	
Maidenhead		12:32:					3'00		2	ML	
Slough		12:35:		1'30			3'00		3	ML	
Stockley Junction		12:39:					0'30			ML	
Heathrow Airport Jn		12:40:		0'30			1'00			ML	
Southall		12:41:		1'00			1'30		2	ML	
Acton West		12:44:	1'00				2'30			ML	
Ladbroke Grove		12:47:					0'30			3	
Portobello Jn (London)		12:48:		2'00			1'00			3	
Royal Oak Junction		12:51:					1'00				
London Paddington	12:52:								10		

1Y50DA Heathrow Terminal 5 to London Paddington - original service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Heathrow Terminal 5		12:12:					3'30		3		
Heathrow Terminals 2 & 3	12:15:	12:17:					3'00	2'00	2		
Heathrow Tunnel Jn.		12:20:					0'30				
Stockley Junction		12:21:					0'30			ML	
Heathrow Airport Jn		12:21:					1'30			ML	
Southall		12:23:					2'30		2	ML	
Acton West		12:25:	1'00				2'30			ML	
Ladbroke Grove		12:29:					1'00			3	
Portobello Jn (London)		12:30:					1'00			3	
Royal Oak Junction		12:31:					1'00				
London Paddington	12:32:								7		

1Y50DA Heathrow Terminal 5 to London Paddington - flexed service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Heathrow Terminal 5		12:12:					3'30		3		
Heathrow Terminals 2 & 3	12:15:	12:17:					3'00	2'00	2		
Heathrow Tunnel Jn.		12:20:		1'00			0'30				
Stockley Junction		12:22:					0'30			ML	
Heathrow Airport Jn		12:22:					1'30			ML	
Southall		12:24:					2'30		2	ML	
Acton West		12:26:	1'00				2'30			ML	
Ladbroke Grove		12:30:					1'00			3	
Portobello Jn (London)		12:31:					1'00			3	
Royal Oak Junction		12:32:					1'00				
London Paddington	12:33:								7		

1Y51DA Heathrow Terminal 5 to London Paddington - original service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Heathrow Terminal 5		12:27:					3'30		4		
Heathrow Terminals 2 & 3	12:30:	12:32:					3'00	2'00	2		
Heathrow Tunnel Jn.		12:35:					0'30				
Stockley Junction		12:36:					0'30			ML	
Heathrow Airport Jn		12:36:					1'30			ML	
Southall		12:38:					2'30		2	ML	
Acton West		12:40:	1'00				2'30			ML	
Ladbroke Grove		12:44:					1'00			3	
Portobello Jn (London)		12:45:					1'00			3	
Royal Oak Junction		12:46:					1'00				
London Paddington	12:47:								7		

1Y51DA Heathrow Terminal 5 to London Paddington - flexed service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Heathrow Terminal 5		12:27:					3'30		4		
Heathrow Terminals 2 & 3	12:30:	12:32:					3'00	2'00	2		
Heathrow Tunnel Jn.		12:35:		1'00			0'30				
Stockley Junction		12:37:					0'30			ML	
Heathrow Airport Jn		12:37:					1'30			ML	
Southall		12:39:					2'30		2	ML	
Acton West		12:41:	1'00				2'30			ML	
Ladbroke Grove		12:45:					1'00			3	
Portobello Jn (London)		12:46:					1'00			3	
Royal Oak Junction		12:47:					1'00				
London Paddington	12:48:								7		

1Y51DA Heathrow Terminal 5 to London Paddington - flexed service

F.05   Flexed services for 1L81

1F17DA Cardiff Central to Portsmouth Harbour - original service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Cardiff Central		12:30:					1'30		1	B	
Long Dyke Jn		12:31:					5'30			ML	
Marshfield		12:37:					2'30			ML	
Ebbw Jn		12:39:					2'30			ML	
Newport (South Wales)	12:42:	12:44:					1'00	2'00	4	ML	
Maindee West Jn		12:45:					2'00			ML	
Llanwern West Junction		12:47:					6'00			ML	
Severn Tunnel Junction		12:53:					1'00		4		
Severn Tunnel West		12:54:					4'00				
Severn Tunnel East		12:58:					1'00				
Pilning		12:59:					3'30		1		
Patchway		13:02:	1'00				2'30		1		
Filton Abbey Wood	13:06:	13:07:					1'30	1'00	3	RL	
Horfield Junction		13:08:	1'00				1'30			RL	
Narroways Hill Junction		13:11:					1'30			RL	
Dr Day's Jn		13:12:					1'00			RL	
Bristol East Jn		13:13:					1'00			DF	
Bristol Temple Meads	13:14:	13:22:					1'00	7'30	9	DF	
Bristol East Jn		13:23:					1'00				
North Somerset Jn		13:24:					9'30				
Bath Spa	13:33:	13:35:					3'30	2'00	2		

1F17DA Cardiff Central to Portsmouth Harbour – flexed service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Cardiff Central		12:27:					1'30		1	B	
Long Dyke Jn		12:28:					5'30			ML	
Marshfield		12:34:					2'30			ML	
Ebbw Jn		12:36:					2'30			ML	
Newport (South Wales)	12:39:	12:44:					1'00	5'00	4	ML	
Maindee West Jn		12:45:					2'00			ML	
Llanwern West Junction		12:47:					6'00			ML	
Severn Tunnel Junction		12:53:					1'00		4		
Severn Tunnel West		12:54:					4'00				
Severn Tunnel East		12:58:					1'00				
Pilning		12:59:					3'30		1		
Patchway		13:02:	1'00				2'30		1		
Filton Abbey Wood	13:06:	13:07:					1'30	1'00	3	RL	
Horfield Junction		13:08:	1'00				1'30			RL	
Narroways Hill Junction		13:11:					1'30			RL	
Dr Day's Jn		13:12:					1'00			RL	
Bristol East Jn		13:13:					1'00			DF	
Bristol Temple Meads	13:14:	13:22:					1'00	7'30	9	DF	
Bristol East Jn		13:23:					1'00				
North Somerset Jn		13:24:					9'30				
Bath Spa	13:33:	13:35:					3'30	2'00	2		

1A21DA Bristol Temple Meads to London Paddington - original service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Bristol Temple Meads		13:00:					1'00		12	UM	
Bristol East Jn		13:01:					1'00				
North Somerset Jn		13:02:				0'30	8'30				
Bath Spa	13:11:	13:13:					3'00	2'00	2		
Bathampton Jn		13:16:					6'00				
Thingley East Junction		13:22:					2'00				
Chippenham	13:24:	13:26:					7'00	2'00	2		
Wootton Bassett Jn		13:33:	1'00				4'00				
Swindon	13:38:	13:40:					6'30	2'30	3		
Uffington		13:47:					1'30				
Challow		13:48:					1'30				
Wantage Road		13:50:	1'00				4'30				
Didcot Parkway	13:55:	13:57:					5'30	1'30	2	ML	
Goring & Streatley		14:02:	1'00				4'30			ML	
Reading High Level Jn		14:08:					1'30			ML	
Reading	14:09:	14:11:					1'00	2'00	10	UML	
Kennet Bridge Jn		14:12:					3'00			ML	
Twyford		14:15:					3'30		2	ML	
Maidenhead		14:19:					3'00		2	ML	
Slough		14:22:					3'00		3	ML	
Stockley Junction		14:25:					0'30			ML	
Heathrow Airport Jn		14:25:					1'00			ML	
Southall		14:26:					1'30		2	ML	
Acton West		14:28:	1'00				2'30			ML	
Ladbroke Grove		14:31:					0'30			3	
Portobello Jn (London)		14:32:		2'00			1'00			3	
Royal Oak Junction		14:35:					1'00				
London Paddington	14:36:								5		

1A21DA Bristol Temple Meads to London Paddington - original service

1A21DA Bristol Temple Meads to London Paddington - flexed service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Bristol Temple Meads		13:00:					1'00		12	UM	
Bristol East Jn		13:01:					1'00				
North Somerset Jn		13:02:				0'30	8'30				
Bath Spa	13:11:	13:13:					3'00	2'00	2		
Bathampton Jn		13:16:					6'00				
Thingley East Junction		13:22:					2'00				
Chippenham	13:24:	13:29:					6'30	5'00	2		
Wootton Bassett Jn		13:35:	1'00				4'00				
Swindon	13:40:	13:42:					6'30	2'00	1		
Uffington		13:49:					1'30				
Challow		13:50:					1'30				
Wantage Road		13:52:	1'00				4'30				
Didcot Parkway	13:57:	13:59:					5'30	1'30	2	ML	
Goring & Streatley		14:04:	1'00				4'30			ML	
Reading High Level Jn		14:10:					1'30			ML	
Reading	14:11:	14:13:					1'00	2'00	10	UML	
Kennet Bridge Jn		14:14:					3'00			ML	
Twyford		14:17:					3'30		2	ML	
Maidenhead		14:21:					3'00		2	ML	
Slough		14:24:					3'00		3	ML	
Stockley Junction		14:27:					0'30			ML	
Heathrow Airport Jn		14:27:					1'00			ML	
Southall		14:28:					1'30		2	ML	
Acton West		14:30:					2'30			ML	
Ladbroke Grove		14:32:					0'30			3	
Portobello Jn (London)		14:33:	1'00				1'00			3	
Royal Oak Junction		14:35:					1'00				
London Paddington	14:36:								9		

2N15DB Bridgend to Ebbw Vale Town - original service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Bridgend		12:07:					9'00		2		
Pontyclun		12:16:					8'00				
Leckwith Loop North Jn		12:24:	1'00			0'30	2'30			C	
Cardiff Central	12:28:	12:34:					1'30	6'00	0	B	
Long Dyke Jn		12:35:				0'30	6'00			ML	
Marshfield		12:42:				0'30	3'30			ML	
Ebbw Jn		12:46:					3'30				
Park Jn		12:49:					1'30				
Park North Jcn		12:51:					1'30				
Pye Corner	12:52:	12:53:					3'00	0'30			
Rogerstone	12:56:	12:57:					1'00	1'00			
Risca South Jcn		12:58:					2'00				
Risca & Pontymister	13:00:	13:00:					4'30	0'30			
Cross Keys	13:05:	13:06:					1'00	1'00			
Crosskeys Jcn		13:07:					6'30				
Newbridge (Ebbw Vale)	13:13:	13:14:					5'30	0'30			
Llanhilleth	13:19:	13:20:					8'00	0'30			
Ebbw Vale Parkway	13:28:	13:29:					4'00	1'00			
Ebbw Vale Town	13:33:										

2N15DB Bridgend to Ebbw Vale Town - flexed service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Bridgend		12:07:					9'00		2		
Pontyclun		12:16:					8'00				
Leckwith Loop North Jn		12:24:	1'00			0'30	2'30			C	
Cardiff Central	12:28:	12:31:					1'30	3'00	0	B	
Long Dyke Jn		12:32:				0'30	6'00			ML	
Marshfield		12:39:				0'30	3'30			ML	
Ebbw Jn		12:43:		3'00			3'30				
Park Jn		12:49:					1'30				
Park North Jcn		12:51:					1'30				
Pye Corner	12:52:	12:53:					3'00	0'30			
Rogerstone	12:56:	12:57:					1'00	1'00			
Risca South Jcn		12:58:					2'00				
Risca & Pontymister	13:00:	13:00:					4'30	0'30			
Cross Keys	13:05:	13:06:					1'00	1'00			
Crosskeys Jcn		13:07:					6'30				
Newbridge (Ebbw Vale)	13:13:	13:14:					5'30	0'30			
Llanhilleth	13:19:	13:20:					8'00	0'30			
Ebbw Vale Parkway	13:28:	13:29:					4'00	1'00			
Ebbw Vale Town	13:33:										

1L19DA Cardiff Central to London Paddington - original service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Bristol Parkway	13:26:	13:28:		0'30			3'30	1'30	3		
Westerleigh Jn		13:32:					6'30				
Hullavington		13:38:					6'30				
Wootton Bassett Jn		13:45:	1'00				4'00				
Swindon	13:50:	13:52:					6'30	2'00	3		
Uffington		13:58:					1'30				
Challow		14:00:					1'30				
Wantage Road		14:01:	1'00				3'30				
Didcot Parkway		14:06:					4'00		2	ML	
Goring & Streatley		14:10:	1'00				4'30			ML	
Reading High Level Jn		14:15:					1'30			ML	
Reading	14:17:	14:19:					1'00	2'00	11	UML	
Kennet Bridge Jn		14:20:					3'00			ML	
Twyford		14:23:					3'30		2	ML	
Maidenhead		14:26:					3'00		2	ML	
Slough		14:29:					3'00		3	ML	
Stockley Junction		14:32:					0'30			ML	
Heathrow Airport Jn		14:33:					1'00			ML	
Southall		14:34:					1'30		2	ML	
Acton West		14:35:	1'00				2'30			ML	
Ladbroke Grove		14:39:					0'30			3	
Portobello Jn (London)		14:39:					1'00			3	
Royal Oak Junction		14:40:				0'30	1'00				
London Paddington	14:42:								9		

1L19DA Cardiff Central to London Paddington - flexed service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Bristol Parkway	13:26:	13:28:		0'30			3'30	1'30	3		
Westerleigh Jn		13:32:					6'30				
Hullavington		13:38:					6'30				
Wootton Bassett Jn		13:45:	1'00				4'00				
Swindon	13:50:	13:52:					6'30	2'00	3		
Uffington		13:58:					1'30				
Challow		14:00:					1'30				
Wantage Road		14:01:	1'00				3'30				
Didcot Parkway		14:06:		0'30			4'00		2	ML	
Goring & Streatley		14:10:	1'00				4'30			ML	
Reading High Level Jn		14:16:					1'30			ML	
Reading	14:17:	14:19:					1'00	2'00	11	UML	
Kennet Bridge Jn		14:20:					3'00			ML	
Twyford		14:23:					3'30		2	ML	
Maidenhead		14:27:					3'00		2	ML	
Slough		14:30:					3'00		3	ML	
Stockley Junction		14:33:					0'30			ML	
Heathrow Airport Jn		14:33:					1'00			ML	
Southall		14:34:					1'30		2	ML	
Acton West		14:36:	1'00				2'30			ML	
Ladbroke Grove		14:39:					0'30			3	
Portobello Jn (London)		14:40:					1'00			3	
Royal Oak Junction		14:41:					1'00				
London Paddington	14:42:								9		

OFFICIAL

1Y58DA Heathrow Terminal 5 to London Paddington - original service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Heathrow Terminal 5		14:12:					3'30		3		
Heathrow Terminals 2 & 3	14:15:	14:17:					3'00	2'00	2		
Heathrow Tunnel Jn.		14:20:					0'30				
Stockley Junction		14:21:					0'30			ML	
Heathrow Airport Jn		14:21:					1'30			ML	
Southall		14:23:					2'30		2	ML	
Acton West		14:25:	1'00				2'30			ML	
Ladbroke Grove		14:29:					1'00			3	
Portobello Jn (London)		14:30:					1'00			3	
Royal Oak Junction		14:31:					1'00				
London Paddington	14:32:								7		

1Y58DA Heathrow Terminal 5 to London Paddington - flexed service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Heathrow Terminal 5		14:12:					3'30		3		
Heathrow Terminals 2 & 3	14:15:	14:17:					3'00	2'00	2		
Heathrow Tunnel Jn.		14:20:		2'00			0'30				
Stockley Junction		14:23:					0'30			ML	
Heathrow Airport Jn		14:23:					1'30			ML	
Southall		14:25:					2'30		2	ML	
Acton West		14:27:	1'00				2'30			ML	
Ladbroke Grove		14:31:					1'00			3	
Portobello Jn (London)		14:32:					1'00			3	
Royal Oak Junction		14:33:					1'00				
London Paddington	14:34:								7		

6M63FA Bridgwater FD to Crewe Coal Sidings - original service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Bristol Temple Meads		13:04:					1'00		UT	UF	
Bristol East Jn		13:05:					1'00			ML	
Dr Day's Jn		13:06:					5'00			ML	
Horfield Junction		13:11:		1'30			1'00			ML	
Filton Abbey Wood		13:13:		0'30			3'00		2		
Bristol Parkway		13:17:					5'00		4		
Westerleigh Jn		13:22:				1'30	3'00				
Yate		13:26:					7'00				
Charfield		13:33:					13'00				
Standish Jn		13:46:	1'00				6'00				
Gloucester Yard Jn		13:53:		1'30			1'00				
Barnwood Jn		13:56:		1'00			7'00				
Cheltenham Spa		14:04:					8'00		2		
Ashchurch		14:12:					10'00		1		
Abbotswood Jn		14:22:					4'00				
Spetchley Loop	14:26:	15:31:					12'00	65'00			
Stoke Works Jn		15:43:					3'00				
Bromsgrove		15:46:	1'00				6'00		2		
Barnt Green		15:53:					3'00			FL	
Longbridge		15:56:		3'00		2'00	3'00			FL	
Kings Norton		16:04:					2'00				

6M63FA Bridgwater FD to Crewe Coal Sidings - flexed service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Bristol Temple Meads		13:04:					1'00		UT	UF	
Bristol East Jn		13:05:					1'00			ML	
Dr Day's Jn		13:06:					5'00			ML	
Horfield Junction		13:11:		1'30			1'00			ML	
Filton Abbey Wood		13:13:		2'00			3'00		2		
Bristol Parkway		13:18:					5'00		4		
Westerleigh Jn		13:23:				1'30	3'00				
Yate		13:28:					7'00				
Charfield		13:35:					13'00				
Standish Jn		13:48:	1'00				6'00				
Gloucester Yard Jn		13:55:					1'00				
Barnwood Jn		13:56:		1'00			7'00				
Cheltenham Spa		14:04:					8'00		2		
Ashchurch		14:12:					10'00		1		
Abbotswood Jn		14:22:					4'00				
Spetchley Loop	14:26:	15:31:					12'00	65'00			
Stoke Works Jn		15:43:					3'00				
Bromsgrove		15:46:	1'00				6'00		2		
Barnt Green		15:53:					3'00			FL	
Longbridge		15:56:		3'00		2'00	3'00			FL	
Kings Norton		16:04:					2'00				

1P29DA Oxford to London Paddington - original service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Oxford		14:02:				0'30	3'00		3		
Kennington Jn		14:05:	1'00				5'00				
Didcot North Jn		14:11:					1'00				
Didcot East Jn		14:12:					5'00			ML	
Goring & Streatley		14:17:	1'00				4'30			ML	
Reading High Level Jn		14:23:					1'30			ML	
Reading	14:24:	14:26:					1'00	2'00	10	UML	
Kennet Bridge Jn		14:27:					3'00			ML	
Twyford		14:30:					3'30		2	ML	
Maidenhead		14:34:					3'30		2	ML	
Slough	14:37:	14:39:					4'30	1'30	3	ML	
Stockley Junction		14:43:					0'30			ML	
Heathrow Airport Jn		14:44:					1'00			ML	
Southall		14:45:					1'30		2	ML	
Acton West		14:46:	1'00				2'30			ML	
Ladbroke Grove		14:50:					0'30			3	
Portobello Jn (London)		14:50:		1'30			1'00			3	
Royal Oak Junction		14:53:					1'00				
London Paddington	14:54:								8		

1P29DA Oxford to London Paddington - flexed service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Oxford		14:02:				0'30	3'00		3		
Kennington Jn		14:05:	1'00				5'00				
Didcot North Jn		14:11:		0'30			1'00				
Didcot East Jn		14:13:					5'00			ML	
Goring & Streatley		14:18:	1'00				4'30			ML	
Reading High Level Jn		14:23:					1'30			ML	
Reading	14:25:	14:27:					1'00	2'00	10	UML	
Kennet Bridge Jn		14:28:					3'00			ML	
Twyford		14:31:					3'30		2	ML	
Maidenhead		14:34:					3'30		2	ML	
Slough	14:38:	14:39:					4'30	1'30	3	ML	
Stockley Junction		14:44:					0'30			ML	
Heathrow Airport Jn		14:44:					1'00			ML	
Southall		14:45:					1'30		2	ML	
Acton West		14:47:	1'00				2'30			ML	
Ladbroke Grove		14:50:					0'30			3	
Portobello Jn (London)		14:51:		1'00			1'00			3	
Royal Oak Junction		14:53:					1'00				
London Paddington	14:54:								8		

1H36DA Bristol Temple Meads to London Paddington - original service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Bristol Temple Meads		13:23:					1'00		6	UF	
Bristol East Jn		13:24:					1'00			ML	
Dr Day's Jn		13:25:					3'00			ML	
Horfield Junction		13:28:					1'00			ML	
Filton Abbey Wood		13:29:					2'00		2		
Bristol Parkway	13:31:	13:33:					3'30	2'00	3		
Westerleigh Jn		13:36:					6'30				
Hullavington		13:43:					6'30				
Wootton Bassett Jn		13:49:	1'30	1'00		0'30	3'30				
Swindon		13:56:		1'00			5'30		UML		
Uffington		14:02:					1'30				
Challow		14:04:					1'30				
Wantage Road		14:05:	1'00				3'30				
Didcot Parkway		14:10:					4'00		2	ML	
Goring & Streatley		14:14:	1'00				4'30			ML	
Reading High Level Jn		14:19:		0'30			1'00			ML	
Reading		14:21:					1'00		10	UML	
Kennet Bridge Jn		14:22:					3'00			ML	
Twyford		14:25:					3'30		2	ML	
Maidenhead		14:28:					3'00		2	ML	
Slough		14:31:					3'00		3	ML	
Stockley Junction		14:34:					0'30			ML	
Heathrow Airport Jn		14:35:					1'00			ML	
Southall		14:36:		0'30			1'30		2	ML	
Acton West		14:38:	1'00				2'30			ML	
Ladbroke Grove		14:41:					0'30			3	
Portobello Jn (London)		14:42:					1'00			3	
Royal Oak Junction		14:43:					1'00				
London Paddington	14:44:								6		

1H36DA Bristol Temple Meads to London Paddington - flexed service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Bristol Temple Meads		13:23:					1'00		6	UF	
Bristol East Jn		13:24:					1'00			ML	
Dr Day's Jn		13:25:					3'00			ML	
Horfield Junction		13:28:					1'00			ML	
Filton Abbey Wood		13:29:					2'00		2		
Bristol Parkway	13:31:	13:33:					3'30	2'00	3		
Westerleigh Jn		13:36:					6'30				
Hullavington		13:43:					6'30				
Wootton Bassett Jn		13:49:	1'30	1'00		0'30	3'30				
Swindon		13:56:		1'00			5'30		UML		
Uffington		14:02:					1'30				
Challow		14:04:					1'30				
Wantage Road		14:05:	1'00				3'30				
Didcot Parkway		14:10:					4'00		2	ML	
Goring & Streatley		14:14:	1'00				4'30			ML	
Reading High Level Jn		14:19:		1'30			1'00			ML	
Reading		14:22:					1'00		10	UML	
Kennet Bridge Jn		14:23:					3'00			ML	
Twyford		14:26:					3'30		2	ML	
Maidenhead		14:29:					3'00		2	ML	
Slough		14:32:					3'00		3	ML	
Stockley Junction		14:35:					0'30			ML	
Heathrow Airport Jn		14:36:					1'00			ML	
Southall		14:37:					1'30		2	ML	
Acton West		14:38:	1'00				2'30			ML	
Ladbroke Grove		14:42:					0'30			3	
Portobello Jn (London)		14:42:					1'00			3	
Royal Oak Junction		14:43:				0'30	1'00				
London Paddington	14:45:								6		

1Y59DA Heathrow Terminal 5 to London Paddington - original service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Heathrow Terminal 5		14:27:					3'30		4		
Heathrow Terminals 2 & 3	14:30:	14:32:					3'00	2'00	2		
Heathrow Tunnel Jn.		14:35:		0'30			0'30				
Stockley Junction		14:36:					0'30			ML	
Heathrow Airport Jn		14:37:					1'30			ML	
Southall		14:38:					2'30		2	ML	
Acton West		14:41:	1'00				2'30			ML	
Ladbroke Grove		14:44:					1'00			3	
Portobello Jn (London)		14:45:					1'00			3	
Royal Oak Junction		14:46:				0'30	1'00				
London Paddington	14:48:								7		

1Y59DA Heathrow Terminal 5 to London Paddington - flexed service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Heathrow Terminal 5		14:27:					3'30		4		
Heathrow Terminals 2 & 3	14:30:	14:32:					3'00	2'00	2		
Heathrow Tunnel Jn.		14:35:		1'30			0'30				
Stockley Junction		14:37:					0'30			ML	
Heathrow Airport Jn		14:38:					1'30			ML	
Southall		14:39:					2'30		2	ML	
Acton West		14:42:	1'00				2'30			ML	
Ladbroke Grove		14:45:					1'00			3	
Portobello Jn (London)		14:46:					1'00			3	
Royal Oak Junction		14:47:				0'30	1'00				
London Paddington	14:49:								7		

1K19DA Bedwyn to London Paddington - original service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Bedwyn		13:41:					5'00		2		
Hungerford	13:46:	13:47:					3'30	1'30			
Kintbury	13:51:	13:52:					5'30	1'00	2		
Newbury	13:57:	13:59:					3'30	1'30	2		
Thatcham	14:02:	14:04:					6'30	1'30			
Theale	14:10:	14:12:	1'00				3'00	1'30			
Southcote Jn		14:16:		1'30			1'00				
Oxford Road Jn		14:18:		1'00			2'30			UFM	
Reading	14:22:	14:24:					1'00	2'00	11	UML	
Kennet Bridge Jn		14:25:					3'00			ML	
Twyford		14:28:					3'30		2	ML	
Maidenhead		14:31:					3'00		2	ML	
Slough		14:34:		2'00			3'00		3	ML	
Stockley Junction		14:39:					0'30			ML	
Heathrow Airport Jn		14:40:					1'00			ML	
Southall		14:41:		1'00			1'30		2	ML	
Acton West		14:43:	1'00				2'30			ML	
Ladbroke Grove		14:47:					0'30			3	
Portobello Jn (London)		14:47:		0'30			1'00			3	
Royal Oak Junction		14:49:					1'00				
London Paddington	14:50:								3		

1K19DA Bedwyn to London Paddington - flexed service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Bedwyn		13:41:					5'00		2		
Hungerford	13:46:	13:47:					3'30	1'30			
Kintbury	13:51:	13:52:					5'30	1'00	2		
Newbury	13:57:	13:59:					3'30	1'30	2		
Thatcham	14:02:	14:04:					6'30	1'30			
Theale	14:10:	14:12:	1'00				3'00	1'30			
Southcote Jn		14:16:		1'30			1'00				
Oxford Road Jn		14:18:		1'00			2'30			UFM	
Reading	14:22:	14:24:					1'00	2'00	11	UML	
Kennet Bridge Jn		14:25:					3'00			ML	
Twyford		14:28:					3'30		2	ML	
Maidenhead		14:31:					3'00		2	ML	
Slough		14:34:		2'00			3'00		3	ML	
Stockley Junction		14:39:					0'30			ML	
Heathrow Airport Jn		14:40:		0'30			1'00			ML	
Southall		14:41:		1'30			1'30		2	ML	
Acton West		14:44:	1'00				2'30			ML	
Ladbroke Grove		14:48:					0'30			3	
Portobello Jn (London)		14:48:					1'00			3	
Royal Oak Junction		14:49:				0'30	1'00				
London Paddington	14:51:								3		

F.06   Flexed services for 1L83

1F21DA Cardiff Central to Portsmouth Harbour - original service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Cardiff Central		14:30:					1'30		1	B	
Long Dyke Jn		14:31:					5'30			ML	
Marshfield		14:37:					2'30			ML	
Ebbw Jn		14:39:					2'30			ML	
Newport (South Wales)	14:42:	14:44:					1'00	2'00	4	ML	
Maindee West Jn		14:45:					2'00			ML	
Llanwern West Junction		14:47:					6'00			ML	
Severn Tunnel Junction		14:53:					1'00		4		
Severn Tunnel West		14:54:					4'00				
Severn Tunnel East		14:58:					1'00				
Pilning		14:59:					3'30		1		
Patchway		15:02:	1'00				2'30		1		
Filton Abbey Wood	15:06:	15:07:					1'30	1'00	3	RL	

1F21DA Cardiff Central to Portsmouth Harbour - flexed service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Cardiff Central		14:27:					1'30		1	B	
Long Dyke Jn		14:28:					5'30			ML	
Marshfield		14:34:					2'30			ML	
Ebbw Jn		14:36:					2'30			ML	
Newport (South Wales)	14:39:	14:44:					1'00	5'00	4	ML	
Maindee West Jn		14:45:					2'00			ML	
Llanwern West Junction		14:47:					6'00			ML	
Severn Tunnel Junction		14:53:					1'00		4		
Severn Tunnel West		14:54:					4'00				
Severn Tunnel East		14:58:					1'00				
Pilning		14:59:					3'30		1		
Patchway		15:02:	1'00				2'30		1		
Filton Abbey Wood	15:06:	15:07:					1'30	1'00	3	RL	

2N19DB Cardiff Central to Ebbw Vale Town – original service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Cardiff Central		14:34:					1'30		0	B	
Long Dyke Jn		14:35:				0'30	6'00			ML	
Marshfield		14:42:				0'30	3'30			ML	
Ebbw Jn		14:46:					3'30				
Park Jn		14:49:					1'30				
Park North Jcn		14:51:					1'30				
Pye Corner	14:52:	14:53:					3'00	0'30			
Rogerstone	14:56:	14:57:					1'00	1'00			
Risca South Jcn		14:58:					2'00				
Risca & Pontymister	15:00:	15:00:					4'30	0'30			
Cross Keys	15:05:	15:06:					1'00	1'00			
Crosskeys Jcn		15:07:					6'30				
Newbridge (Ebbw Vale)	15:13:	15:14:					5'30	0'30			
Llanhilleth	15:19:	15:20:					8'00	0'30			
Ebbw Vale Parkway	15:28:	15:29:					4'00	1'00			
Ebbw Vale Town	15:33:										

2N19DB Cardiff Central to Ebbw Vale Town – flexed service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Cardiff Central		14:35:					1'30		0	B	
Long Dyke Jn		14:36:				0'30	6'00			ML	
Marshfield		14:43:				0'30	3'30			ML	
Ebbw Jn		14:47:					3'30				
Park Jn		14:50:					1'30				
Park North Jcn		14:52:					1'30				
Pye Corner	14:53:	14:54:					3'00	0'30			
Rogerstone	14:57:	14:58:					1'00	1'00			
Risca South Jcn		14:59:					2'00				
Risca & Pontymister	15:01:	15:01:					4'30	0'30			
Cross Keys	15:06:	15:07:					1'00	1'00			
Crosskeys Jcn		15:08:					6'30				
Newbridge (Ebbw Vale)	15:14:	15:15:					5'30	0'30			
Llanhilleth	15:20:	15:21:					8'00	0'30			
Ebbw Vale Parkway	15:29:	15:30:					4'00	1'00			
Ebbw Vale Town	15:34:										

2F46DB Ebbw Vale Town to Bridgend – original service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Ebbw Vale Town		15:37:					2'30				
Ebbw Vale Parkway	15:39:	15:40:					8'00	0'30			
Llanhilleth	15:48:	15:48:					5'30	0'30			
Newbridge (Ebbw Vale)	15:54:	15:54:					6'00	0'30			
Crosskeys Jcn		16:00:					1'00				
Cross Keys	16:01:	16:02:					4'30	1'00			
Risca & Pontymister	16:07:	16:07:					2'00	0'30			
Risca South Jcn		16:09:					1'00				
Rogerstone	16:10:	16:11:					3'00	1'00			
Pye Corner	16:14:	16:15:				0'30	1'30	0'30			
Park North Jcn		16:17:					1'30				
Park Jn		16:18:		0'30			3'00				
Ebbw Jn		16:22:					2'30			ML	
Marshfield		16:24:		1'00			5'00			ML	
Long Dyke Jn		16:30:					1'30			D	
Cardiff Central	16:32:	16:36:					2'00	4'00	3	D	
Leckwith Loop North Jn		16:38:					9'30				
Pontyclun	16:47:	16:48:					6'30	0'30			
Pencoed	16:54:	16:55:					5'00	0'30			
Bridgend	17:00:								1		

2F46DB Ebbw Vale Town to Bridgend – original flexed

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Ebbw Vale Town		15:38:					2'30				
Ebbw Vale Parkway	15:40:	15:41:					8'00	0'30			
Llanhilleth	15:49:	15:49:					5'30	0'30			
Newbridge (Ebbw Vale)	15:55:	15:55:					6'00	0'30			
Crosskeys Jcn		16:01:					1'00				
Cross Keys	16:02:	16:03:					4'30	1'00			
Risca & Pontymister	16:08:	16:08:					2'00	0'30			
Risca South Jcn		16:10:					1'00				
Rogerstone	16:11:	16:12:					3'00	1'00			
Pye Corner	16:15:	16:16:				0'30	1'30	0'30			
Park North Jcn		16:18:					1'30				
Park Jn		16:19:					3'00				
Ebbw Jn		16:22:		0'30			2'30			ML	
Marshfield		16:25:					5'00			ML	
Long Dyke Jn		16:30:					1'30			D	
Cardiff Central	16:32:	16:36:					2'00	4'00	3	D	
Leckwith Loop North Jn		16:38:					9'30				
Pontyclun	16:47:	16:48:					6'30	0'30			
Pencoed	16:54:	16:55:					5'00	0'30			
Bridgend	17:00:								1		

4C02DA East Usk Yard to Portbury Coal Terminal – original service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
East Usk Yard (FHH)		14:26:					5'00			RL	
East Usk Jn.		14:31:					7'00			RL	
Llanwern West Junction		14:38:		9'00			11'00			RL	
Severn Tunnel Junction		14:58:					1'00		4		
Severn Tunnel West		14:59:					4'30				
Severn Tunnel East		15:03:				1'00	3'30				
Pilning	15:08:	15:37:	1'00				6'00	29'30			
Patchway		15:44:					2'00		1		
Filton Abbey Wood		15:46:					1'00		3	RL	
Horfield Junction		15:47:		0'30			1'30			RL	
Narroways Hill Junction		15:49:	1'00			0'30	1'30			RL	
Dr Day's Jn		15:52:					1'00			RL	
Bristol East Jn		15:53:					1'30			UDR	
Bristol Temple Meads	15:55:	15:57:					1'00	2'00	4	DM	
Bristol West Jn.		15:58:					3'30				
Parson Street		16:01:					2'00		1		
Ashton Jn	16:03:	16:08:					16'00	5'00			
Portbury Dock Stop Board	16:24:	16:26:				0'30	10'00	2'00			
Portbury Coal Terminal FHH	16:37:										

4C02DA East Usk Yard to Portbury Coal Terminal – original service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
East Usk Yard (FHH)		14:22:					5'00			RL	
East Usk Jn.		14:27:					7'00			RL	
Llanwern West Junction		14:34:					11'00			RL	
Severn Tunnel Junction		14:45:					1'00		4		
Severn Tunnel West		14:46:					4'30				
Severn Tunnel East		14:50:				1'00	3'30				
Pilning	14:55:	15:37:	1'00				6'00	42'30	UGL		
Patchway		15:44:					2'00		1		
Filton Abbey Wood		15:46:					1'00		3	RL	
Horfield Junction		15:47:		0'30			1'30			RL	
Narroways Hill Junction		15:49:	1'00			0'30	1'30			RL	
Dr Day's Jn		15:52:					1'00			RL	
Bristol East Jn		15:53:					1'30			UDR	
Bristol Temple Meads	15:55:	15:57:					1'00	2'00	4	DM	
Bristol West Jn.		15:58:					3'30				
Parson Street		16:01:					2'00		1		
Ashton Jn	16:03:	16:08:					16'00	5'00			
Portbury Dock Stop Board	16:24:	16:26:				0'30	10'00	2'00			
Portbury Coal Terminal FHH	16:37:										

1A25DA Bristol Temple Meads to London Paddington – original service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Bristol Temple Meads		15:00:					1'00		15	DM	
Bristol East Jn		15:01:					1'00				
North Somerset Jn		15:02:		0'30		0'30	8'30				
Bath Spa	15:11:	15:13:					3'00	2'00	2		
Bathampton Jn		15:16:					6'00				
Thingley East Junction		15:22:					2'00				
Chippenham	15:24:	15:26:					7'00	1'30	2		
Wootton Bassett Jn		15:33:	1'00				4'00				
Swindon	15:38:	15:40:					6'30	2'30	3		
Uffington		15:47:					1'30				
Challow		15:48:					1'30				
Wantage Road		15:50:	1'00				4'30				
Didcot Parkway	15:55:	15:57:					5'30	1'30	2	ML	
Goring & Streatley		16:02:	1'00				4'30			ML	
Reading High Level Jn		16:08:					1'30			ML	
Reading	16:09:	16:12:					1'00	3'00	10	UML	
Kennet Bridge Jn		16:13:					3'00			ML	
Twyford		16:16:					3'30		2	ML	
Maidenhead		16:20:					3'00		2	ML	
Slough		16:23:					3'00		3	ML	
Stockley Junction		16:26:					0'30			ML	
Heathrow Airport Jn		16:26:					1'00			ML	
Southall		16:27:					1'30		2	ML	
Acton West		16:29:	1'00				2'30			ML	
Ladbroke Grove		16:32:					0'30			3	
Portobello Jn (London)		16:33:		1'00			1'00			3	
Royal Oak Junction		16:35:					1'00				
London Paddington	16:36:								6		

1A25DA Bristol Temple Meads to London Paddington – flexed service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Bristol Temple Meads		15:00:					1'00		15	DM	
Bristol East Jn		15:01:					1'00				
North Somerset Jn		15:02:		0'30		0'30	8'30				
Bath Spa	15:11:	15:13:					3'00	2'00	2		
Bathampton Jn		15:16:					6'00				
Thingley East Junction		15:22:					2'00				
Chippenham	15:24:	15:28:					7'00	3'30	2		
Wootton Bassett Jn		15:35:	1'00				4'00				
Swindon	15:40:	15:42:		1'30			6'30	2'00	3		
Uffington		15:50:		1'00			1'30				
Challow		15:52:					1'30				
Wantage Road		15:54:	1'00				4'30				
Didcot Parkway	15:59:	16:02:					5'30	2'30	2	ML	
Goring & Streatley		16:07:	1'00				4'30			ML	
Reading High Level Jn		16:13:					1'30			ML	
Reading	16:14:	16:16:					1'00	2'00	10	UML	
Kennet Bridge Jn		16:17:					3'00			ML	
Twyford		16:20:					3'30		2	ML	
Maidenhead		16:24:					3'00		2	ML	
Slough		16:27:					3'00		3	ML	
Stockley Junction		16:30:					0'30			ML	
Heathrow Airport Jn		16:30:					1'00			ML	
Southall		16:31:					1'30		2	ML	
Acton West		16:33:	1'00				2'30			ML	
Ladbroke Grove		16:36:					0'30			3	
Portobello Jn (London)		16:37:					1'00			3	
Royal Oak Junction		16:38:					1'00				
London Paddington	16:39:								6		

1L23DA Cardiff Central to London Paddington – original service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Cardiff Central		14:54:				0'30	1'30		2	B	
Long Dyke Jn		14:56:					4'00			ML	
Marshfield		15:00:					2'30			ML	
Ebbw Jn		15:02:					2'00			ML	
Newport (South Wales)	15:04:	15:06:					1'00	1'30	3	ML	
Maindee West Jn		15:07:					2'00			ML	
Llanwern West Junction		15:09:					6'30			ML	
Severn Tunnel Junction		15:15:					1'00		4		
Severn Tunnel West		15:16:					3'30				
Severn Tunnel East		15:20:					1'00				
Pilning		15:21:	1'00				2'30		1		
Patchway		15:24:					1'30		1		
Bristol Parkway	15:26:	15:27:					3'30	1'30	3		
Westerleigh Jn		15:31:					6'30				
Hullavington		15:37:					6'30				
Wootton Bassett Jn		15:44:	1'00			0'30	4'00				
Swindon	15:49:	15:51:					6'30	2'00	3		
Uffington		15:58:					1'30				
Challow		15:59:					1'30				
Wantage Road		16:01:	1'00				3'30				
Didcot Parkway		16:05:					4'00		2	ML	
Goring & Streatley		16:09:	1'00				4'30			ML	
Reading High Level Jn		16:15:					1'30			ML	
Reading	16:16:	16:18:					1'00	2'00	11	UML	

1L23DA Cardiff Central to London Paddington – flexed service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Cardiff Central		14:54:				0'30	1'30		2	B	
Long Dyke Jn		14:56:					4'00			ML	
Marshfield		15:00:					2'30			ML	
Ebbw Jn		15:02:					2'00			ML	
Newport (South Wales)	15:04:	15:06:					1'00	1'30	3	ML	
Maindee West Jn		15:07:					2'00			ML	
Llanwern West Junction		15:09:					6'30			ML	
Severn Tunnel Junction		15:15:					1'00		4		
Severn Tunnel West		15:16:					3'30				
Severn Tunnel East		15:20:					1'00				
Pilning		15:21:	1'00				2'30		1		
Patchway		15:24:					1'30		1		
Bristol Parkway	15:26:	15:27:					3'30	1'30	3		
Westerleigh Jn		15:31:					6'30				
Hullavington		15:37:					6'30				
Wootton Bassett Jn		15:44:	1'00			0'30	4'00				
Swindon	15:49:	15:51:					6'30	2'00	3		
Uffington		15:58:					1'30				
Challow		15:59:					1'30				
Wantage Road		16:01:	1'00	0'30			3'30				
Didcot Parkway		16:06:		0'30			4'00		2	ML	
Goring & Streatley		16:10:	1'00				4'30			ML	
Reading High Level Jn		16:16:					1'30			ML	
Reading	16:17:	16:19:					1'00	2'00	11	UML	

1H44DA Weston-super-Mare to London Paddington – original service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Bristol Parkway	15:32:	15:33:					3'30	1'30	3		
Westerleigh Jn		15:37:					6'30				
Hullavington		15:43:					6'30				
Wootton Bassett Jn		15:50:	1'30	1'00		0'30	3'30				
Swindon		15:56:					5'30		UML		
Uffington		16:02:					1'30				
Challow		16:03:					1'30				
Wantage Road		16:05:	1'00				3'30				
Didcot Parkway		16:09:					4'00		2	ML	
Goring & Streatley		16:13:	1'00				4'30			ML	
Reading High Level Jn		16:19:		0'30			1'00			ML	
Reading		16:20:					1'00		10	UML	
Kennet Bridge Jn		16:21:					3'00			ML	
Twyford		16:24:					3'30		2	ML	
Maidenhead		16:28:					3'00		2	ML	
Slough		16:31:					3'00		3	ML	
Stockley Junction		16:34:					0'30			ML	
Heathrow Airport Jn		16:34:					1'00			ML	
Southall		16:35:			0'30		1'30		2	ML	
Acton West		16:37:	1'00				2'30			ML	
Ladbroke Grove		16:41:					0'30			3	
Portobello Jn (London)		16:41:		0'30			1'00			3	
Royal Oak Junction		16:43:					1'00				
London Paddington	16:44:								1		

1H44DA Weston-super-Mare to London Paddington – flexed service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Bristol Parkway	15:32:	15:33:					3'30	1'30	3		
Westerleigh Jn		15:37:					6'30				
Hullavington		15:43:					6'30				
Wootton Bassett Jn		15:50:	1'30	1'00		0'30	3'30				
Swindon		15:56:					5'30		UML		
Uffington		16:02:					1'30				
Challow		16:03:					1'30				
Wantage Road		16:05:	1'00				3'30				
Didcot Parkway		16:09:					4'00		2	ML	
Goring & Streatley		16:13:	1'00				4'30			ML	
Reading High Level Jn		16:19:		2'00			1'00			ML	
Reading		16:22:					1'00		10	UML	
Kennet Bridge Jn		16:23:					3'00			ML	
Twyford		16:26:					3'30		2	ML	
Maidenhead		16:29:					3'00		2	ML	
Slough		16:32:					3'00		3	ML	
Stockley Junction		16:35:					0'30			ML	
Heathrow Airport Jn		16:36:					1'00			ML	
Southall		16:37:					1'30		2	ML	
Acton West		16:38:	1'00				2'30			ML	
Ladbroke Grove		16:42:					0'30			3	
Portobello Jn (London)		16:42:		0'30			1'00			3	
Royal Oak Junction		16:44:					1'00				
London Paddington	16:45:								1		

1H44DA Weston-super-Mare to London Paddington – flexed service

1Y66DA Heathrow Terminal 5 to London Paddington – original service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Heathrow Terminal 5		16:12:					3'30		3		
Heathrow Terminals 2 & 3	16:15:	16:17:					3'00	2'00	2		
Heathrow Tunnel Jn.		16:20:					0'30				
Stockley Junction		16:21:					0'30			ML	
Heathrow Airport Jn		16:21:					1'30			ML	
Southall		16:23:					2'30		2	ML	
Acton West		16:25:	1'00				2'30			ML	
Ladbroke Grove		16:29:					1'00			3	
Portobello Jn (London)		16:30:					1'00			3	
Royal Oak Junction		16:31:					1'00				
London Paddington	16:32:								7		

1Y66DA Heathrow Terminal 5 to London Paddington – flexed service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Heathrow Terminal 5		16:12:					3'30		3		
Heathrow Terminals 2 & 3	16:15:	16:17:					3'00	2'00	2		
Heathrow Tunnel Jn.		16:20:		2'00			0'30				
Stockley Junction		16:23:					0'30			ML	
Heathrow Airport Jn		16:23:					1'30			ML	
Southall		16:25:					2'30		2	ML	
Acton West		16:27:	1'00				2'30			ML	
Ladbroke Grove		16:31:					1'00			3	
Portobello Jn (London)		16:32:					1'00			3	
Royal Oak Junction		16:33:					1'00				
London Paddington	16:34:								7		

1Y67DA Heathrow Terminal 5 to London Paddington – original service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Heathrow Terminal 5		16:27:					3'30		4		
Heathrow Terminals 2 & 3	16:30:	16:32:					3'00	2'00	2		
Heathrow Tunnel Jn.		16:35:					0'30				
Stockley Junction		16:36:					0'30			ML	
Heathrow Airport Jn		16:36:					1'30			ML	
Southall		16:38:					2'30		2	ML	
Acton West		16:40:	1'00				2'30			ML	
Ladbroke Grove		16:44:					1'00			3	
Portobello Jn (London)		16:45:					1'00			3	
Royal Oak Junction		16:46:					1'00				
London Paddington	16:47:								7		

1Y67DA Heathrow Terminal 5 to London Paddington – flexed service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Heathrow Terminal 5		16:27:					3'30		4		
Heathrow Terminals 2 & 3	16:30:	16:32:					3'00	2'00	2		
Heathrow Tunnel Jn.		16:35:		1'30			0'30				
Stockley Junction		16:37:					0'30			ML	
Heathrow Airport Jn		16:38:					1'30			ML	
Southall		16:39:					2'30		2	ML	
Acton West		16:42:	1'00				2'30			ML	
Ladbroke Grove		16:45:					1'00			3	
Portobello Jn (London)		16:46:					1'00			3	
Royal Oak Junction		16:47:				0'30	1'00				
London Paddington	16:49:								7		

6A16DA Haverfordwest FD GBRF to Bicester MOD – original service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Severn Tunnel West		14:21:					5'30				
Severn Tunnel East		14:26:					2'00				
Pilning		14:28:	1'00				5'30		1		
Patchway		14:35:					2'00		1		
Bristol Parkway		14:37:					5'00		3		
Westerleigh Jn		14:42:				2'00	4'00				
Chipping Sodbury	14:48:	15:10:					12'00	22'30			
Hullavington		15:22:		3'30			11'00				
Wootton Bassett Jn		15:37:	1'00				6'00				
Swindon		15:44:					5'00		1	UML	
Swindon Stratton Green	15:49:	16:29:					12'30	40'30			
Uffington		16:42:					2'30				
Challow		16:44:					5'00			RL	
Wantage Road	16:49:	16:52:				1'00	9'00	2'30			
Foxhall Jn		17:02:	1'00				2'30				
Didcot North Jn	17:05:	17:14:					8'30	9'00			
Kennington Jn		17:23:	1'00				3'30				
Oxford	17:27:	17:29:					3'00	2'00	4	DML	
Oxford North Jn.		17:32:					1'30			DB	
Woodstock Road Junction		17:34:					1'00				
Oxford Parkway		17:35:					8'00		2		
Bicester Depot West Jn		17:43:					2'00				
Bicester Depot-GL-RR	17:45:	18:05:					4'00	20'00			
Bicester MOD GBRf	18:09:										

6A16DA Haverfordwest FD GBRF to Bicester MOD – flexed service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Severn Tunnel West		14:21:					5'30				
Severn Tunnel East		14:26:					2'00				
Pilning		14:28:	1'00				5'30		1		
Patchway		14:35:					2'00		1		
Bristol Parkway		14:37:					5'00		3		
Westerleigh Jn		14:42:					15'00				
Hullavington	14:57:	15:26:					12'00	29'30			
Wootton Bassett Jn		15:38:	1'00				6'00				
Swindon		15:45:					5'00		1	UML	
Swindon Stratton Green	15:50:	16:29:					12'30	39'00			
Uffington		16:42:					2'30				
Challow		16:44:					5'00			RL	
Wantage Road	16:49:	16:52:				1'00	9'00	2'30			
Foxhall Jn		17:02:	1'00				2'30				
Didcot North Jn	17:05:	17:14:					8'30	9'00			
Kennington Jn		17:23:	1'00				3'30				
Oxford	17:27:	17:29:					3'00	2'00	4	DML	
Oxford North Jn.		17:32:					1'30			DB	
Woodstock Road Junction		17:34:					1'00				
Oxford Parkway		17:35:					8'00		2		
Bicester Depot West Jn		17:43:					2'00				
Bicester Depot-GL-RR	17:45:	18:05:					4'00	20'00			
Bicester MOD GBRf	18:09:										

1K23DA Bedwyn to London Paddington – original service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Bedwyn		15:41:					5'00		2		
Hungerford	15:46:	15:47:					3'30	1'30			
Kintbury	15:51:	15:52:					5'30	1'00	2		
Newbury	15:57:	15:59:					3'30	1'30	2		
Thatcham	16:02:	16:03:					6'30	1'00			
Theale	16:10:	16:11:	1'00	0'30			3'00	1'30			
Southcote Jn		16:16:		1'30			1'00				
Oxford Road Jn		16:18:		0'30			2'30			UFM	
Reading	16:21:	16:24:					1'00	2'30	11	UML	
Kennet Bridge Jn		16:25:					3'00			ML	
Twyford		16:28:					3'30		2	ML	
Maidenhead		16:31:					3'00		2	ML	
Slough		16:34:				0'30	3'00		3	ML	
Stockley Junction		16:38:					0'30			ML	
Heathrow Airport Jn		16:38:		0'30			1'00			ML	
Southall		16:40:		0'30	0'30		1'30		2	ML	
Acton West		16:42:	1'00				2'30			ML	
Ladbroke Grove		16:46:		1'00			0'30			3	
Portobello Jn (London)		16:47:					1'00			1	
Royal Oak Junction		16:48:				0'30	1'00				
London Paddington	16:50:								1		

1K23DA Bedwyn to London Paddington – flexed service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Bedwyn		15:41:					5'00		2		
Hungerford	15:46:	15:47:					3'30	1'30			
Kintbury	15:51:	15:52:					5'30	1'00	2		
Newbury	15:57:	15:59:					3'30	1'30	2		
Thatcham	16:02:	16:03:					6'30	1'00			
Theale	16:10:	16:11:	1'00	0'30			3'00	1'30			
Southcote Jn		16:16:		1'30			1'00				
Oxford Road Jn		16:18:		1'30			2'30			UFM	
Reading	16:22:	16:25:					1'00	2'30	11	UML	
Kennet Bridge Jn		16:26:					3'00			ML	
Twyford		16:29:					3'30		2	ML	
Maidenhead		16:32:					3'00		2	ML	
Slough		16:35:		1'00			3'00		3	ML	
Stockley Junction		16:39:					0'30			ML	
Heathrow Airport Jn		16:40:		0'30			1'00			ML	
Southall		16:41:		1'30			1'30		2	ML	
Acton West		16:44:	1'00				2'30			ML	
Ladbroke Grove		16:48:		0'30			0'30			3	
Portobello Jn (London)		16:49:					1'00			1	
Royal Oak Junction		16:50:					1'00				
London Paddington	16:51:								1		

F.07 Flexed services for 1L85

1F23DA Cardiff Central to Portsmouth Harbour – original service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Cardiff Central		15:30:					1'30		1	B	
Long Dyke Jn		15:31:					5'30			ML	
Marshfield		15:37:					2'30			ML	
Ebbw Jn		15:39:					2'30			ML	
Newport (South Wales)	15:42:	15:44:					1'00	2'00	4	ML	
Maindee West Jn		15:45:					2'00			ML	
Llanwern West Junction		15:47:					6'00			ML	
Severn Tunnel Junction		15:53:					1'00		4		
Severn Tunnel West		15:54:					4'00				
Severn Tunnel East		15:58:					1'00				
Pilning		15:59:					3'30		1		
Patchway		16:02:	1'00				2'30		1		
Filton Abbey Wood	16:06:	16:07:					1'30	1'00	3	RL	
Horfield Junction		16:08:	1'00				1'30			RL	
Narroways Hill Junction		16:11:					1'30			RL	
Dr Day's Jn		16:12:					1'00			RL	
Bristol East Jn		16:13:					1'00			UM	
Bristol Temple Meads	16:14:	16:22:					1'00	7'30	11	UM	

1F23DA Cardiff Central to Portsmouth Harbour – flexed service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Cardiff Central		15:27:					1'30		0	B	
Long Dyke Jn		15:28:					5'30			ML	
Marshfield		15:34:					2'30			ML	
Ebbw Jn		15:36:					2'30			ML	
Newport (South Wales)	15:39:	15:44:					1'00	5'00	4	ML	
Maindee West Jn		15:45:					2'00			ML	
Llanwern West Junction		15:47:					6'00			ML	
Severn Tunnel Junction		15:53:					1'00		4		
Severn Tunnel West		15:54:					4'00				
Severn Tunnel East		15:58:					1'00				
Pilning		15:59:					3'30		1		
Patchway		16:02:	1'00				2'30		1		
Filton Abbey Wood	16:06:	16:07:					1'30	1'00	3	RL	
Horfield Junction		16:08:	1'00				1'30			RL	
Narroways Hill Junction		16:11:					1'30			RL	
Dr Day's Jn		16:12:					1'00			RL	
Bristol East Jn		16:13:					1'00			UM	
Bristol Temple Meads	16:14:	16:22:					1'00	7'30	11	UM	

2N21DB Bridgend to Ebbw Vale Town – original service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Bridgend		15:09:					9'00		2		
Pontyclun		15:18:					8'00				
Leckwith Loop North Jn		15:26:	1'00	0'30			2'30			C	
Cardiff Central	15:30:	15:34:					1'30	4'00	0	B	
Long Dyke Jn		15:35:				0'30	6'00			ML	
Marshfield		15:42:				0'30	3'30			ML	
Ebbw Jn		15:46:					3'30				
Park Jn		15:49:					1'30				
Park North Jcn		15:51:					1'30				
Pye Corner	15:52:	15:53:					3'00	0'30			
Rogerstone	15:56:	15:57:					1'00	1'00			
Risca South Jcn		15:58:					2'00				
Risca & Pontymister	16:00:	16:00:					4'30	0'30			
Cross Keys	16:05:	16:06:					1'00	1'00			
Crosskeys Jcn		16:07:					6'30				
Newbridge (Ebbw Vale)	16:13:	16:14:					5'30	0'30			
Llanhilleth	16:19:	16:20:					8'00	0'30			
Ebbw Vale Parkway	16:28:	16:29:					4'00	1'00			
Ebbw Vale Town	16:33:										

2N21DB Bridgend to Ebbw Vale Town – flexed service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Bridgend		15:08:					9'00		2		
Pontyclun		15:17:					8'00				
Leckwith Loop North Jn		15:25:	1'00	0'30			2'30			C	
Cardiff Central	15:29:	15:32:					1'30	3'00	2	B	
Long Dyke Jn		15:33:					6'00			ML	
Marshfield		15:39:				0'30	3'30			ML	
Ebbw Jn		15:43:		2'30			3'30				
Park Jn		15:49:					1'30				
Park North Jcn		15:51:					1'30				
Pye Corner	15:52:	15:53:					3'00	0'30			
Rogerstone	15:56:	15:57:					1'00	1'00			
Risca South Jcn		15:58:					2'00				
Risca & Pontymister	16:00:	16:00:					4'30	0'30			
Cross Keys	16:05:	16:06:					1'00	1'00			
Crosskeys Jcn		16:07:					6'30				
Newbridge (Ebbw Vale)	16:13:	16:14:					5'30	0'30			
Llanhilleth	16:19:	16:20:					8'00	0'30			
Ebbw Vale Parkway	16:28:	16:29:					4'00	1'00			
Ebbw Vale Town	16:33:										

1A27DA Bristol Temple Meads to London Paddington – original service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Bristol Temple Meads		16:00:					1'00		13	DM	
Bristol East Jn		16:01:					1'00				
North Somerset Jn		16:02:		1'00		0'30	8'30				
Bath Spa	16:12:	16:14:					3'00	2'00	2		
Bathampton Jn		16:17:					6'00				
Thingley East Junction		16:23:					2'00				
Chippenham	16:25:	16:26:					7'00	1'30	2		
Wootton Bassett Jn		16:33:	1'00				4'00				
Swindon	16:38:	16:40:					6'30	2'00	3		
Uffington		16:47:					1'30				
Challow		16:48:					1'30				
Wantage Road		16:50:	1'00				4'30				
Didcot Parkway	16:55:	16:57:					5'30	1'30	2	ML	
Goring & Streatley		17:02:	1'00				4'30			ML	
Reading High Level Jn		17:08:					1'30			ML	
Reading	17:09:	17:11:					1'00	2'00	11	UML	
Kennet Bridge Jn		17:12:					3'00			ML	
Twyford		17:15:					3'30		2	ML	
Maidenhead		17:19:					3'00		2	ML	
Slough		17:22:					3'00		3	ML	
Stockley Junction		17:25:					0'30			ML	
Heathrow Airport Jn		17:25:					1'00			ML	
Southall		17:26:					1'30		2	ML	
Acton West		17:28:	1'00				2'30			ML	
Ladbroke Grove		17:31:					0'30			3	
Portobello Jn (London)		17:32:		1'00			1'00			3	
Royal Oak Junction		17:34:					1'00				
London Paddington	17:35:								4		

1A27DA Bristol Temple Meads to London Paddington – flexed service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Bristol Temple Meads		16:00:					1'00		13	DM	
Bristol East Jn		16:01:					1'00				
North Somerset Jn		16:02:		1'00		0'30	8'30				
Bath Spa	16:12:	16:14:					3'00	2'00	2		
Bathampton Jn		16:17:					6'00				
Thingley East Junction		16:23:					2'00				
Chippenham	16:25:	16:27:		2'00			7'00	2'00	2		
Wootton Bassett Jn		16:36:	1'00				4'00				
Swindon	16:41:	16:43:		1'00			6'30	2'00	3		
Uffington		16:50:					1'30				
Challow		16:52:					1'30				
Wantage Road		16:53:	1'00				4'30				
Didcot Parkway	16:59:	17:00:					5'30	1'30	2	ML	
Goring & Streatley		17:06:	1'00				4'30			ML	
Reading High Level Jn		17:11:					1'30			ML	
Reading	17:13:	17:15:					1'00	2'00	11	UML	
Kennet Bridge Jn		17:16:					3'00			ML	
Twyford		17:19:					3'30		2	ML	
Maidenhead		17:22:					3'00		2	ML	
Slough		17:25:					3'00		3	ML	
Stockley Junction		17:28:					0'30			ML	
Heathrow Airport Jn		17:29:					1'00			ML	
Southall		17:30:					1'30		2	ML	
Acton West		17:31:	1'00				2'30			ML	
Ladbroke Grove		17:35:					0'30			3	
Portobello Jn (London)		17:35:		0'30			1'00			3	
Royal Oak Junction		17:37:					1'00				
London Paddington	17:38:								4		

1K57DA Newbury to London Paddington – original service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Newbury		16:35:					7'00		2		
Theale		16:42:	1'00	0'30		0'30	3'30				
Southcote Jn		16:47:		1'30			1'00				
Oxford Road Jn		16:50:					2'30			UFM	
Reading	16:52:	16:59:					1'00	6'30	11	UML	
Kennet Bridge Jn		17:00:					3'00			ML	
Twyford		17:03:		3'00			3'30		2	ML	
Maidenhead		17:09:					3'00		2	ML	
Slough		17:12:					3'30		3	ML	
Stockley Junction		17:16:					0'30			ML	
Heathrow Airport Jn		17:16:					1'00			ML	
Southall		17:17:					2'00		2	ML	
Acton West		17:19:	1'00				2'30			ML	
Ladbroke Grove		17:23:					1'00			3	
Portobello Jn (London)		17:24:					1'00			3	
Royal Oak Junction		17:25:				1'00	1'00				
London Paddington	17:27:								11		

1K57DA Newbury to London Paddington – flexed service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Newbury		16:35:					7'00		2		
Theale		16:42:	1'00	0'30		0'30	3'30				
Southcote Jn		16:47:		1'30			1'00				
Oxford Road Jn		16:50:					2'30			UFM	
Reading	16:52:	16:54:					1'00	2'00	11	UML	
Kennet Bridge Jn		16:55:					3'00			ML	
Twyford		16:58:					3'30		2	ML	
Maidenhead		17:02:					3'00		2	ML	
Slough		17:05:					3'30		3	ML	
Stockley Junction		17:08:					0'30			ML	
Heathrow Airport Jn		17:09:		0'30			1'00			ML	
Southall		17:10:		0'30			2'00		2	ML	
Acton West		17:13:	1'00				2'30			ML	
Ladbroke Grove		17:16:					1'00			3	
Portobello Jn (London)		17:17:					1'00			3	
Royal Oak Junction		17:18:				0'30	1'00				
London Paddington	17:20:								11		

1E60GS Southampton Central to Newcastle – original service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Southampton Central		15:46:					2'30		1		
Northam Jn		15:48:					1'30			SL	
St. Denys		15:50:					2'00				
Southampton Airport Parkway	15:52:	15:53:					2'00	1'30	1	FL	
Eastleigh		15:55:					2'30		UF	FL	
Shawford		15:58:					2'30				
Winchester	16:00:	16:02:					5'00	1'30	1		
Wallers Ash Loop		16:07:		0'30			6'30				
Worting Jn		16:14:					2'30			SL	
Basingstoke	16:16:	16:19:					5'00	2'30	4		
Bramley (Hants)		16:24:		3'30	0'30		7'00				
Southcote Jn		16:35:					1'00				
Oxford Road Jn		16:36:				0'30	2'00			WL	
Reading	16:38:	16:45:					1'00	6'30	8B	FVL	
Reading High Level Jn		16:46:					0'30			FVL	
Reading West Jn		16:46:				0'30	5'00			RL	
Goring & Streatley		16:52:	1'00				5'00			RL	
Didcot East Jn		16:58:					1'00				
Didcot North Jn		16:59:					5'00				
Kennington Jn		17:04:	1'00				3'00				
Oxford	17:08:	17:10:					3'00	2'00	4	DRL	

1E60GS Southampton Central to Newcastle – flexed service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Southampton Central		15:46:					2'30		1		
Northam Jn		15:48:					1'30			SL	
St. Denys		15:50:					2'00				
Southampton Airport Parkway	15:52:	15:53:					2'00	1'30	1	FL	
Eastleigh		15:55:					2'30		UF	FL	
Shawford		15:58:					2'30				
Winchester	16:00:	16:02:					5'00	1'30	1		
Wallers Ash Loop		16:07:		0'30			6'30				
Worting Jn		16:14:					2'30			SL	
Basingstoke	16:16:	16:19:					5'00	2'30	4		
Bramley (Hants)		16:24:		3'30	0'30		7'00				
Southcote Jn		16:35:					1'00				
Oxford Road Jn		16:36:				0'30	2'00			WL	
Reading	16:38:	16:44:					1'00	5'30	8B	FVL	
Reading High Level Jn		16:45:					0'30			FVL	
Reading West Jn		16:45:				0'30	5'00			RL	
Goring & Streatley		16:51:	1'00	1'00			5'00			RL	
Didcot East Jn		16:58:					1'00				
Didcot North Jn		16:59:					5'00				
Kennington Jn		17:04:	1'00				3'00				
Oxford	17:08:	17:10:					3'00	2'00	4	DRL	

1D32DA London Paddington to Oxford – original service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
London Paddington		16:20:					1'00		10	3	
Royal Oak Junction		16:21:				0'30	1'00			2	
Portobello Jn (London)		16:22:					0'30			2	
Ladbroke Grove		16:23:					2'30			ML	
Acton West		16:25:					2'00			ML	
Southall		16:27:					1'00		1	ML	
Heathrow Airport Jn		16:28:					4'00			ML	
Slough	16:32:	16:34:					4'00	1'30	2	ML	
Maidenhead		16:38:					4'00		1	ML	
Twyford		16:42:	1'00				2'00		1	ML	
Kennet Bridge Jn		16:45:					1'00			DML	
Reading	16:46:	16:48:					1'00	2'30	9	ML	
Reading High Level Jn		16:49:					5'30			ML	
Goring & Streatley		16:55:	1'00	0'30			4'30			ML	
Didcot East Jn		17:01:					1'00				
Didcot North Jn		17:02:					6'00				
Kennington Jn		17:08:	1'00	1'00			3'00				
Oxford	17:13:								4		

1D32DA London Paddington to Oxford – flexed service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
London Paddington		16:20:					1'00		10	3	
Royal Oak Junction		16:21:				0'30	1'00			2	
Portobello Jn (London)		16:22:					0'30			2	
Ladbroke Grove		16:23:					2'30			ML	
Acton West		16:25:					2'00			ML	
Southall		16:27:					1'00		1	ML	
Heathrow Airport Jn		16:28:					4'00			ML	
Slough	16:32:	16:34:					4'00	1'30	2	ML	
Maidenhead		16:38:					4'00		1	ML	
Twyford		16:42:	1'00				2'00		1	ML	
Kennet Bridge Jn		16:45:					1'00			DML	
Reading	16:46:	16:48:					1'30	2'00	8	FVL	
Reading High Level Jn		16:49:					0'30			FVL	
Reading West Jn		16:50:					4'30			RL	
Goring & Streatley		16:54:	1'00				6'00			RL	
Didcot East Jn		17:01:					1'00				
Didcot North Jn		17:02:					6'00				
Kennington Jn		17:08:	1'00	0'30			3'00				
Oxford	17:13:								4		

2E14DA Didcot Parkway to Moreton-in-Marsh – original service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Didcot Parkway		17:03:					2'00		5	DOX	
Didcot North Jn		17:05:				0'30	1'30				
Appleford	17:07:	17:07:					2'00	0'30	2		
Culham	17:09:	17:10:					3'30	0'30	1		
Radley	17:13:	17:14:					3'30	0'30	1		
Kennington Jn		17:17:	1'00				3'00				
Oxford	17:21:	17:23:				0'30	3'30	1'30	4	DRL	
Wolvercote Jn		17:27:					4'30				
Hanborough	17:31:	17:32:					2'30	1'00			
Combe	17:35:	17:35:					5'00	0'30			
Finstock	17:40:	17:41:					3'30	0'30			
Charlbury	17:44:	17:45:					5'00	1'00			
Ascott-under-Wychwood	17:50:	17:51:					3'00	0'30	1		
Shipton	17:54:	17:54:					4'00	0'30	1		
Kingham	17:58:	17:59:				2'00	7'30	1'00			
Moreton-in-Marsh	18:09:								1		

2E14DA Didcot Parkway to Moreton-in-Marsh – flexed service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Didcot Parkway		17:03:		0'30			2'00		5	DOX	
Didcot North Jn		17:05:				0'30	1'30				
Appleford	17:07:	17:08:					2'00	0'30	2		
Culham	17:10:	17:10:					3'30	0'30	1		
Radley	17:14:	17:14:					3'30	0'30	1		
Kennington Jn		17:18:	1'00				3'00				
Oxford	17:22:	17:23:				0'30	3'30	1'00	4	DRL	
Wolvercote Jn		17:27:					4'30				
Hanborough	17:31:	17:32:					2'30	1'00			
Combe	17:35:	17:35:					5'00	0'30			
Finstock	17:40:	17:41:					3'30	0'30			
Charlbury	17:44:	17:45:					5'00	1'00			
Ascott-under-Wychwood	17:50:	17:51:					3'00	0'30	1		
Shipton	17:54:	17:54:					4'00	0'30	1		
Kingham	17:58:	17:59:				2'00	7'30	1'00			
Moreton-in-Marsh	18:09:								1		

1A88DA Penzance to London Paddington – original service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Taunton	15:41:	15:42:					4'30	1'30	5		
Cogload Jn		15:47:					2'00				
Athelney Crossing		15:49:					5'30				
Somerton Ground Frame		15:54:					6'30				
Castle Cary		16:01:					6'00		1		
East Somerset Jn		16:07:					2'30				
Blatchbridge Jn		16:09:		2'30			1'00				
Clink Road Jn		16:13:	1'00				3'00				
Fairwood Jn		16:17:					1'30				
Heywood Road Jn		16:18:					4'30				
Lavington		16:23:					5'30				
Woodborough		16:28:					8'30				
Bedwyn		16:37:		1'00			8'00		2		
Newbury		16:46:					6'00				
Theale		16:52:	1'00				3'00				
Southcote Jn		16:56:					1'00				
Oxford Road Jn		16:57:		0'30			2'30			UFM	
Reading	17:00:	17:05:					1'00	5'00	10	UML	
Kennet Bridge Jn		17:06:					3'00			ML	
Twyford		17:09:					3'30		2	ML	
Maidenhead		17:12:					3'00		2	ML	
Slough		17:15:					3'00		3	ML	
Stockley Junction		17:18:					0'30			ML	
Heathrow Airport Jn		17:19:					1'00			ML	
Southall		17:20:		0'30			1'30		2	ML	
Acton West		17:22:	1'00				2'30			ML	
Ladbroke Grove		17:25:					0'30			3	
Portobello Jn (London)		17:26:		1'00			1'00			3	
Royal Oak Junction		17:28:					1'00				
London Paddington	17:29:								3		

1A88DA Penzance to London Paddington – flexed service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Taunton	15:41:	15:42:					4'30	1'30	5		
Cogload Jn		15:47:					2'00				
Athelney Crossing		15:49:					5'30				
Somerton Ground Frame		15:54:					6'30				
Castle Cary		16:01:					6'00		1		
East Somerset Jn		16:07:					2'30				
Blatchbridge Jn		16:09:		2'30			1'00				
Clink Road Jn		16:13:	1'00				3'00				
Fairwood Jn		16:17:					1'30				
Heywood Road Jn		16:18:					4'30				
Lavington		16:23:					5'30				
Woodborough		16:28:					8'30				
Bedwyn		16:37:		1'00			8'00		2		
Newbury		16:46:					6'00				
Theale		16:52:	1'00				3'00				
Southcote Jn		16:56:					1'00				
Oxford Road Jn		16:57:		0'30			2'30			UFM	
Reading	17:00:	17:02:					1'00	2'00	10	UML	
Kennet Bridge Jn		17:03:					3'00			ML	
Twyford		17:06:					3'30		2	ML	
Maidenhead		17:09:					3'00		2	ML	
Slough		17:12:		0'30			3'00		3	ML	
Stockley Junction		17:16:					0'30			ML	
Heathrow Airport Jn		17:16:					1'00			ML	
Southall		17:17:		1'00			1'30		2	ML	
Acton West		17:20:	1'00				2'30			ML	
Ladbroke Grove		17:23:					0'30			3	
Portobello Jn (London)		17:24:		0'30			1'00			3	
Royal Oak Junction		17:25:				0'30	1'00				
London Paddington	17:27:								3		

C.01 Flexed services for 1L89

2N25DB Bridgend to Ebbw Vale Town – original service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Bridgend		17:14:					9'00		2		
Pontyclun		17:23:					8'00				
Leckwith Loop North Jn		17:31:	1'00				2'30			C	
Cardiff Central	17:34:	17:37:				0'30	1'30	3'00	1	B	
Long Dyke Jn		17:39:					6'00			ML	
Marshfield		17:45:					3'30			ML	
Ebbw Jn		17:49:					3'30				
Park Jn		17:52:					1'30				
Park North Jcn		17:54:					1'30				
Pye Corner	17:55:	17:56:					3'00	0'30			
Rogerstone	17:59:	18:00:					1'00	1'00			
Risca South Jcn		18:01:					2'00				
Risca & Pontymister	18:03:	18:03:					4'30	0'30			
Cross Keys	18:08:	18:09:					1'00	1'00			
Crosskeys Jcn		18:10:					6'30				
Newbridge (Ebbw Vale)	18:16:	18:17:					5'30	0'30			
Llanhilleth	18:22:	18:23:					8'00	0'30			
Ebbw Vale Parkway	18:31:	18:32:					4'00	1'00			
Ebbw Vale Town	18:36:										

2N25DB Bridgend to Ebbw Vale Town – flexed service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Bridgend		17:14:					9'00		2		
Pontyclun		17:23:					8'00				
Leckwith Loop North Jn		17:31:	1'00				2'30			C	
Cardiff Central	17:34:	17:38:					1'30	3'30	1	B	
Long Dyke Jn		17:39:					6'00			ML	
Marshfield		17:45:				0'30	3'30			ML	
Ebbw Jn		17:49:					3'30				
Park Jn		17:53:					1'30				
Park North Jcn		17:54:					1'30				
Pye Corner	17:56:	17:56:					3'00	0'30			
Rogerstone	17:59:	18:00:					1'00	1'00			
Risca South Jcn		18:01:					2'00				
Risca & Pontymister	18:03:	18:04:					4'30	0'30			
Cross Keys	18:08:	18:09:					1'00	1'00			
Crosskeys Jcn		18:10:					6'30				
Newbridge (Ebbw Vale)	18:17:	18:17:					5'30	0'30			
Llanhilleth	18:23:	18:23:					8'00	0'30			
Ebbw Vale Parkway	18:31:	18:32:					4'00	1'00			
Ebbw Vale Town	18:36:										

1A31DA Bristol Temple Meads to London Paddington - original service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Bristol Temple Meads		18:00:					1'00		13	DM	
Bristol East Jn		18:01:					1'00				
North Somerset Jn		18:02:				0'30	8'30				
Bath Spa	18:11:	18:13:					3'00	2'00	2		
Bathampton Jn		18:16:					6'00				
Thingley East Junction		18:22:					2'00				
Chippenham	18:24:	18:26:					7'00	2'00	2		
Wootton Bassett Jn		18:33:	1'00				4'00				
Swindon	18:38:	18:40:					6'30	2'30	3		
Uffington		18:47:					1'30				
Challow		18:48:					1'30				
Wantage Road		18:50:	1'00				4'30				
Didcot Parkway	18:55:	19:00:					5'30	4'30	2	ML	
Goring & Streatley		19:05:	1'00				4'30			ML	
Reading High Level Jn		19:11:					1'30			ML	
Reading	19:12:	19:15:					1'00	2'30	10	UML	
Kennet Bridge Jn		19:16:					3'00			ML	
Twyford		19:19:					3'30		2	ML	
Maidenhead		19:22:					3'00		2	ML	
Slough		19:25:					3'00		3	ML	
Stockley Junction		19:28:					0'30			ML	
Heathrow Airport Jn		19:29:					1'00			ML	
Southall		19:30:		1'00			1'30		2	ML	
Acton West		19:32:	1'00				2'30			ML	
Ladbroke Grove		19:36:					0'30			3	
Portobello Jn (London)		19:36:		0'30			1'00			3	
Royal Oak Junction		19:38:					1'00				
London Paddington	19:39:								5		

1A31DA Bristol Temple Meads to London Paddington - flexed service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Bristol Temple Meads		18:00:					1'00		13	UM	
Bristol East Jn		18:01:					1'00				
North Somerset Jn		18:02:				0'30	8'30				
Bath Spa	18:11:	18:13:					3'00	2'00	2		
Bathampton Jn		18:16:					6'00				
Thingley East Junction		18:22:					2'00				
Chippenham	18:24:	18:27:		3'00			6'30	3'00	2		
Wootton Bassett Jn		18:36:	1'00				4'00				
Swindon	18:41:	18:43:					6'30	2'00	3		
Uffington		18:50:					1'30				
Challow		18:51:					1'30				
Wantage Road		18:53:	1'00				4'30				
Didcot Parkway	18:58:	19:00:					5'30	1'30	2	ML	
Goring & Streatley		19:05:	1'00				4'30			ML	
Reading High Level Jn		19:11:					1'30			ML	
Reading	19:12:	19:15:					1'00	2'30	11	UML	
Kennet Bridge Jn		19:16:					3'00			ML	
Twyford		19:19:					3'30		2	ML	
Maidenhead		19:22:					3'00		2	ML	
Slough		19:25:					3'00		3	ML	
Stockley Junction		19:28:					0'30			ML	
Heathrow Airport Jn		19:29:					1'00			ML	
Southall		19:30:		1'00			1'30		2	ML	
Acton West		19:32:	1'00				2'30			ML	
Ladbroke Grove		19:36:					0'30			3	
Portobello Jn (London)		19:36:		0'30			1'00			3	
Royal Oak Junction		19:38:					1'00				
London Paddington	19:39:								5		

1P38DA Great Malvern to London Paddington - original service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Norton Jn		16:57:					1'00				
Worcestershire Parkway HL	16:58:	16:59:					4'30	1'30			
Pershore	17:04:	17:05:					6'00	1'30			
Evesham	17:11:	17:13:					5'30	1'30			
Honeybourne	17:18:	17:20:					10'00	1'30	2		
Moreton-in-Marsh	17:30:	17:39:					6'30	9'30	2		
Kingham	17:46:	17:47:					4'00	1'30			
Ascott-under-Wychwood		17:51:					3'30		2		
Charlbury	17:55:	18:03:					6'00	8'30			
Hanborough	18:09:	18:11:	1'00	1'30			4'00	1'30			
Wolvercote Jn		18:17:		2'00			2'00			UML	
Oxford North Jn.		18:21:		1'30			2'00			UML	
Oxford	18:25:	18:32:					3'00	7'00	3		
Kennington Jn		18:35:	1'00	2'30			5'00				
Didcot North Jn		18:43:					1'00				
Didcot East Jn		18:44:		0'30			5'00			ML	
Goring & Streatley		18:50:	1'00	0'30			4'30			ML	
Reading High Level Jn		18:56:					1'30			ML	
Reading	18:57:	19:00:					1'00	2'30	10	UML	
Kennet Bridge Jn		19:01:					3'00			ML	
Twyford		19:04:					3'30		2	ML	
Maidenhead		19:07:					3'30		2	ML	
Slough	19:11:	19:12:					4'30	1'30	3	ML	
Stockley Junction		19:17:					0'30			ML	
Heathrow Airport Jn		19:17:					1'00			ML	
Southall		19:18:		0'30			1'30		2	ML	
Acton West		19:20:	1'00				2'30			ML	
Ladbroke Grove		19:24:					0'30			3	
Portobello Jn (London)		19:24:					1'00			3	
Royal Oak Junction		19:25:				1'30	1'00				
London Paddington	19:28:								10		

1P38DA Great Malvern to London Paddington - flexed service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Norton Jn		16:57:					1'00				
Worcestershire Parkway HL	16:58:	16:59:					4'30	1'30			
Pershore	17:04:	17:05:					6'00	1'30			
Evesham	17:11:	17:13:					5'30	1'30			
Honeybourne	17:18:	17:20:					10'00	1'30	2		
Moreton-in-Marsh	17:30:	17:39:					6'30	9'30	2		
Kingham	17:46:	17:47:					4'00	1'30			
Ascott-under-Wychwood		17:51:					3'30		2		
Charlbury	17:55:	18:03:					6'00	8'00			
Hanborough	18:09:	18:10:	1'00	2'00			4'00	1'30			
Wolvercote Jn		18:17:		2'00			2'00			UML	
Oxford North Jn.		18:21:		1'30			2'00			UML	
Oxford	18:25:	18:32:					3'00	7'00	3		
Kennington Jn		18:35:	1'00	2'30			5'00				
Didcot North Jn		18:43:					1'00				
Didcot East Jn		18:44:		0'30			5'00			ML	
Goring & Streatley		18:50:	1'00	0'30			4'30			ML	
Reading High Level Jn		18:56:					1'30			ML	
Reading	18:57:	19:03:					1'00	5'30	10	UML	
Kennet Bridge Jn		19:04:					3'00			ML	
Twyford		19:07:					3'30		2	ML	
Maidenhead		19:10:					3'30		2	ML	
Slough	19:14:	19:15:					4'30	1'30	3	ML	
Stockley Junction		19:20:					0'30			ML	
Heathrow Airport Jn		19:20:					1'00			ML	
Southall		19:21:					1'30		2	ML	
Acton West		19:23:	1'00				2'30			ML	
Ladbroke Grove		19:26:					0'30			3	
Portobello Jn (London)		19:27:					1'00			3	
Royal Oak Junction		19:28:					1'00				
London Paddington	19:29:								9		

1A31DA Bristol Temple Meads to London Paddington - original service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Bristol Temple Meads		18:30:					1'00		15	DM	
Bristol East Jn		18:31:					1'00				
North Somerset Jn		18:32:		0'30		0'30	8'30				
Bath Spa	18:41:	18:43:					3'00	2'00	2		
Bathampton Jn		18:46:					6'00				
Thingley East Junction		18:52:					2'00				
Chippenham	18:54:	18:56:					7'00	2'00	2		
Wootton Bassett Jn		19:03:	1'00				4'00				
Swindon	19:08:	19:10:					6'30	2'00	3		
Uffington		19:17:					1'30				
Challow		19:18:					1'30				
Wantage Road		19:20:	1'00				4'30				
Didcot Parkway	19:25:	19:27:					5'30	1'30	2	ML	
Goring & Streatley		19:32:	1'00				4'30			ML	
Reading High Level Jn		19:38:					1'30			ML	
Reading	19:39:	19:41:					1'00	2'00	10	UML	
Kennet Bridge Jn		19:42:					3'00			ML	
Twyford		19:45:					3'30		2	ML	
Maidenhead		19:49:					3'00		2	ML	
Slough		19:52:					3'00		3	ML	
Stockley Junction		19:55:					0'30			ML	
Heathrow Airport Jn		19:55:					1'00			ML	
Southall		19:56:					1'30		2	ML	
Acton West		19:58:	1'00				2'30			ML	
Ladbroke Grove		20:01:					0'30			3	
Portobello Jn (London)		20:02:		2'00			1'00			3	
Royal Oak Junction		20:05:				1'00	1'00				
London Paddington	20:07:								3		

1A31DA Bristol Temple Meads to London Paddington - flexed service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Bristol Temple Meads		18:30:					1'00		15	DM	
Bristol East Jn		18:31:					1'00				
North Somerset Jn		18:32:		0'30		0'30	8'30				
Bath Spa	18:41:	18:43:					3'00	2'00	2		
Bathampton Jn		18:46:					6'00				
Thingley East Junction		18:52:					2'00				
Chippenham	18:54:	18:56:					7'00	2'00	2		
Wootton Bassett Jn		19:03:	1'00				4'00				
Swindon	19:08:	19:10:					6'30	2'00	3		
Uffington		19:17:					1'30				
Challow		19:18:					1'30				
Wantage Road		19:20:	1'00	1'30			4'30				
Didcot Parkway	19:27:	19:28:					5'30	1'30	2	ML	
Goring & Streatley		19:34:	1'00				4'30			ML	
Reading High Level Jn		19:39:					1'30			ML	
Reading	19:41:	19:43:					1'00	2'00	10	UML	
Kennet Bridge Jn		19:44:					3'00			ML	
Twyford		19:47:					3'30		2	ML	
Maidenhead		19:50:					3'00		2	ML	
Slough		19:53:					3'00		3	ML	
Stockley Junction		19:56:					0'30			ML	
Heathrow Airport Jn		19:57:					1'00			ML	
Southall		19:58:					1'30		2	ML	
Acton West		19:59:	1'00				2'30			ML	
Ladbroke Grove		20:03:					0'30			3	
Portobello Jn (London)		20:03:		0'30			1'00			3	
Royal Oak Junction		20:05:				1'00	1'00				
London Paddington	20:07:								3		

6M47FZ Ludgershall MOD to Bicester MOD - original service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Salisbury		15:53:				0'30	3'00		4		
Wilton Jn		15:56:					4'00				
Wishford		16:00:				0'30	5'00				
Wylye AHB		16:06:					6'30				
Upton Lovell		16:12:					6'30				
Warminster		16:19:	1'00			1'00	6'30				
Westbury	16:27:	16:33:					2'00	6'00	1		
Hawkeridge Jn		16:35:		1'00		1'00	7'00				
Bradford Jn		16:44:		9'30			12'00				
Thingley Jn		17:06:					1'00			DM	
Thingley East Junction		17:07:					2'00				
Chippenham		17:09:		6'30			11'30		2		
Wootton Bassett Jn		17:27:					6'30				
Swindon Signal SW1212	17:33:	18:23:	1'00	2'00			1'30	50'00			
Swindon		18:28:					12'00		UML	UML	
Uffington		18:40:					2'30				
Challow		18:42:					5'00			RL	
Wantage Road	18:47:	18:52:					7'30	4'30			
Steventon		18:59:					1'30			RL	
Milton Jn		19:01:	1'00			1'00	2'00			RL	
Foxhall Jn		19:05:					2'00				
Didcot West Curve Jn	19:07:	19:32:					2'00	25'30			
Didcot North Jn	19:34:	19:35:					8'30	0'30			
Kennington Jn		19:43:					2'00				
Kennington Goods Loop	19:45:	20:17:	1'00				4'00	31'30			
Oxford		20:22:					2'00		TL	DML	
Oxford North Jn.		20:24:					1'30			DB	
Woodstock Road Junction		20:25:					1'00				
Oxford Parkway		20:26:					8'00		2		
Bicester Depot West Jn		20:34:					2'00				
Bicester Depot-GL-RR	20:36:	20:56:				0'30	4'00	20'00			
Bicester MOD GBRf	21:01:										

6M47FZ Ludgershall MOD to Bicester MOD - flexed service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Salisbury		15:53:				0'30	3'00		4		
Wilton Jn		15:56:					4'00				
Wishford		16:00:				0'30	5'00				
Wylye AHB		16:06:					6'30				
Upton Lovell		16:12:					6'30				
Warminster		16:19:	1'00			1'00	6'30				
Westbury	16:27:	16:33:					2'00	6'00	1		
Hawkeridge Jn		16:35:		1'00		1'00	7'00				
Bradford Jn		16:44:		9'30			12'00				
Thingley Jn		17:06:					1'00			DM	
Thingley East Junction		17:07:					2'00				
Chippenham		17:09:		6'30			11'30		2		
Wootton Bassett Jn		17:27:					6'30				
Swindon Signal SW1212	17:33:	18:23:	1'00				1'30	50'00			
Swindon		18:26:					12'00		UML	UML	
Uffington		18:38:					2'30				
Challow		18:40:					5'00			RL	
Wantage Road	18:45:	19:13:					7'30	27'30			
Steventon		19:20:					1'30			RL	
Milton Jn		19:22:	1'00			1'00	2'00			RL	
Foxhall Jn		19:26:					2'00				
Didcot West Curve Jn	19:28:	19:32:					2'00	4'30			
Didcot North Jn	19:34:	19:35:					8'30	0'30			
Kennington Jn		19:43:					2'00				
Kennington Goods Loop	19:45:	20:17:	1'00				4'00	31'30			
Oxford		20:22:					2'00		TL	DML	
Oxford North Jn.		20:24:					1'30			DB	
Woodstock Road Junction		20:25:					1'00				
Oxford Parkway		20:26:					8'00		2		
Bicester Depot West Jn		20:34:					2'00				
Bicester Depot-GL-RR	20:36:	20:56:				0'30	4'00	20'00			
Bicester MOD GBRf	21:01:										

1Y78DA Heathrow Terminal 5 to London Paddington - original service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Heathrow Terminal 5		19:12:					3'30		3		
Heathrow Terminals 2 & 3	19:15:	19:17:					3'00	2'00	2		
Heathrow Tunnel Jn.		19:20:					0'30				
Stockley Junction		19:21:					0'30			ML	
Heathrow Airport Jn		19:21:					1'30			ML	
Southall		19:23:					2'30		2	ML	
Acton West		19:25:	1'00				2'30			ML	
Ladbroke Grove		19:29:					1'00			3	
Portobello Jn (London)		19:30:					1'00			3	
Royal Oak Junction		19:31:					1'00				
London Paddington	19:32:								7		

1Y78DA Heathrow Terminal 5 to London Paddington - flexed service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Heathrow Terminal 5		19:12:					3'30		3		
Heathrow Terminals 2 & 3	19:15:	19:17:					3'00	2'00	2		
Heathrow Tunnel Jn.		19:20:		1'00			0'30				
Stockley Junction		19:22:					0'30			ML	
Heathrow Airport Jn		19:22:					1'30			ML	
Southall		19:24:					2'30		2	ML	
Acton West		19:26:	1'00				2'30			ML	
Ladbroke Grove		19:30:					1'00			3	
Portobello Jn (London)		19:31:					1'00			3	
Royal Oak Junction		19:32:					1'00				
London Paddington	19:33:								7		

C.02   Flexed services for 1B70

4V15DA Oxford Banbury Road Sidings to Tytherington - original service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Oxford Banbury Road Sdgs		07:59:		0'30			1'00				
Oxford Parkway		08:00:		1'00			1'00		1		
Woodstock Road Junction		08:02:		1'30		1'00	1'30				
Oxford North Jn.		08:06:		0'30		1'00	2'30			UML	
Oxford		08:10:					5'00		TL		
Kennington Goods Loop	08:15:	09:46:					0'30	91'00			
Kennington Jn		09:47:		3'00			5'30				
Didcot North Jn		09:55:		0'30			2'30				
Foxhall Jn	09:58:	10:25:					7'30	27'00		ML	
Wantage Road		10:33:					3'00			ML	
Challow		10:36:					2'00				
Uffington		10:38:	1'00				10'00				
Swindon		10:49:				1'00	6'00		4		
Wootton Bassett Jn		10:56:					10'30				
Hullavington	11:06:	12:28:	1'00				13'00	81'30	DGL		
Westerleigh Jn		12:42:					4'30				
Bristol Parkway	12:46:	13:37:					6'00	50'30	DGL		
Westerleigh Jn		13:43:					3'00				
Yate		13:46:					3'00				
Yate Middle	13:49:	13:50:					30'00	1'00			
Tytherington	14:20:										

4V15DA Oxford Banbury Road Sidings to Tytherington - flexed service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Oxford Banbury Road Sdgs		07:59:		0'30			1'00				
Oxford Parkway		08:00:		1'00			1'00		1		
Woodstock Road Junction		08:02:		1'30		1'00	1'30				
Oxford North Jn.		08:06:		0'30		1'00	2'30			UML	
Oxford		08:10:					5'00		TL		
Kennington Goods Loop	08:15:	09:46:					0'30	91'00			
Kennington Jn		09:47:		3'00			5'30				
Didcot North Jn		09:55:		0'30			2'30				
Foxhall Jn	09:58:	10:25:					7'30	27'00		ML	
Wantage Road		10:33:					4'30			ML	
Challow	10:37:	11:04:					4'00	27'00			
Uffington		11:08:	1'00				10'00				
Swindon		11:19:				1'00	6'00		4		
Wootton Bassett Jn		11:26:					10'30				
Hullavington	11:37:	12:28:	1'00				13'00	51'00	DGL		
Westerleigh Jn		12:42:					4'30				
Bristol Parkway	12:46:	13:37:					6'00	50'30	DGL		
Westerleigh Jn		13:43:					3'00				
Yate		13:46:					3'00				
Yate Middle	13:49:	13:50:					30'00	1'00			
Tytherington	14:20:										

4V21DA Appleford FHH to Tytherington - original service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Appleford FHH		09:49:		0'30			4'00				
Appleford L.C.		09:53:					2'00				
Didcot North Jn		09:55:		0'30			2'30				
Foxhall Jn	09:58:	10:25:					7'30	27'00		ML	
Wantage Road		10:33:					3'00			ML	
Challow		10:36:					2'00				
Uffington		10:38:	1'00				10'00				
Swindon		10:49:				1'00	6'00		4		
Wootton Bassett Jn		10:56:					10'30				
Hullavington	11:06:	12:28:	1'00				13'00	81'30	DGL		
Westerleigh Jn		12:42:					4'30				
Bristol Parkway	12:46:	13:37:					6'00	50'30	DGL		
Westerleigh Jn		13:43:					3'00				
Yate		13:46:					3'00				
Yate Middle	13:49:	13:50:					30'00	1'00			
Tytherington	14:20:										

4V21DA Appleford FHH to Tytherington - flexed service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Appleford FHH		09:49:		0'30			4'00				
Appleford L.C.		09:53:					2'00				
Didcot North Jn		09:55:		0'30			2'30				
Foxhall Jn	09:58:	10:25:					7'30	27'00		ML	
Wantage Road		10:33:					4'30			RL	
Challow	10:37:	11:04:					4'00	27'00		RL	
Uffington		11:08:	1'00				10'00				
Swindon		11:19:				1'00	6'00		4		
Wootton Bassett Jn		11:26:					10'30				
Hullavington	11:37:	12:28:	1'00				13'00	51'00	DGL		
Westerleigh Jn		12:42:					4'30				
Bristol Parkway	12:46:	13:37:					6'00	50'30	DGL		
Westerleigh Jn		13:43:					3'00				
Yate		13:46:					3'00				
Yate Middle	13:49:	13:50:					30'00	1'00			
Tytherington	14:20:										

6M04FB Avonmouth BBHT Coal Silos to Basform Hall SSM - original service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Avonmouth BBHT Coal Silos		10:52:					6'00				
Hallen Marsh Jn		10:58:					12'00				
Filton West Jn		11:10:					4'00				
Patchway		11:14:				1'00	7'30		2		
Pilning	11:22:	11:48:				0'30	3'00	25'30			
Severn Tunnel East		11:51:					6'30				
Severn Tunnel West		11:58:		2'00		0'30	3'00				
Severn Tunnel Junction		12:03:				0'30	7'30		3	ML	
Llanwern West Junction		12:11:	1'00	1'00		0'30	4'30			ML	
Maindee East Jn		12:18:		5'30			2'00				
Maindee North Jn		12:26:				0'30	25'00				
Little Mill Jn		12:51:					9'00				
Abergavenny		13:00:					13'00				
Abergavenny Sig 38		13:13:					7'00				
Pontrilas		13:20:				0'30	6'30				
Tram Inn		13:27:	2'00				8'00				
Hereford	13:37:	14:34:					4'30	57'00	URL		

6M04FB Avonmouth BBHT Coal Silos to Basform Hall SSM - flexed service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Avonmouth BBHT Coal Silos		10:52:					6'00				
Hallen Marsh Jn		10:58:					12'00				
Filton West Jn		11:10:					5'00				
Patchway	11:15:	11:18:				1'00	8'00	3'30	2		
Pilning	11:27:	11:48:				0'30	3'00	20'30			
Severn Tunnel East		11:51:					6'30				
Severn Tunnel West		11:58:		2'00		0'30	3'00				
Severn Tunnel Junction		12:03:				0'30	7'30		3	ML	
Llanwern West Junction		12:11:	1'00	1'00		0'30	4'30			ML	
Maindee East Jn		12:18:		5'30			2'00				
Maindee North Jn		12:26:				0'30	25'00				
Little Mill Jn		12:51:					9'00				
Abergavenny		13:00:					13'00				
Abergavenny Sig 38		13:13:					7'00				
Pontrilas		13:20:				0'30	6'30				
Tram Inn		13:27:	2'00				8'00				
Hereford	13:37:	14:34:					4'30	57'00	URL		

C.03 Flexed services for 1B72

6B41DD Westerleigh Puma DBC to Robeston Sidings – original service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Llanwern West Junction		13:25:	2'00				4'00			RL	
Maindee West Jn		13:31:	1'00			0'30	1'30			RL	
Newport (South Wales)		13:34:					3'00		DRL	RL	
Ebbw Jn		13:37:					4'00			RL	
Marshfield		13:41:	1'00			0'30	8'30			RL	
Long Dyke Jn		13:51:					1'00			D	
Cardiff Central		13:52:					2'30		DML	D	
Leckwith Loop North Jn		13:55:				2'00	10'00				
Miskin	14:07:	14:13:					4'00	6'00			
Pontyclun		14:17:	1'00			0'30	10'00				
Bridgend		14:28:				0'30	5'30		1		
Stormy		14:34:	2'00			1'00	4'00				
Margam Moors Jn.		14:41:					5'00				
Margam T.C.	14:46:	16:29:					3'00	102'30			
Margam Yard Jn.		16:32:		0'30			2'00				
Port Talbot Parkway		16:34:	1'00	0'30			4'00				
Court Sart Jn		16:40:					2'00				
Dynevor Jn		16:42:					6'00				
Felin Fran		16:48:	1'00				19'00				
Morlais Jn		17:08:	1'00				5'00				
Llandeilo Jn		17:14:					2'00				
Llanelli		17:16:					4'00		DPL		

6B41DD Westerleigh Puma DBC to Robeston Sidings - flexed service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Llanwern West Junction		13:25:	2'00				4'00			RL	
Maindee West Jn		13:31:	1'00			0'30	1'30			RL	
Newport (South Wales)		13:34:					3'00		DRL	RL	
Ebbw Jn		13:37:					4'00			RL	
Marshfield		13:41:	1'00	1'30		0'30	8'30			RL	
Long Dyke Jn		13:53:					1'00			D	
Cardiff Central		13:54:					2'30		DML	D	
Leckwith Loop North Jn		13:56:				2'00	10'00				
Miskin	14:08:	14:13:					4'00	4'30			
Pontyclun		14:17:	1'00			0'30	10'00				
Bridgend		14:28:				0'30	5'30		1		
Stormy		14:34:	2'00			1'00	4'00				
Margam Moors Jn.		14:41:					5'00				
Margam T.C.	14:46:	16:29:					3'00	102'30			
Margam Yard Jn.		16:32:		0'30			2'00				
Port Talbot Parkway		16:34:	1'00	0'30			4'00				
Court Sart Jn		16:40:					2'00				
Dynevor Jn		16:42:					6'00				
Felin Fran		16:48:	1'00				19'00				
Morlais Jn		17:08:	1'00				5'00				
Llandeilo Jn		17:14:					2'00				
Llanelli		17:16:					4'00		DPL		

6B41DD Westerleigh Puma DBC to Robeston Sidings - flexed service

C.04 Flexed services for 1B75

1V54DB Dundee to Plymouth - original service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Yate		14:13:					2'00				
Westerleigh Jn		14:15:				0'30	4'00				
Bristol Parkway	14:20:	14:23:					2'00	3'00	2		
Filton Abbey Wood		14:25:					1'00		1	ML	
Horfield Junction		14:26:	1'00				2'30			ML	
Dr Day's Jn		14:29:					1'00			ML	
Bristol East Jn		14:30:					1'30			UM	
Bristol Temple Meads	14:32:	14:45:					1'00	13'00	12	DM	
Bristol West Jn.		14:46:		1'30			11'30				
Worle Jn		14:59:					2'00				
Uphill Jn		15:01:					7'30				
Bridgwater		15:08:					4'30				
Cogload Jn		15:13:					4'00				
Taunton	15:17:	15:18:					2'30	1'30	2		
Norton Fitzwarren		15:21:					5'30				
Whiteball		15:26:					3'00				
Tiverton Parkway	15:29:	15:31:					2'30	1'30	1		
Tiverton Loop		15:33:	1'00				8'30				
Cowley Bridge Jn		15:43:					2'00				
Exeter St. David's	15:45:	15:48:					8'30	3'30	4		
Dawlish Warren		15:57:					1'30				
Dawlish		15:58:					3'00				
Teignmouth		16:01:					5'30				
Newton Abbot	16:07:	16:08:					1'00	1'30	2		
Newton Abbot West Junction		16:09:					3'30				
Dainton Tunnel		16:13:					6'30				
Totnes	16:19:	16:21:					9'00	1'30	1		
Aish Emergency Crossover		16:30:					4'00				
Ivybridge		16:34:					4'30		1		
Hemerdon		16:38:	1'00				4'30				
Lipson Jn		16:44:					3'00				
Plymouth	16:47:								6		

1V54DB Dundee to Plymouth - flexed service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Yate		14:13:					2'00				
Westerleigh Jn		14:15:		1'00		0'30	4'00				
Bristol Parkway	14:21:	14:23:		1'00			2'00	2'00	2		
Filton Abbey Wood		14:26:					1'00		1	ML	
Horfield Junction		14:27:	1'00				2'30			ML	
Dr Day's Jn		14:30:					1'00			ML	
Bristol East Jn		14:31:					1'30			UM	
Bristol Temple Meads	14:33:	14:45:					1'00	12'00	12	DM	
Bristol West Jn.		14:46:	1'30				11'30				
Worle Jn		14:59:					2'00				
Uphill Jn		15:01:					7'30				
Bridgwater		15:08:					4'30				
Cogload Jn		15:13:					4'00				
Taunton	15:17:	15:18:					2'30	1'30	2		
Norton Fitzwarren		15:21:					5'30				
Whiteball		15:26:					3'00				
Tiverton Parkway	15:29:	15:31:					2'30	1'30	1		
Tiverton Loop		15:33:	1'00				8'30				
Cowley Bridge Jn		15:43:					2'00				
Exeter St. David's	15:45:	15:48:					8'30	3'30	4		
Dawlish Warren		15:57:					1'30				
Dawlish		15:58:					3'00				
Teignmouth		16:01:					5'30				
Newton Abbot	16:07:	16:08:					1'00	1'30	2		
Newton Abbot West Junction		16:09:					3'30				
Dainton Tunnel		16:13:					6'30				
Totnes	16:19:	16:21:					9'00	1'30	1		
Aish Emergency Crossover		16:30:					4'00				
Ivybridge		16:34:					4'30		1		
Hemerdon		16:38:	1'00				4'30				
Lipson Jn		16:44:					3'00				
Plymouth	16:47:								6		

2O78DA Great Malvern to Weymouth - original service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Barnwood Jn		13:28:		2'00			1'30				
Horton Road Jn		13:32:					1'00				
Gloucester	13:33:	13:38:					1'00	5'00	1		
Horton Road Jn		13:39:					1'00				
Gloucester Yard Jn		13:40:				0'30	5'00				
Standish Jn		13:45:					4'30				
Cam & Dursley	13:50:	13:50:					6'30	0'30	2		
Charfield		13:57:					6'00				
Yate	14:03:	14:03:		3'30			3'00	0'30			
Westerleigh Jn		14:10:					5'00				
Bristol Parkway	14:15:	14:16:					2'30	1'00	2		
Filton Abbey Wood	14:18:	14:19:					1'30	1'00	1	ML	
Horfield Junction		14:21:	1'00	1'30			3'00			ML	
Dr Day's Jn		14:26:					1'00			ML	
Bristol East Jn		14:27:					1'00			DF	
Bristol Temple Meads	14:28:	14:45:					1'00	17'00	9	UM	
Bristol East Jn		14:46:					1'00				
North Somerset Jn		14:47:					4'00				
Keynsham	14:51:	14:52:					6'00	1'00	2		
Oldfield Park	14:58:	14:59:					2'00	1'00	2		
Bath Spa	15:01:	15:03:					3'30	1'30	2		

OFFICIAL

2O78DA Great Malvern to Weymouth - flexed service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Barnwood Jn		13:28:		2'00			1'30				
Horton Road Jn		13:32:					1'00				
Gloucester	13:33:	13:38:					1'00	5'00	1		
Horton Road Jn		13:39:					1'00				
Gloucester Yard Jn		13:40:				0'30	5'00				
Standish Jn		13:45:					4'30				
Cam & Dursley	13:50:	13:50:					6'30	0'30	2		
Charfield		13:57:					6'00				
Yate	14:03:	14:03:		5'00			3'00	0'30			
Westerleigh Jn		14:11:					5'00				
Bristol Parkway	14:16:	14:17:					2'30	1'00	1		
Filton Abbey Wood	14:20:	14:21:					1'30	1'00	1	ML	
Horfield Junction		14:22:	1'00				3'00			ML	
Dr Day's Jn		14:26:					1'00			ML	
Bristol East Jn		14:27:					1'00			DF	
Bristol Temple Meads	14:28:	14:45:					1'00	17'00	9	UM	
Bristol East Jn		14:46:					1'00				
North Somerset Jn		14:47:					4'00				
Keynsham	14:51:	14:52:					6'00	1'00	2		
Oldfield Park	14:58:	14:59:					2'00	1'00	2		
Bath Spa	15:01:	15:03:					3'30	1'30	2		

6B86QJ Portbury Coal Terminal to Uskmouth Power Station - original service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Portbury Coal Terminal FHH		13:10:					10'00				
Portbury Dock Stop Board	13:20:	13:25:					17'30	5'00			
Ashton Jn Signal B335	13:42:	13:47:					2'00	4'30			
Ashton Jn		13:49:					1'30				
Parson Street		13:50:					2'00			RL	
Bristol TM Signal 423	13:52:	13:59:					3'00	6'30		RL	
Bristol West Jn.		14:02:					1'00			UR	
Bristol Temple Meads		14:03:		1'00			1'00		UT	UDR	
Bristol East Jn		14:05:					1'00			RL	
Dr Day's Jn		14:06:		1'00			3'00			RL	
Narroways Hill Junction		14:10:					2'00			RL	
Horfield Junction		14:12:					1'00			RL	
Filton Abbey Wood		14:13:		2'30			2'30		4		
Patchway		14:18:					4'00		2		
Pilning		14:22:		1'30			1'30		2		
Severn Tunnel East		14:25:					6'30				
Severn Tunnel West		14:31:		0'30			3'00				
Severn Tunnel Junction		14:35:					11'00		3	RL	
Llanwern West Junction		14:46:		7'00			2'00			RL	
East Usk Jn.		14:55:					5'00				
East Usk Jn.N.Y.	15:00:	15:20:					30'00	20'00			
Uskmouth Pwr Stn FLHH	15:50:										

6B86QJ Portbury Coal Terminal to Uskmouth Power Station - flexed service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Portbury Coal Terminal FHH		13:10:					10'00				
Portbury Dock Stop Board	13:20:	13:25:					17'30	5'00			
Ashton Jn Signal B335	13:42:	13:47:					2'00	4'30			
Ashton Jn		13:49:					1'30				
Parson Street		13:50:					2'00			RL	
Bristol TM Signal 423	13:52:	13:59:					3'00	6'30		RL	
Bristol West Jn.		14:02:					1'00			UR	
Bristol Temple Meads		14:03:		1'00			1'00		UT	UDR	
Bristol East Jn		14:05:					1'00			RL	
Dr Day's Jn		14:06:		1'00			3'00			RL	
Narroways Hill Junction		14:10:					2'00			RL	
Horfield Junction		14:12:					1'00			RL	
Filton Abbey Wood		14:13:		4'00			2'30		4		
Patchway		14:19:					4'00		2		
Pilning		14:23:		0'30			1'30		2		
Severn Tunnel East		14:25:					6'30				
Severn Tunnel West		14:32:					3'00				
Severn Tunnel Junction		14:35:					11'00		3	RL	
Llanwern West Junction		14:46:		7'00			2'00			RL	
East Usk Jn.		14:55:					5'00				
East Usk Jn.N.Y.	15:00:	15:20:					30'00	20'00			
Uskmouth Pwr Stn FLHH	15:50:										

4O57CA Cardiff Wentloog IFT to Southampton MCT - original service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Cardiff Wentloog IFT		13:29:					4'00			RL	
Marshfield		13:33:					4'00			RL	
Ebbw Jn		13:37:					3'00			RL	
Newport (South Wales)		13:40:					1'30		URL	RL	
Maindee West Jn		13:41:					4'00			RL	
Llanwern West Junction		13:45:	1'00	1'00			9'30			RL	
Severn Tunnel Junction		13:57:				1'30	1'00		4		
Severn Tunnel West		13:59:				2'00	4'30				
Severn Tunnel East		14:06:					2'00				
Pilning		14:08:	1'00				7'30				
Patchway		14:16:	1'00	1'30			2'30		1		
Filton Abbey Wood		14:21:					1'00		3	RL	
Horfield Junction		14:22:		2'30			1'30			RL	
Narroways Hill Junction		14:26:		3'00		1'00	1'30			RL	
Dr Day's Jn		14:32:		2'00			2'00				
North Somerset Jn		14:36:				2'00	12'30				
Bath Spa		14:50:					3'30		2		

4O57CA Cardiff Wentloog IFT to Southampton MCT - flexed service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Cardiff Wentloog IFT		13:29:					4'00			RL	
Marshfield		13:33:					4'00			RL	
Ebbw Jn		13:37:					3'00			RL	
Newport (South Wales)		13:40:					1'30		URL	RL	
Maindee West Jn		13:41:					4'00			RL	
Llanwern West Junction		13:45:	1'00	1'00			9'30			RL	
Severn Tunnel Junction		13:57:				1'30	1'00		4		
Severn Tunnel West		13:59:				2'00	4'30				
Severn Tunnel East		14:06:					2'00				
Pilning		14:08:	1'00	1'30			7'30				
Patchway		14:18:	1'00				2'30		1		
Filton Abbey Wood		14:21:					1'00		3	RL	
Horfield Junction		14:22:		2'30			1'30			RL	
Narroways Hill Junction		14:26:		3'00		1'00	1'30			RL	
Dr Day's Jn		14:32:		2'00			2'00				
North Somerset Jn		14:36:				2'00	12'30				
Bath Spa		14:50:					3'30		2		

1H25DA London Paddington to Bristol Temple Meads - original service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
London Paddington		13:15:					1'00		6	2	
Royal Oak Junction		13:16:				0'30	1'00			2	
Portobello Jn (London)		13:17:					0'30			2	
Ladbroke Grove		13:18:					2'30			ML	
Acton West		13:20:					2'00			ML	
Southall		13:22:					1'00		1	ML	
Heathrow Airport Jn		13:23:					3'30			ML	
Slough		13:27:					3'00		2	ML	
Maidenhead		13:30:					4'00		1	ML	
Twyford		13:34:	1'00				2'00		1	ML	
Kennet Bridge Jn		13:37:					0'30			DML	
Reading		13:37:					1'00		9	ML	
Reading High Level Jn		13:38:					5'30			ML	
Goring & Streatley		13:44:	1'00				4'00			ML	
Didcot Parkway		13:49:					4'30		1		
Wantage Road		13:53:					2'00				
Challow		13:55:					1'00				
Uffington		13:56:	1'00				5'30				
Swindon		14:03:				0'30	3'30		4		
Wootton Bassett Jn		14:07:					6'30				
Hullavington		14:13:	1'00				6'30				
Westerleigh Jn		14:21:		0'30		0'30	3'00				
Bristol Parkway	14:25:	14:27:		0'30			2'00	2'00	1		
Filton Abbey Wood		14:29:					0'30		1	ML	
Horfield Junction		14:30:	1'00	2'00			2'30			ML	
Dr Day's Jn		14:35:					1'00			ML	
Bristol East Jn		14:36:					1'30			DF	
Bristol Temple Meads	14:38:								8		

1H25DA London Paddington to Bristol Temple Meads - original service

1H25DA London Paddington to Bristol Temple Meads - flexed service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
London Paddington		13:15:					1'00		6	2	
Royal Oak Junction		13:16:				0'30	1'00			2	
Portobello Jn (London)		13:17:					0'30			2	
Ladbroke Grove		13:18:					2'30			ML	
Acton West		13:20:					2'00			ML	
Southall		13:22:					1'00		1	ML	
Heathrow Airport Jn		13:23:					3'30			ML	
Slough		13:27:					3'00		2	ML	
Maidenhead		13:30:					4'00		1	ML	
Twyford		13:34:	1'00				2'00		1	ML	
Kennet Bridge Jn		13:37:					0'30			DML	
Reading		13:37:					1'00		9	ML	
Reading High Level Jn		13:38:					5'30			ML	
Goring & Streatley		13:44:	1'00				4'00			ML	
Didcot Parkway		13:49:					4'30		1		
Wantage Road		13:53:					2'00				
Challow		13:55:					1'00				
Uffington		13:56:	1'00				5'30				
Swindon		14:03:				0'30	3'30		4		
Wootton Bassett Jn		14:07:					6'30				
Hullavington		14:13:	1'00				6'30				
Westerleigh Jn		14:21:		0'30		0'30	3'00				
Bristol Parkway	14:25:	14:27:		1'30			2'00	2'00	1		
Filton Abbey Wood		14:30:					0'30		1	ML	
Horfield Junction		14:31:	1'00	1'00			2'30			ML	
Dr Day's Jn		14:35:					1'00			ML	
Bristol East Jn		14:36:					1'30			DF	
Bristol Temple Meads	14:38:								8		

C.05 Flexed services for 1B77

1B20DA London Paddington to Cardiff Central - original service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Acton West		15:23:					2'00			ML	
Southall		15:25:					1'00		1	ML	
Heathrow Airport Jn		15:26:					3'30			ML	
Slough		15:30:					3'00		2	ML	
Maidenhead		15:33:					4'00		1	ML	
Twyford		15:37:	1'00				2'00		1	ML	
Kennet Bridge Jn		15:40:					1'00			DML	
Reading	15:41:	15:43:					1'00	2'00	9	ML	
Reading High Level Jn		15:44:					5'30			ML	
Goring & Streatley		15:49:	1'00				4'00			ML	
Didcot Parkway		15:54:					4'30		1		
Wantage Road		15:59:					2'00				
Challow		16:01:					1'00				
Uffington		16:02:	1'00				6'00				
Swindon	16:09:	16:11:				0'30	4'00	2'00	4		
Wootton Bassett Jn		16:15:					6'30				
Hullavington		16:22:	1'00				6'30				
Westerleigh Jn		16:29:					3'00				
Bristol Parkway	16:32:	16:35:					1'30	2'30	2		
Patchway		16:36:		1'30			2'30		2		
Pilning		16:40:					1'00		2		
Severn Tunnel East		16:41:					3'30				
Severn Tunnel West		16:45:					1'00				
Severn Tunnel Junction		16:46:					5'00		3	ML	
Llanwern West Junction		16:51:	1'00				2'00			ML	
Maindee West Jn		16:54:					1'00			ML	
Newport (South Wales)	16:55:	16:57:					2'30	2'00	2	ML	
Ebbw Jn		16:59:					2'30			ML	
Marshfield		17:02:	1'00				4'00			ML	
Long Dyke Jn		17:07:				0'30	1'30			D	
Cardiff Central	17:09:								3		

1B20DA London Paddington to Cardiff Central - flexed service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Acton West		15:23:					2'00			ML	
Southall		15:25:					1'00		1	ML	
Heathrow Airport Jn		15:26:					3'30			ML	
Slough		15:30:					3'00		2	ML	
Maidenhead		15:33:					4'00		1	ML	
Twyford		15:37:	1'00				2'00		1	ML	
Kennet Bridge Jn		15:40:					1'00			DML	
Reading	15:41:	15:43:					1'00	2'00	9	ML	
Reading High Level Jn		15:44:		0'30			5'30			ML	
Goring & Streatley		15:50:	1'00				4'00			ML	
Didcot Parkway		15:55:		1'30			4'30		1		
Wantage Road		16:01:					2'00				
Challow		16:03:					1'00				
Uffington		16:04:	1'00	1'00			6'00				
Swindon	16:12:	16:14:				0'30	4'00	2'00	4		
Wootton Bassett Jn		16:18:					6'30				
Hullavington		16:25:	1'00				6'30				
Westerleigh Jn		16:32:					3'00				
Bristol Parkway	16:35:	16:37:					1'30	1'30	2		
Patchway		16:38:					2'30		2		
Pilning		16:41:					1'00		2		
Severn Tunnel East		16:42:					3'30				
Severn Tunnel West		16:45:					1'00				
Severn Tunnel Junction		16:46:					5'00		3	ML	
Llanwern West Junction		16:51:	1'00				2'00			ML	
Maindee West Jn		16:54:					1'00			ML	
Newport (South Wales)	16:55:	16:57:					2'30	2'00	2	ML	
Ebbw Jn		17:00:					2'30			ML	
Marshfield		17:02:	1'00				4'00			ML	
Long Dyke Jn		17:07:					1'30			D	
Cardiff Central	17:09:								3		

6V96DA Banbury Reservoir Tarmac to Bristol East Depot - original service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Banbury Reservoir Tarmac		12:16:					5'00				
Reservoir Neck	12:21:	12:25:					2'00	4'00			
Banbury Down Goods Loop	12:27:	12:55:					2'30	28'00			
Banbury		12:57:					5'00		1		
Aynho Jn		13:02:					6'00				
Heyford		13:08:					9'00		1		
Wolvercote Jn		13:17:					5'00			URL	
Oxford North Jn.	13:22:	13:43:					3'00	20'30		UML	
Oxford		13:46:					3'00		3		
Oxford Up & Dn Passenger	13:49:	14:25:					3'00	36'30			
Kennington Jn		14:28:		1'00		0'30	7'00				
Didcot North Jn		14:37:		1'00			2'30				
Foxhall Jn	14:40:	14:43:					3'30	2'30		ML	
Milton Jn		14:46:					3'00			GL	
Steventon	14:49:	15:28:					5'30	38'30			
Wantage Road		15:33:					4'00			ML	
Challow		15:37:					2'30				
Uffington		15:40:					12'30				
Highworth Jn		15:52:	1'00				3'00			GL	
Swindon East Loop	15:56:	16:12:					2'00	15'30			
Swindon		16:14:					6'30		4		
Wootton Bassett Jn		16:20:					11'00				
Chippenham		16:31:					1'00		1		
Thingley East Junction		16:32:					1'00				
Thingley Jn		16:33:	2'00				8'30				
Bathampton Jn		16:44:					2'30				
Bath Spa		16:46:				0'30	12'00		1		
Bristol East Depot DBC	16:59:										

6V96DA Banbury Reservoir Tarmac to Bristol East Depot - flexed service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Banbury Reservoir Tarmac		12:16:					5'00				
Reservoir Neck	12:21:	12:25:					2'00	4'00			
Banbury Down Goods Loop	12:27:	12:55:					2'30	28'00			
Banbury		12:57:					5'00		1		
Aynho Jn		13:02:					6'00				
Heyford		13:08:					9'00		1		
Wolvercote Jn		13:17:					5'00			URL	
Oxford North Jn.	13:22:	13:43:					3'00	20'30		UML	
Oxford		13:46:					3'00		3		
Oxford Up & Dn Passenger	13:49:	14:25:					3'00	36'30			
Kennington Jn		14:28:		1'00		0'30	7'00				
Didcot North Jn		14:37:		1'00			2'30				
Foxhall Jn	14:40:	14:43:					3'30	2'30		ML	
Milton Jn		14:46:					3'00			GL	
Steventon	14:49:	15:28:					5'30	38'30			
Wantage Road		15:33:					4'00			ML	
Challow		15:37:					2'30				
Uffington		15:40:					12'30				
Highworth Jn		15:52:	1'00				3'00			GL	
Swindon East Loop	15:56:	16:16:					2'00	19'30			
Swindon		16:18:					6'30		4		
Wootton Bassett Jn		16:24:					11'00				
Chippenham		16:35:					1'00		1		
Thingley East Junction		16:36:					1'00				
Thingley Jn		16:37:	1'00				8'30				
Bathampton Jn		16:47:					2'30				
Bath Spa		16:49:				0'30	12'00		1		
Bristol East Depot DBC	17:02:										

6B11DB Willesden SWS to East Usk Yard FHH - original service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Twyford		13:46:	1'00				4'30		3	RL	
Kennet Bridge Jn		13:51:		2'30			2'00			DRL	
Reading	13:56:	13:59:					3'00	3'00	12	RL	
Reading West Jn		14:02:					7'30			RL	
Goring & Streatley		14:09:	1'00	1'00			8'00			RL	
Didcot East Jn		14:19:					0'30			RL	
Didcot Parkway		14:20:					1'30		3	RL	
Foxhall Jn	14:21:	14:29:		1'00			8'00	7'30		ML	
Wantage Road		14:38:		5'00			5'00			RL	
Challow	14:48:	15:32:					4'00	44'00			
Uffington		15:36:	1'00				11'30				
Swindon		15:48:					6'30		4		
Wootton Bassett Jn		15:55:					12'30				
Hullavington	16:07:	16:25:					14'30	18'00			
Westerleigh Jn		16:40:					5'30				
Bristol Parkway	16:45:	16:47:		1'00			2'30	2'00	2		
Patchway		16:51:		3'30			3'30		2		
Pilning		16:58:					1'30		2		
Severn Tunnel East		16:59:					5'30				
Severn Tunnel West		17:05:				0'30	1'30				
Severn Tunnel Junction		17:07:					11'00		3	RL	
Llanwern West Junction		17:18:					2'00			RL	
East Usk Jn.		17:20:					5'00			RL	
East Usk Yard (FHH)	17:25:										

6B11DB Willesden SWS to East Usk Yard FHH - original service

6B11DB Willesden SWS to East Usk Yard FHH - flexed service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Twyford		13:46:	1'00				4'30		3	RL	
Kennet Bridge Jn		13:51:		2'30			2'00			DRL	
Reading	13:56:	13:59:					3'00	3'00	12	RL	
Reading West Jn		14:02:					7'30			RL	
Goring & Streatley		14:09:	1'00	1'00			8'00			RL	
Didcot East Jn		14:19:					0'30			RL	
Didcot Parkway		14:20:					1'30		3	RL	
Foxhall Jn	14:21:	14:29:		1'00			8'00	7'30		ML	
Wantage Road		14:38:		5'00			5'00			RL	
Challow	14:48:	15:32:					4'00	44'00			
Uffington		15:36:	1'00				11'30				
Swindon		15:48:					6'30		4		
Wootton Bassett Jn		15:55:					12'30				
Hullavington	16:07:	16:27:					14'30	20'00			
Westerleigh Jn		16:42:		2'00			5'30				
Bristol Parkway	16:49:	17:12:					2'30	22'30	DGL		
Patchway		17:14:					3'30		2		
Pilning		17:18:		0'30			1'30		2		
Severn Tunnel East		17:20:					5'30				
Severn Tunnel West		17:25:				0'30	1'30				
Severn Tunnel Junction		17:27:		0'30			11'00		3	RL	
Llanwern West Junction		17:39:					2'00			RL	
East Usk Jn.		17:41:					5'00			RL	
East Usk Yard (FHH)	17:46:										

4V22DC Fiddlers Ferry Station to Stoke Gifford FHH - original service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Tram Inn		14:00:					5'00				
Pontrilas		14:05:					11'00				
Abergavenny		14:16:					7'00				
Little Mill Jn		14:23:	1'00	4'00			14'00				
Maindee North Jn		14:42:		8'00			2'00				
Maindee East Jn		14:52:				0'30	3'00			RL	
Llanwern West Junction		14:55:		0'30			11'00			RL	
Severn Tunnel Junction		15:07:					1'00		4		
Severn Tunnel West		15:08:					4'30				
Severn Tunnel East		15:12:					1'30				
Pilning		15:14:	1'00				4'30		1		
Patchway		15:19:					2'30		1		
Bristol Parkway	15:22:	15:37:		0'30			6'00	15'30	UPL		
Westerleigh Jn		15:44:				1'30	4'00				
Chipping Sodbury	15:49:	16:30:					3'30	41'00			
Westerleigh Jn		16:34:				1'30	4'30				
Bristol Parkway	16:40:	16:42:					3'00	2'00	DGL		
Stoke Gifford Sig B589	16:45:	16:47:					5'00	2'00			
Stoke Gifford FHH	16:52:										

4V22DC Fiddlers Ferry Station to Stoke Gifford FHH - flexed service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Tram Inn		14:00:					5'00				
Pontrilas		14:05:					11'00				
Abergavenny		14:16:					7'00				
Little Mill Jn		14:23:	1'00	4'00			14'00				
Maindee North Jn		14:42:		8'00			2'00				
Maindee East Jn		14:52:				0'30	3'00			RL	
Llanwern West Junction		14:55:		0'30			11'00			RL	
Severn Tunnel Junction		15:07:					1'00		4		
Severn Tunnel West		15:08:					4'30				
Severn Tunnel East		15:12:					1'30				
Pilning		15:14:	1'00				4'30		1		
Patchway		15:19:					2'30		1		
Bristol Parkway	15:22:	15:37:		0'30			6'00	15'30	UPL		
Westerleigh Jn		15:44:				1'30	4'00				
Chipping Sodbury	15:49:	16:30:		1'00			3'30	41'00			
Westerleigh Jn		16:35:				1'30	4'30				
Bristol Parkway	16:41:	16:43:					3'00	2'00	DGL		
Stoke Gifford Sig B589	16:46:	16:48:					5'00	2'00			
Stoke Gifford FHH	16:53:										

1H33DA London Paddington to Bristol Temple Meads - original service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
London Paddington		15:15:					1'00		6	2	
Royal Oak Junction		15:16:				0'30	1'00			2	
Portobello Jn (London)		15:17:					0'30			2	
Ladbroke Grove		15:18:					2'30			ML	
Acton West		15:20:					2'00			ML	
Southall		15:22:					1'00		1	ML	
Heathrow Airport Jn		15:23:					3'30			ML	
Slough		15:27:					3'00		2	ML	
Maidenhead		15:30:					4'00		1	ML	
Twyford		15:34:	1'00				2'00		1	ML	
Kennet Bridge Jn		15:37:					0'30			DML	
Reading		15:37:					1'00		9	ML	
Reading High Level Jn		15:38:					5'30			ML	
Goring & Streatley		15:44:	1'00				4'00			ML	
Didcot Parkway		15:49:					4'30		1		
Wantage Road		15:53:					2'00				
Challow		15:55:					1'00				
Uffington		15:56:	1'00	1'00			5'30				
Swindon		16:04:				0'30	3'30		4		
Wootton Bassett Jn		16:08:					6'30				
Hullavington		16:14:	1'00				6'30				
Westerleigh Jn		16:22:				0'30	3'00				
Bristol Parkway	16:25:	16:28:					2'00	2'30	2		
Filton Abbey Wood		16:30:					0'30		1	ML	
Horfield Junction		16:30:	1'00				2'30			ML	
Dr Day's Jn		16:34:					1'00			ML	
Bristol East Jn		16:35:					2'00			DF	
Bristol Temple Meads	16:37:								7		

OFFICIAL

1H33DA London Paddington to Bristol Temple Meads - flexed service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
London Paddington		15:15:					1'00		5	2	
Royal Oak Junction		15:16:				0'30	1'00			2	
Portobello Jn (London)		15:17:					0'30			2	
Ladbroke Grove		15:18:					2'30			ML	
Acton West		15:20:					2'00			ML	
Southall		15:22:					1'00		1	ML	
Heathrow Airport Jn		15:23:					3'30			ML	
Slough		15:27:					3'00		2	ML	
Maidenhead		15:30:					4'00		1	ML	
Twyford		15:34:	1'00				2'00		1	ML	
Kennet Bridge Jn		15:37:		1'00			0'30			DML	
Reading		15:38:					1'00		9	ML	
Reading High Level Jn		15:39:		0'30			5'30			ML	
Goring & Streatley		15:45:	1'00	0'30			4'00			ML	
Didcot Parkway		15:51:		0'30			4'30		1		
Wantage Road		15:56:					2'00				
Challow		15:58:		0'30			1'00				
Uffington		15:59:	1'00	2'00			5'30				
Swindon		16:08:				0'30	3'30		4		
Wootton Bassett Jn		16:12:					6'30				
Hullavington		16:18:	1'00				6'30				
Westerleigh Jn		16:26:					3'00				
Bristol Parkway	16:29:	16:30:					2'00	1'30	1		
Filton Abbey Wood		16:32:					0'30		1	ML	
Horfield Junction		16:33:					1'00			ML	
Narroways Hill Junction		16:34:	1'00				1'30			ML	
Dr Day's Jn		16:36:					1'00			ML	
Bristol East Jn		16:37:					1'30			DF	
Bristol Temple Meads	16:39:								7		

2U22DA Taunton to Cardiff Central - original service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Taunton		15:15:				0'30	5'00		6		
Cogload Jn		15:20:					5'00				
Bridgwater	15:25:	15:26:					6'30	1'00			
Highbridge & Burnham	15:33:	15:34:					7'00	1'00			
Uphill Jn		15:41:					2'30				
Weston-super-Mare	15:43:	15:49:					3'00	5'30	2		
Worle Jn		15:52:					1'30				
Worle	15:53:	15:54:					5'00	1'00			
Yatton	15:59:	16:00:					5'00	1'00			
Nailsea & Backwell	16:05:	16:06:					6'30	1'00			
Parson Street		16:13:	1'00				2'00		2	RL	
Bristol West Jn.		16:16:					1'00			UR	
Bristol Temple Meads	16:17:	16:26:					1'00	9'00	3	UDR	
Bristol East Jn		16:27:					0'30			RL	
Dr Day's Jn		16:27:					1'30			RL	
Narroways Hill Junction		16:29:					2'00			RL	
Horfield Junction		16:31:					1'30			RL	
Filton Abbey Wood	16:32:	16:35:		1'30			3'30	3'00	4		
Patchway	16:40:	16:41:					4'00	1'00	2		
Pilning		16:45:					1'00		2		
Severn Tunnel East		16:46:					3'30				
Severn Tunnel West		16:50:					1'30				
Severn Tunnel Junction	16:51:	16:52:					6'30	1'00	3	ML	
Llanwern West Junction		16:59:	1'00				2'00			ML	
Maindee West Jn		17:02:					1'00			ML	
Newport (South Wales)	17:03:	17:05:					2'00	2'00	2	ML	
Gaer Jn		17:07:					1'30			ML	
Ebbw Jn		17:08:					2'30			ML	
Marshfield		17:11:	1'00				4'30			ML	
Long Dyke Jn		17:16:					1'30			E	
Cardiff Central	17:18:								4B		

2U22DA Taunton to Cardiff Central - flexed service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Taunton		15:15:				0'30	5'00		6		
Cogload Jn		15:20:					5'00				
Bridgwater	15:25:	15:26:					6'30	1'00			
Highbridge & Burnham	15:33:	15:34:					7'00	1'00			
Uphill Jn		15:41:					2'30				
Weston-super-Mare	15:43:	15:49:					3'00	5'30	2		
Worle Jn		15:52:					1'30				
Worle	15:53:	15:54:					5'00	1'00			
Yatton	15:59:	16:00:					5'00	1'00			
Nailsea & Backwell	16:05:	16:06:					6'30	1'00			
Parson Street		16:13:	1'00				2'00		2	RL	
Bristol West Jn.		16:16:					1'00			UR	
Bristol Temple Meads	16:17:	16:26:					1'00	9'00	3	UDR	
Bristol East Jn		16:27:					0'30			RL	
Dr Day's Jn		16:27:					1'30			RL	
Narroways Hill Junction		16:29:					2'00			RL	
Horfield Junction		16:31:					1'30			RL	
Filton Abbey Wood	16:32:	16:35:		1'30			3'30	3'00	4		
Patchway	16:40:	16:42:					4'00	1'30	2		
Pilning		16:46:					1'00		2		
Severn Tunnel East		16:47:					3'30				
Severn Tunnel West		16:50:					1'30				
Severn Tunnel Junction	16:52:	16:53:					6'30	1'00	3	ML	
Llanwern West Junction		16:59:	1'00				2'00			ML	
Maindee West Jn		17:02:					1'00			ML	
Newport (South Wales)	17:03:	17:05:					2'00	2'00	2	ML	
Gaer Jn		17:07:					1'30			ML	
Ebbw Jn		17:09:					2'30			ML	
Marshfield		17:11:	1'00				4'30			ML	
Long Dyke Jn		17:17:				0'30	1'30			E	
Cardiff Central	17:19:								4B		

6C37DA Westbury Tarmac Colas Tail to Aberthaw Tarmac Colas Rail - original service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Westbury Tarmac Colas Rail		15:24:					3'00				
Heywood Road Jn		15:27:		2'30			2'00				
Hawkeridge Jn		15:31:					7'00				
Bradford Jn		15:38:	1'00	4'00			12'00				
Bathampton Jn		15:55:		2'00		1'00	2'30				
Bath Spa		16:01:				1'00	11'00		1		
North Somerset Jn		16:13:				1'30	2'00				
Dr Day's Jn		16:16:					2'00			RL	
Narroways Hill Junction		16:18:					2'00			RL	
Horfield Junction		16:20:		0'30			1'00			RL	
Filton Abbey Wood		16:22:	2'00			0'30	2'00		2		
Patchway		16:26:				1'00	7'30		2		
Pilning	16:35:	17:18:		1'00			2'00	43'00			
Severn Tunnel East		17:21:					5'30				
Severn Tunnel West		17:26:					1'00				
Severn Tunnel Junction		17:27:	1'00	2'00			11'00		3	RL	
Llanwern West Junction		17:41:					2'00			RL	
East Usk Jn.		17:43:					5'00				
East Usk Jn.N.Y.	17:48:	18:38:					4'00	49'30		RL	
Maindee East Jn		18:42:					1'00			RL	
Maindee West Jn		18:43:	1'00				1'30			RL	
Newport (South Wales)		18:45:	2'00				2'30		DRL	RL	
Ebbw Jn		18:50:		1'00			4'00			RL	
Marshfield		18:55:	1'00	6'00			8'30			RL	
Long Dyke Jn		19:10:		2'30			1'00			E	
Cardiff Central		19:14:					3'30		4		
Penarth Curve South Jn		19:17:		3'00			4'00				
Cogan Jn		19:24:		0'30			7'00				
Cadoxton		19:32:	1'00				5'00				
Barry		19:38:		2'00			10'00		2		
Aberthaw	19:50:	20:10:					9'00	20'00			
Aberthaw Tarmac Colas Rail	20:19:										

6C37DA Westbury Tarmac Colas Tail to Aberthaw Tarmac Colas Rail - flexed service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Westbury Tarmac Colas Rail		15:24:					3'00				
Heywood Road Jn		15:27:		2'30			2'00				
Hawkeridge Jn		15:31:					7'00				
Bradford Jn		15:38:	1'00	4'00			12'00				
Bathampton Jn		15:55:		2'00		1'00	2'30				
Bath Spa		16:01:				1'00	11'00		1		
North Somerset Jn		16:13:				1'30	3'00				
Dr Day's Jn	16:17:	16:43:					4'30	26'00		RL	
Narroways Hill Junction		16:48:					2'00			RL	
Horfield Junction		16:50:					1'00			RL	
Filton Abbey Wood		16:51:	2'00			0'30	2'00		2		
Patchway		16:55:				1'00	7'30		2		
Pilning	17:04:	17:51:					2'00	47'00	DGL		
Severn Tunnel East		17:53:					5'30				
Severn Tunnel West		17:58:					1'00				
Severn Tunnel Junction		17:59:	1'00				11'00		3	RL	
Llanwern West Junction		18:11:					2'00			RL	
East Usk Jn.		18:13:					5'00				
East Usk Jn.N.Y.	18:18:	18:38:					4'00	19'30		RL	
Maindee East Jn		18:42:					1'00			RL	
Maindee West Jn		18:43:	1'00				1'30			RL	
Newport (South Wales)		18:45:	2'00				2'30		DRL	RL	
Ebbw Jn		18:50:		1'00			4'00			RL	
Marshfield		18:55:	1'00	6'00			8'30			RL	
Long Dyke Jn		19:10:		2'30			1'00			E	
Cardiff Central		19:14:					3'30		4		
Penarth Curve South Jn		19:17:		3'00			4'00				
Cogan Jn		19:24:		0'30			7'00				
Cadoxton		19:32:	1'00				5'00				
Barry		19:38:		2'00			10'00		2		
Aberthaw	19:50:	20:10:					9'00	20'00			
Aberthaw Tarmac Colas Rail	20:19:										

4V29DA Oxford Banbury Road Sidings to Tytherington - original service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Oxford Banbury Road Sdgs		14:50:					1'00				
Oxford Parkway		14:51:					1'00		1		
Woodstock Road Junction		14:52:					1'30				
Oxford North Jn.		14:53:					2'30			UML	
Oxford		14:56:					5'00		TL		
Kennington Goods Loop	15:01:	15:24:				1'00	0'30	23'30			
Kennington Jn		15:26:		3'30			5'30				
Didcot North Jn		15:35:					2'30				
Foxhall Jn	15:37:	15:58:					7'30	20'30		ML	
Wantage Road		16:05:					3'00			ML	
Challow		16:08:					2'00				
Uffington		16:10:	1'00				10'00				
Swindon		16:21:				1'00	6'00		4		
Wootton Bassett Jn		16:28:					10'30				
Hullavington	16:39:	16:54:					13'00	15'30	DGL		
Westerleigh Jn		17:07:					4'30				
Bristol Parkway	17:12:	17:59:					6'00	47'30	1		
Westerleigh Jn		18:05:					3'00				
Yate		18:08:					3'00				
Yate Middle	18:11:	18:21:				0'30	30'00	10'00			
Tytherington	18:52:										

4V29DA Oxford Banbury Road Sidings to Tytherington - flexed service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Oxford Banbury Road Sdgs		14:50:					1'00				
Oxford Parkway		14:51:					1'00		1		
Woodstock Road Junction		14:52:					1'30				
Oxford North Jn.		14:53:					2'30			UML	
Oxford		14:56:					5'00		TL		
Kennington Goods Loop	15:01:	15:24:				1'00	0'30	23'30			
Kennington Jn		15:26:		3'30			5'30				
Didcot North Jn		15:35:					2'30				
Foxhall Jn	15:37:	15:58:					7'30	20'30		ML	
Wantage Road		16:05:					3'00			ML	
Challow		16:08:					2'00				
Uffington		16:10:	1'00	0'30			10'00				
Swindon		16:22:				1'00	6'00		4		
Wootton Bassett Jn		16:29:					10'30				
Hullavington	16:39:	16:54:					13'00	15'00	DGL		
Westerleigh Jn		17:07:					4'30				
Bristol Parkway	17:12:	17:59:					6'00	47'30	1		
Westerleigh Jn		18:05:					3'00				
Yate		18:08:					3'00				
Yate Middle	18:11:	18:21:				0'30	30'00	10'00			
Tytherington	18:52:										

1C20DA London Paddington to Bristol Temple Meads - original service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
London Paddington		15:32:					1'00		4	2	
Royal Oak Junction		15:33:				0'30	1'00			2	
Portobello Jn (London)		15:34:					0'30			2	
Ladbroke Grove		15:35:					2'30			ML	
Acton West		15:37:					2'00			ML	
Southall		15:39:					1'00		1	ML	
Heathrow Airport Jn		15:40:					3'30			ML	
Slough		15:44:					3'00		2	ML	
Maidenhead		15:47:					4'00		1	ML	
Twyford		15:51:	1'00				2'00		1	ML	
Kennet Bridge Jn		15:54:					1'00			DML	
Reading	15:55:	15:58:					1'00	3'30	9	ML	
Reading High Level Jn		15:59:					5'30			ML	
Goring & Streatley		16:05:	1'00				5'00			ML	
Didcot Parkway	16:11:	16:12:					6'00	1'30	1		
Wantage Road		16:18:					2'00				
Challow		16:20:					1'00				
Uffington		16:21:	1'00				6'00				
Swindon	16:28:	16:30:					4'00	2'00	4		
Wootton Bassett Jn		16:34:					6'00				
Chippenham	16:40:	16:42:					2'00	1'30	1		
Thingley East Junction		16:44:					0'30				
Thingley Jn		16:44:	1'00				4'30				
Bathampton Jn		16:50:					3'00				
Bath Spa	16:53:	16:56:	1'00				8'30	3'00	1		
North Somerset Jn		17:05:					0'30				
Bristol East Jn		17:06:				0'30	1'30			DM	
Bristol Temple Meads	17:08:								13		

1C20DA London Paddington to Bristol Temple Meads - flexed service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
London Paddington		15:32:					1'00		4	2	
Royal Oak Junction		15:33:				0'30	1'00			2	
Portobello Jn (London)		15:34:					0'30			2	
Ladbroke Grove		15:35:					2'30			ML	
Acton West		15:37:					2'00			ML	
Southall		15:39:					1'00		1	ML	
Heathrow Airport Jn		15:40:					3'30			ML	
Slough		15:44:					3'00		2	ML	
Maidenhead		15:47:					4'00		1	ML	
Twyford		15:51:	1'00				2'00		1	ML	
Kennet Bridge Jn		15:54:					1'00			DML	
Reading	15:55:	15:58:					1'00	3'30	9	ML	
Reading High Level Jn		15:59:					5'30			ML	
Goring & Streatley		16:05:	1'00				5'00			ML	
Didcot Parkway	16:11:	16:12:					6'00	1'30	1		
Wantage Road		16:18:					2'00				
Challow		16:20:					1'00				
Uffington		16:21:	1'00				6'00				
Swindon	16:28:	16:30:					4'00	2'00	4		
Wootton Bassett Jn		16:34:					6'00				
Chippenham	16:40:	16:42:					2'00	1'30	1		
Thingley East Junction		16:44:					0'30				
Thingley Jn		16:44:	1'00	1'00			4'30				
Bathampton Jn		16:51:					3'00				
Bath Spa	16:54:	16:56:	1'00				8'30	2'00	1		
North Somerset Jn		17:05:					0'30				
Bristol East Jn		17:06:				0'30	1'30			DM	
Bristol Temple Meads	17:08:								13		

1C20DA London Paddington to Bristol Temple Meads - flexed service

2F24DB Ebbw Vale Town to Cardiff Central - original service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Ebbw Vale Town		10:37:					2'30				
Ebbw Vale Parkway	10:39:	10:40:					8'00	0'30			
Llanhilleth	10:48:	10:48:					5'30	0'30			
Newbridge (Ebbw Vale)	10:54:	10:54:					6'00	0'30			
Crosskeys Jcn		11:00:					1'00				
Cross Keys	11:01:	11:02:					4'30	1'00			
Risca & Pontymister	11:07:	11:07:					2'00	0'30			
Risca South Jcn		11:09:					1'00				
Rogerstone	11:10:	11:11:					3'00	1'00			
Pye Corner	11:14:	11:15:				0'30	1'30	0'30			
Park North Jcn		11:17:					1'30				
Park Jn		11:18:					3'00				
Ebbw Jn		11:21:					2'30			ML	
Marshfield		11:24:	1'00				5'00			ML	
Long Dyke Jn		11:30:		1'00		0'30	1'30			D	
Cardiff Central	11:33:								3		

2F24DB Ebbw Vale Town to Cardiff Central – flexed service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Ebbw Vale Town		10:38:					2'30				
Ebbw Vale Parkway	10:40:	10:41:					8'00	0'30			
Llanhilleth	10:49:	10:49:					5'30	0'30			
Newbridge (Ebbw Vale)	10:55:	10:55:					6'00	0'30			
Crosskeys Jcn		11:01:					1'00				
Cross Keys	11:02:	11:03:					4'30	1'00			
Risca & Pontymister	11:08:	11:08:					2'00	0'30			
Risca South Jcn		11:10:					1'00				
Rogerstone	11:11:	11:12:					3'00	1'00			
Pye Corner	11:15:	11:16:				0'30	1'30	0'30			
Park North Jcn		11:18:					1'30				
Park Jn		11:19:					3'00				
Ebbw Jn		11:22:					2'30			ML	
Marshfield		11:25:	1'00				5'00			ML	
Long Dyke Jn		11:31:				0'30	1'30			D	
Cardiff Central	11:33:								3		

2C83DA Cardiff Central to Taunton - original service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Cardiff Central		16:00:					1'30		1	B	
Long Dyke Jn		16:01:					5'30			ML	
Marshfield		16:07:					2'30			ML	
Ebbw Jn		16:09:					2'30			ML	
Newport (South Wales)	16:12:	16:14:					1'00	2'00	4	ML	
Maindee West Jn		16:15:					2'00			ML	
Llanwern West Junction		16:17:					6'30			ML	
Severn Tunnel Junction	16:23:	16:24:					2'00	1'00	4		
Severn Tunnel West		16:26:					4'00				
Severn Tunnel East		16:30:					1'00				
Pilning		16:31:	1'00	1'30			4'00		1		
Patchway	16:38:	16:39:					3'00	1'00	1		
Filton Abbey Wood	16:42:	16:43:					1'30	1'00	3	RL	
Horfield Junction		16:44:	1'00				1'30			RL	
Narroways Hill Junction		16:47:					1'30			RL	
Dr Day's Jn		16:48:					1'00			RL	
Bristol East Jn		16:49:					1'00			UDR	
Bristol Temple Meads	16:50:	16:52:					1'00	2'00	4	DM	
Bristol West Jn.		16:53:					1'30				
Bedminster	16:55:	16:56:					2'00	1'00			
Parson Street	16:58:	16:58:					6'30	0'30	1		
Nailsea & Backwell	17:05:	17:06:					4'30	1'00			
Yatton	17:10:	17:11:					5'00	1'00			
Worle	17:16:	17:17:	1'00				2'00	1'00			
Worle Jn		17:20:					1'30				
Weston Milton	17:22:	17:23:					3'00	1'00			
Weston-super-Mare	17:26:	17:30:					3'00	4'00	1		
Uphill Jn		17:33:					7'00				
Highbridge & Burnham	17:40:	17:41:					6'30	1'00			
Bridgwater	17:47:	17:48:					6'30	1'00			
Cogload Jn		17:55:	1'00				4'00				
Taunton	18:00:								3		

2C83DA Cardiff Central to Taunton - flexed service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Cardiff Central		16:00:					1'30		1	B	
Long Dyke Jn		16:01:					5'30			ML	
Marshfield		16:07:					2'30			ML	
Ebbw Jn		16:09:					2'30			ML	
Newport (South Wales)	16:12:	16:14:					1'00	2'00	4	ML	
Maindee West Jn		16:15:					2'00			ML	
Llanwern West Junction		16:17:					6'30			ML	
Severn Tunnel Junction	16:23:	16:24:					2'00	1'00	4		
Severn Tunnel West		16:26:					4'00				
Severn Tunnel East		16:30:					1'00				
Pilning		16:31:	1'00				4'00		1		
Patchway	16:36:	16:40:					3'00	4'00	1		
Filton Abbey Wood	16:43:	16:44:					1'30	1'00	3	RL	
Horfield Junction		16:46:	1'00				1'30			RL	
Narroways Hill Junction		16:48:					1'30			RL	
Dr Day's Jn		16:50:					1'00			RL	
Bristol East Jn		16:51:					1'00			UDR	
Bristol Temple Meads	16:52:	16:54:					1'00	2'00	4	DM	
Bristol West Jn.		16:55:					1'30				
Bedminster	16:56:	16:57:					2'00	1'00			
Parson Street	16:59:	17:00:					6'30	0'30	1		
Nailsea & Backwell	17:06:	17:07:					4'30	1'00			
Yatton	17:12:	17:13:					5'00	1'00			
Worle	17:18:	17:19:	1'00				2'00	1'00			
Worle Jn		17:22:					1'30				
Weston Milton	17:23:	17:24:					3'00	1'00			
Weston-super-Mare	17:27:	17:31:					3'00	3'30	1		
Uphill Jn		17:34:					7'00				
Highbridge & Burnham	17:41:	17:42:					6'30	1'00			
Bridgwater	17:48:	17:49:					6'30	1'00			
Cogload Jn		17:56:	1'00				4'00				
Taunton	18:01:								3		

1V59DC Manchester Piccadilly to Paignton - original service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Gloucester Yard Jn		16:33:					4'00				
Standish Jn		16:37:					8'00				
Charfield		16:45:					4'00				
Yate		16:49:		3'30			2'00				
Westerleigh Jn		16:54:				1'00	3'30				
Bristol Parkway	16:59:	17:00:					2'00	1'30	1		
Filton Abbey Wood		17:02:					1'00		1	ML	
Horfield Junction		17:03:	1'00				2'30			ML	
Dr Day's Jn		17:07:					1'00			ML	
Bristol East Jn		17:08:					1'00			UM	
Bristol Temple Meads	17:09:	17:12:		1'00			1'00	3'00	12	DM	
Bristol West Jn.		17:14:					11'00				
Worle Jn		17:25:					2'00				
Uphill Jn		17:27:					7'30				
Bridgwater		17:34:					4'30				
Cogload Jn		17:39:					3'30				
Taunton	17:42:	17:44:					2'00	1'30	3		
Norton Fitzwarren		17:46:					5'30				
Whiteball		17:51:					3'00				
Tiverton Parkway	17:54:	17:56:					2'00	1'30	1		
Tiverton Loop		17:58:	1'00				8'30				
Cowley Bridge Jn		18:07:					2'00				
Exeter St. David's	18:09:	18:11:					8'30	2'00	4		
Dawlish Warren		18:20:					2'00				
Dawlish	18:22:	18:23:					3'30	1'30			
Teignmouth	18:27:	18:28:					5'30	1'30			
Newton Abbot	18:34:	18:35:					1'00	1'30	1		
Newton Abbot West Junction		18:36:					8'00				
Torquay	18:44:	18:46:	1'00			0'30	4'00	2'00			
Paignton	18:52:								1		

1V59DC Manchester Piccadilly to Paignton - flexed service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Gloucester Yard Jn		16:33:					4'00				
Standish Jn		16:37:					8'00				
Charfield		16:45:					4'00				
Yate		16:49:		3'30			2'00				
Westerleigh Jn		16:54:				1'00	3'30				
Bristol Parkway	16:59:	17:00:					2'00	1'30	1		
Filton Abbey Wood		17:02:					1'00		1	ML	
Horfield Junction		17:03:	1'00				2'30			ML	
Dr Day's Jn		17:07:					1'00			ML	
Bristol East Jn		17:08:					1'00			UM	
Bristol Temple Meads	17:09:	17:12:		1'00			1'00	3'00	12	DM	
Bristol West Jn.		17:14:		1'00			11'00				
Worle Jn		17:26:					2'00				
Uphill Jn		17:28:					7'30				
Bridgwater		17:35:					4'30				
Cogload Jn		17:40:					3'30				
Taunton	17:43:	17:45:					2'00	1'30	3		
Norton Fitzwarren		17:47:					5'30				
Whiteball		17:52:					3'00				
Tiverton Parkway	17:55:	17:57:					2'00	1'30	1		
Tiverton Loop		17:59:	1'00				8'30				
Cowley Bridge Jn		18:08:					2'00				
Exeter St. David's	18:10:	18:12:					8'30	2'00	4		
Dawlish Warren		18:21:					2'00				
Dawlish	18:23:	18:24:					3'30	1'30			
Teignmouth	18:28:	18:29:					5'30	1'30			
Newton Abbot	18:35:	18:36:					1'00	1'30	1		
Newton Abbot West Junction		18:37:					8'00				
Torquay	18:45:	18:47:	1'00				4'00	1'30			
Paignton	18:52:								1		

2E29DA Paignton to Exeter St. David's - original service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Paignton		18:24:					4'00		2		
Torquay	18:28:	18:29:					2'00	1'00			
Torre	18:31:	18:32:					7'00	1'00	2		
Newton Abbot West Junction		18:39:					1'00				
Newton Abbot	18:40:	18:43:					6'00	3'30	3		
Teignmouth	18:49:	18:50:					4'00	1'00			
Dawlish	18:54:	18:55:					2'30	1'00			
Dawlish Warren		18:58:	1'00			0'30	9'30				
Exeter St. David's	19:09:								1		

2E29DA Paignton to Exeter St. David's - flexed service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Paignton		18:24:					4'00		2		
Torquay	18:28:	18:29:					2'00	1'00			
Torre	18:31:	18:32:		1'00			7'00	1'00	2		
Newton Abbot West Junction		18:40:					1'00				
Newton Abbot	18:41:	18:43:					6'00	2'30	3		
Teignmouth	18:49:	18:50:					4'00	1'00			
Dawlish	18:54:	18:55:					2'30	1'00			
Dawlish Warren		18:58:	1'00			0'30	9'30				
Exeter St. David's	19:09:								1		

1C88DA London Paddington to Penzance - original service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Newton Abbot West Junction		18:42:					3'30				
Dainton Tunnel		18:45:					5'30				
Totnes	18:51:	18:52:					9'30	1'30	1		
Aish Emergency Crossover		19:02:					4'00				
Ivybridge	19:06:	19:07:					5'30	1'30	1		
Hemerdon		19:13:	1'00				4'30				
Lipson Jn		19:18:					2'30				
Plymouth	19:21:	19:33:					4'30	12'00	5		
St. Budeaux Jn.		19:37:					3'30				
Saltash	19:41:	19:42:					5'30	1'30	1		
St. Germans	19:48:	19:49:					5'30	1'30	1		
Liskeard Sig DM260		19:55:					5'00				
Liskeard	20:00:	20:02:					5'00	2'00	1		
St. Pinnock Viaduct East		20:07:					1'00				
Largin		20:08:					4'30				
Bodmin Parkway	20:12:	20:14:					0'30	1'30			
Bodmin Sig LL1043		20:14:					3'00				
Lostwithiel		20:17:					5'00		2		
Par	20:22:	20:24:					5'30	1'30	1		
St. Austell	20:29:	20:31:					3'00	2'00			
Burngullow Jn		20:34:					6'30				
Probus		20:41:					5'30				
Truro	20:46:	20:48:					1'00	2'00	2		
Penwithers Jn		20:49:					2'30				
Baldhu		20:52:					6'30				
Redruth	20:58:	21:00:					5'00	1'30			
Camborne	21:05:	21:06:					5'30	1'30			
St Erth Sig R19		21:12:					3'00				
St. Erth	21:15:	21:16:	1'00				5'00	1'30	1		
Long Rock		21:22:					2'30				
Penzance	21:25:								2		

1C88DA London Paddington to Penzance - original service

OFFICIAL

1C88DA London Paddington to Penzance – flexed service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Newton Abbot West Junction		18:43:					3'30				
Dainton Tunnel		18:46:					5'30				
Totnes	18:52:	18:53:					9'30	1'30	1		
Aish Emergency Crossover		19:03:					4'00				
Ivybridge	19:07:	19:08:					5'30	1'30	1		
Hemerdon		19:14:	1'00				4'30				
Lipson Jn		19:19:					2'30				
Plymouth	19:22:	19:33:					4'30	11'00	5		
St. Budeaux Jn.		19:37:					3'30				
Saltash	19:41:	19:42:					5'30	1'30	1		
St. Germans	19:48:	19:49:					5'30	1'30	1		
Liskeard Sig DM260		19:55:					5'00				
Liskeard	20:00:	20:02:					5'00	2'00	1		
St. Pinnock Viaduct East		20:07:					1'00				
Largin		20:08:					4'30				
Bodmin Parkway	20:12:	20:14:					0'30	1'30			
Bodmin Sig LL1043		20:14:					3'00				
Lostwithiel		20:17:					5'00		2		
Par	20:22:	20:24:					5'30	1'30	1		
St. Austell	20:29:	20:31:					3'00	2'00			
Burngullow Jn		20:34:					6'30				
Probus		20:41:					5'30				
Truro	20:46:	20:48:					1'00	2'00	2		
Penwithers Jn		20:49:					2'30				
Baldhu		20:52:					6'30				
Redruth	20:58:	21:00:					5'00	1'30			
Camborne	21:05:	21:06:					5'30	1'30			
St Erth Sig R19		21:12:					3'00				
St. Erth	21:15:	21:16:	1'00				5'00	1'30	1		
Long Rock		21:22:					2'30				
Penzance	21:25:								2		

C.06 Flexed services for 1B80

1B25DA London Paddington to Swansea – original service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Reading		17:37:					1'00		9	ML	
Reading High Level Jn		17:38:					5'30			ML	
Goring & Streatley		17:44:	1'00				4'00			ML	
Didcot Parkway		17:49:					4'30		1		
Wantage Road		17:53:					2'00				
Challow		17:55:					1'00				
Uffington		17:56:	1'00	1'00			5'30				
Swindon		18:04:				0'30	3'30		4		
Wootton Bassett Jn		18:08:					6'30				
Hullavington		18:14:	1'00				6'30				
Westerleigh Jn		18:22:					3'00				
Bristol Parkway	18:25:	18:27:					1'30	2'00	2		
Patchway		18:28:					2'30		2		
Pilning		18:31:					1'00		2		
Severn Tunnel East		18:32:					3'30				
Severn Tunnel West		18:35:					1'00				
Severn Tunnel Junction		18:36:					5'00		3	ML	
Llanwern West Junction		18:41:	1'00				2'00			ML	
Maindee West Jn		18:44:					1'00			ML	
Newport (South Wales)	18:45:	18:47:					2'30	1'30	2	ML	
Ebbw Jn		18:49:					2'30			ML	
Marshfield		18:52:	1'00				4'00			ML	
Long Dyke Jn		18:57:					1'30			D	
Cardiff Central	18:58:	19:01:					2'00	3'00	3	D	
Leckwith Loop North Jn		19:03:					8'00				
Pontyclun		19:11:					7'30				
Bridgend	19:19:	19:20:					6'30	1'30	1		
Stormy		19:27:					2'30				
Margam Moors Jn.		19:29:					3'30				
Port Talbot Parkway	19:33:	19:34:					6'00	1'30			
Neath	19:40:	19:41:	1'00				9'00	1'00			
Swansea Loop East		19:51:					1'30				
Swansea	19:53:								2		

1B25DA London Paddington to Swansea – flexed service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Reading		17:37:		1'00			1'00		9	ML	
Reading High Level Jn		17:39:					5'30			ML	
Goring & Streatley		17:45:	1'00				4'00			ML	
Didcot Parkway		17:50:					4'30		1		
Wantage Road		17:54:					2'00				
Challow		17:56:					1'00				
Uffington		17:57:	1'00	2'00			5'30				
Swindon		18:06:		2'00		0'30	3'30		4		
Wootton Bassett Jn		18:12:					6'30				
Hullavington		18:18:	1'00	2'00			6'30				
Westerleigh Jn		18:28:					3'00				
Bristol Parkway	18:31:	18:33:					1'30	2'00	2		
Patchway		18:34:					2'30		2		
Pilning		18:37:					1'00		2		
Severn Tunnel East		18:38:					3'30				
Severn Tunnel West		18:41:					1'00				
Severn Tunnel Junction		18:42:					5'00		3	ML	
Llanwern West Junction		18:47:	1'00				2'00			ML	
Maindee West Jn		18:50:					1'00			ML	
Newport (South Wales)	18:51:	18:53:					2'30	1'30	2	ML	
Ebbw Jn		18:55:					2'30			ML	
Marshfield		18:58:	1'00				4'00			ML	
Long Dyke Jn		19:03:					1'30			D	
Cardiff Central	19:04:	19:07:					2'00	3'00	3	D	
Leckwith Loop North Jn		19:09:					8'00				
Pontyclun		19:17:					7'30				
Bridgend	19:25:	19:26:					6'30	1'30	1		
Stormy		19:33:					2'30				
Margam Moors Jn.		19:35:					3'30				
Port Talbot Parkway	19:39:	19:40:					6'00	1'30			
Neath	19:46:	19:47:	1'00				9'00	1'00			
Swansea Loop East		19:57:					1'30				
Swansea	19:59:								2		

C.07   Flexed services for 1B82

1B28DA London Paddington to Carmarthen – original service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
London Paddington		18:14:					1'00		2	2	
Royal Oak Junction		18:15:				0'30	1'00			2	
Portobello Jn (London)		18:16:					0'30			2	
Ladbroke Grove		18:17:					2'30			ML	
Acton West		18:19:					2'00			ML	
Southall		18:21:					1'00		1	ML	
Heathrow Airport Jn		18:22:					3'30			ML	
Slough		18:26:					3'00		2	ML	
Maidenhead		18:29:					4'00		1	ML	
Twyford		18:33:	1'00	0'30			2'00		1	ML	
Kennet Bridge Jn		18:36:					0'30			DML	
Reading		18:37:					1'00		9	ML	
Reading High Level Jn		18:38:					5'30			ML	
Goring & Streatley		18:43:	1'00				4'00			ML	
Didcot Parkway		18:48:					4'30		1		
Wantage Road		18:53:					2'00				
Challow		18:55:					1'00				
Uffington		18:56:	1'00	1'30			5'30				
Swindon		19:04:				0'30	3'30		4		
Wootton Bassett Jn		19:08:					6'30				
Hullavington		19:14:	1'00				6'30				
Westerleigh Jn		19:22:		1'00			3'00				
Bristol Parkway	19:26:	19:29:					1'30	3'30	2		
Patchway		19:31:					2'30		2		
Pilning		19:33:					1'00		2		
Severn Tunnel East		19:34:					3'30				
Severn Tunnel West		19:38:					1'00				
Severn Tunnel Junction		19:39:					5'00		3	ML	

OFFICIAL

1B28DA London Paddington to Carmarthen – flexed service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
London Paddington		18:13:					1'00		2	2	
Royal Oak Junction		18:14:				0'30	1'00			2	
Portobello Jn (London)		18:15:					0'30			2	
Ladbroke Grove		18:16:					2'30			ML	
Acton West		18:18:					2'00			ML	
Southall		18:20:					1'00		1	ML	
Heathrow Airport Jn		18:21:					3'30			ML	
Slough		18:25:					3'00		2	ML	
Maidenhead		18:28:					4'00		1	ML	
Twyford		18:32:	1'00	1'00			2'00		1	ML	
Kennet Bridge Jn		18:36:					0'30			DML	
Reading		18:36:					1'00		9	ML	
Reading High Level Jn		18:37:					5'30			ML	
Goring & Streatley		18:43:	1'00				4'00			ML	
Didcot Parkway		18:48:					4'30		1		
Wantage Road		18:52:					2'00				
Challow		18:54:					1'00				
Uffington		18:55:	1'00	2'00			5'30				
Swindon		19:04:				0'30	3'30		4		
Wootton Bassett Jn		19:08:					6'30				
Hullavington		19:14:	1'00				6'30				
Westerleigh Jn		19:22:		1'00			3'00				
Bristol Parkway	19:26:	19:29:					1'30	3'30	1		
Patchway		19:31:					2'30		2		
Pilning		19:33:					1'00		2		
Severn Tunnel East		19:34:					3'30				
Severn Tunnel West		19:38:					1'00				
Severn Tunnel Junction		19:39:					5'00		3	ML	

6C48DB Appleford Sidings to Whatley Quarry - original service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Appleford Sidings		17:10:					4'00				
Appleford L.C.		17:14:					2'00				
Didcot North Jn		17:16:					2'00				
Foxhall Jn		17:18:					3'00			RL	
Milton Jn	17:21:	17:28:					7'00	7'30		ML	
Wantage Road		17:35:					4'00			RL	
Challow	17:39:	18:20:		0'30			2'30	40'30			
Uffington		18:23:					11'00				
Highworth Jn		18:34:					3'00			GL	
Swindon East Loop	18:37:	19:05:	1'00				2'00	28'30			
Swindon		19:08:					6'30		4		
Wootton Bassett Jn		19:15:				0'30	11'00				
Chippenham		19:26:				0'30	1'00		1		
Thingley East Junction		19:28:				1'00	1'00				
Thingley Jn		19:30:	1'00				12'00				
Bradford Jn		19:43:					8'30				
Hawkeridge Jn		19:51:				0'30	3'00				
Westbury	19:55:	20:21:					3'00	26'30	DR		
Fairwood Jn		20:24:					4'00				
Clink Road Jn		20:28:					2'00				
Frome North		20:30:				0'30	17'00				
Whatley Quarry F Liner HH	20:48:										

6C48DB Appleford Sidings to Whatley Quarry - flexed service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Appleford Sidings		17:10:					4'00				
Appleford L.C.		17:14:					2'00				
Didcot North Jn		17:16:					2'00				
Foxhall Jn		17:18:					3'00			RL	
Milton Jn	17:21:	17:28:					7'00	7'30		ML	
Wantage Road		17:35:					4'00			RL	
Challow	17:39:	18:20:		0'30			2'30	40'30			
Uffington		18:23:					11'00				
Highworth Jn		18:34:					3'00			GL	
Swindon East Loop	18:37:	19:17:	1'00				2'00	40'00			
Swindon		19:20:					6'30		4		
Wootton Bassett Jn		19:26:				0'30	11'00				
Chippenham		19:38:				0'30	1'00		1		
Thingley East Junction		19:39:				1'00	1'00				
Thingley Jn		19:41:	1'00	1'00			12'00				
Bradford Jn		19:55:					8'30				
Hawkeridge Jn		20:04:				0'30	3'00				
Westbury	20:07:	20:21:					3'00	14'00	DR		
Fairwood Jn		20:24:					4'00				
Clink Road Jn		20:28:					2'00				
Frome North		20:30:				0'30	17'00				
Whatley Quarry F Liner HH	20:48:										

2L69DB Cheltenham spa to Maesteg - original service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Cheltenham Spa		18:45:	1'00			1'00	5'00		1		
Barnwood Jn		18:52:		2'00			1'00				
Horton Road Jn		18:55:				0'30	1'00				
Gloucester	18:56:	19:00:					12'30	4'00	2		
Awre		19:13:					5'30				
Lydney	19:18:	19:19:					8'30	1'00			
Chepstow	19:28:	19:29:					7'30	1'00			
Caldicot	19:36:	19:37:		3'00			2'00	1'00			
Severn Tunnel Junction	19:42:	19:43:					6'30	1'00	1	ML	
Llanwern West Junction		19:50:	1'00				2'00			ML	
Maindee West Jn		19:53:					1'00			ML	
Newport (South Wales)	19:54:	19:56:					2'30	2'00	2	ML	
Ebbw Jn		19:58:					2'30			ML	
Marshfield		20:01:	1'00				4'30			ML	
Long Dyke Jn		20:06:				0'30	1'30			C	
Cardiff Central	20:08:	20:15:					3'00	6'30	2	D	
Leckwith Loop North Jn		20:18:					8'30				
Pontyclun	20:26:	20:27:					4'00	1'00			
Llanharan	20:31:	20:32:					3'30	0'30			
Pencoed	20:35:	20:36:					4'30	1'00			
Bridgend	20:41:	20:42:					2'00	1'30	1		
Wildmill	20:44:	20:45:					2'30	0'30			
Sarn	20:47:	20:48:					2'30	0'30			
Tondu	20:50:	20:51:				0'30	7'00	1'00			
Garth (Mid-Glamorgan)	20:59:	20:59:					2'30	0'30			
Maesteg (Ewenny Road)	21:02:	21:02:				0'30	2'00	0'30			
Maesteg	21:05:										

2L69DB Cheltenham spa to Maesteg - flexed service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Cheltenham Spa		18:45:	1'00			1'00	5'00		1		
Barnwood Jn		18:52:		2'00			1'00				
Horton Road Jn		18:55:				0'30	1'00				
Gloucester	18:56:	19:00:					12'30	4'00	2		
Awre		19:13:					5'30				
Lydney	19:18:	19:19:					8'30	1'00			
Chepstow	19:28:	19:29:					7'30	1'00			
Caldicot	19:36:	19:37:		3'00			2'00	1'00			
Severn Tunnel Junction	19:42:	19:47:					6'30	4'30	1	ML	
Llanwern West Junction		19:53:	1'00				2'00			ML	
Maindee West Jn		19:56:					1'00			ML	
Newport (South Wales)	19:57:	19:59:					2'30	2'00	2	ML	
Ebbw Jn		20:02:					2'30			ML	
Marshfield		20:04:	1'00				4'30			ML	
Long Dyke Jn		20:10:				0'30	1'30			C	
Cardiff Central	20:12:	20:15:					3'00	3'00	2	D	
Leckwith Loop North Jn		20:18:					8'30				
Pontyclun	20:26:	20:27:					4'00	1'00			
Llanharan	20:31:	20:32:					3'30	0'30			
Pencoed	20:35:	20:36:					4'30	1'00			
Bridgend	20:41:	20:42:					2'00	1'30	1		
Wildmill	20:44:	20:45:					2'30	0'30			
Sarn	20:47:	20:48:					2'30	0'30			
Tondu	20:50:	20:51:				0'30	7'00	1'00			
Garth (Mid-Glamorgan)	20:59:	20:59:					2'30	0'30			
Maesteg (Ewenny Road)	21:02:	21:02:				0'30	2'00	0'30			
Maesteg	21:05:										

2L69DB Cheltenham spa to Maesteg - flexed service

1B29DA London Paddington to Cardiff Central - original service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Reading	18:41:	18:43:					1'00	2'00	9	ML	
Reading High Level Jn		18:44:					5'30			ML	
Goring & Streatley		18:50:	1'00				5'00			ML	
Didcot Parkway	18:56:	18:58:					6'00	2'00	1		
Wantage Road		19:04:					2'00				
Challow		19:06:					1'00				
Uffington		19:07:	1'00				6'00				
Swindon	19:14:	19:16:				0'30	4'00	2'00	4		
Wootton Bassett Jn		19:20:					6'30				
Hullavington		19:27:	1'00				6'30				
Westerleigh Jn		19:34:					3'00				
Bristol Parkway	19:37:	19:40:					1'30	2'30	2		
Patchway		19:41:					2'30		2		
Pilning		19:44:					1'00		2		
Severn Tunnel East		19:45:					3'30				
Severn Tunnel West		19:48:					1'00				
Severn Tunnel Junction		19:49:					5'00		3	ML	
Llanwern West Junction		19:54:	1'00				2'00			ML	
Maindee West Jn		19:57:		0'30			1'00			ML	
Newport (South Wales)	19:59:	20:01:					2'30	2'00	2	ML	
Ebbw Jn		20:03:					2'30			ML	
Marshfield		20:06:	1'00				4'00			ML	
Long Dyke Jn		20:11:				0'30	1'30			D	
Cardiff Central	20:13:								3		

1B29DA London Paddington to Cardiff Central - flexed service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Reading	18:41:	18:43:					1'00	2'00	9	ML	
Reading High Level Jn		18:44:					5'30			ML	
Goring & Streatley		18:50:	1'00				5'00			ML	
Didcot Parkway	18:56:	18:58:					6'00	2'00	1		
Wantage Road		19:04:					2'00				
Challow		19:06:					1'00				
Uffington		19:07:	1'00				6'00				
Swindon	19:14:	19:16:				0'30	4'00	2'00	4		
Wootton Bassett Jn		19:20:					6'30				
Hullavington		19:27:	1'00				6'30				
Westerleigh Jn		19:34:		0'30			3'00				
Bristol Parkway	19:38:	19:40:					1'30	2'00	2		
Patchway		19:41:					2'30		2		
Pilning		19:44:					1'00		2		
Severn Tunnel East		19:45:					3'30				
Severn Tunnel West		19:48:		1'30			1'00				
Severn Tunnel Junction		19:51:		1'30			5'00		3	ML	
Llanwern West Junction		19:57:	1'00	0'30			2'00			ML	
Maindee West Jn		20:01:		0'30			1'00			ML	
Newport (South Wales)	20:02:	20:04:					2'30	1'30	2	ML	
Ebbw Jn		20:06:					2'30			ML	
Marshfield		20:09:	1'00				4'00			ML	
Long Dyke Jn		20:14:				0'30	1'30			D	
Cardiff Central	20:16:								3		

1V64DB Edinburgh to Plymouth - original service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Ashchurch		18:43:	1'00				5'30		2		
Cheltenham Spa	18:50:	18:52:				1'00	5'00	2'00	1		
Barnwood Jn		18:58:					1'30				
Horton Road Jn		18:59:					1'00				
Gloucester	19:00:	19:07:					1'00	7'00	4		
Horton Road Jn		19:08:					1'30				
Gloucester Yard Jn		19:10:				0'30	4'00				
Standish Jn		19:14:					8'00				
Charfield		19:22:					4'00				
Yate		19:26:					2'00				
Westerleigh Jn		19:28:				0'30	4'00				
Bristol Parkway	19:33:	19:36:					2'00	3'00	1		
Filton Abbey Wood		19:38:					1'00		1	ML	
Horfield Junction		19:39:	1'00				2'30			ML	
Dr Day's Jn		19:42:					1'00			ML	
Bristol East Jn		19:43:					1'30			DF	
Bristol Temple Meads	19:45:	19:48:					1'00	3'00	10	DM	
Bristol West Jn.		19:49:					11'30				
Worle Jn		20:00:					2'00				
Uphill Jn		20:02:					7'30				
Bridgwater		20:10:					4'30				
Cogload Jn		20:14:					4'00				
Taunton	20:18:	20:20:					2'30	1'30	2		

1V64DB Edinburgh to Plymouth - flexed service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Ashchurch		18:43:	1'00				5'30		2		
Cheltenham Spa	18:50:	18:52:				1'00	5'00	2'00	1		
Barnwood Jn		18:58:					1'30				
Horton Road Jn		18:59:					1'00				
Gloucester	19:00:	19:07:					1'00	7'00	4		
Horton Road Jn		19:08:					1'30				
Gloucester Yard Jn		19:10:				0'30	4'00				
Standish Jn		19:14:					8'00				
Charfield		19:22:					4'00				
Yate		19:26:					2'00				
Westerleigh Jn		19:28:		1'00		0'30	4'00				
Bristol Parkway	19:34:	19:36:					2'00	2'00	1		
Filton Abbey Wood		19:38:					1'00		1	ML	
Horfield Junction		19:39:	1'00				2'30			ML	
Dr Day's Jn		19:42:					1'00			ML	
Bristol East Jn		19:43:					1'30			DF	
Bristol Temple Meads	19:45:	19:48:					1'00	3'00	10	DM	
Bristol West Jn.		19:49:					11'30				
Worle Jn		20:00:					2'00				
Uphill Jn		20:02:					7'30				
Bridgwater		20:10:					4'30				
Cogload Jn		20:14:					4'00				
Taunton	20:18:	20:20:					2'30	1'30	2		

4M36EC Cardiff Wentloog IFT to Daventry DRS - original service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Cardiff Wentloog IFT		18:58:					4'00			RL	
Marshfield		19:02:	2'00				4'00			RL	
Ebbw Jn		19:08:					3'00			RL	
Newport (South Wales)		19:11:				0'30	1'30		URL	RL	
Maindee West Jn		19:13:		5'00			4'00			RL	
Llanwern West Junction		19:22:	2'00	10'0			11'00			RL	
Severn Tunnel Junction		19:45:		0'30		0'30	7'30		2		
Chepstow		19:53:		1'00			9'00				
Lydney		20:03:	1'00			1'00	5'30				
Awre		20:11:	1'00	3'30		1'00	14'00				
Gloucester		20:30:					0'30		URL		
Horton Road Jn		20:31:		1'00			1'00				
Barnwood Jn		20:33:		3'30			5'30				
Cheltenham Spa		20:42:					7'30		2		
Ashchurch		20:49:				1'00	10'00		1		
Abbotswood Jn		21:00:	1'00				2'00				
Norton Jn		21:03:					5'00				
Wylds Lane Jn		21:08:					4'00				
Worcester T.C.	21:12:	21:26:					4'00	13'30			
Worcester Tun Jn Sig 58		21:30:					1'00				
Tunnel Jn		21:31:				3'00	7'00				
Droitwich Spa		21:41:					7'30				
Hartlebury		21:48:					3'30				

4M36EC Cardiff Wentloog IFT to Daventry DRS - flexed service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Cardiff Wentloog IFT		18:58:					4'00			RL	
Marshfield		19:02:	2'00				4'00			RL	
Ebbw Jn		19:08:					3'00			RL	
Newport (South Wales)		19:11:				0'30	1'30		URL	RL	
Maindee West Jn		19:13:		5'00			4'00			RL	
Llanwern West Junction		19:22:	2'00	0'30			11'00			RL	
Severn Tunnel Junction		19:35:		10'0		0'30	7'30		2		
Chepstow		19:53:		1'00			9'00				
Lydney		20:03:	1'00			1'00	5'30				
Awre		20:11:	1'00	3'30		1'00	14'00				
Gloucester		20:30:					0'30		URL		
Horton Road Jn		20:31:		1'00			1'00				
Barnwood Jn		20:33:		3'30			5'30				
Cheltenham Spa		20:42:					7'30		2		
Ashchurch		20:49:				1'00	10'00		1		
Abbotswood Jn		21:00:	1'00				2'00				
Norton Jn		21:03:					5'00				
Wylds Lane Jn		21:08:					4'00				
Worcester T.C.	21:12:	21:26:					4'00	13'30			
Worcester Tun Jn Sig 58		21:30:					1'00				
Tunnel Jn		21:31:				3'00	7'00				
Droitwich Spa		21:41:					7'30				
Hartlebury		21:48:					3'30				

2M23DA Westbury to Swindon - original service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Westbury		18:39:					5'30		3		
Trowbridge	18:44:	18:45:				1'00	2'00	1'00			
Bradford Jn		18:48:					5'30				
Melksham	18:54:	18:55:					5'30	1'00			
Thingley Jn		19:00:					1'00			DM	
Thingley East Junction		19:01:				0'30	2'00				
Chippenham	19:04:	19:05:					9'00	1'00	2		
Wootton Bassett Jn		19:14:	1'00				6'00				
Swindon	19:21:								2		

2M23DA Westbury to Swindon - flexed service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Westbury		18:39:					5'30		3		
Trowbridge	18:44:	18:45:				1'00	2'00	1'00			
Bradford Jn		18:48:					5'30				
Melksham	18:54:	18:55:					5'30	1'00			
Thingley Jn		19:00:					1'00			DM	
Thingley East Junction		19:01:				0'30	2'00				
Chippenham	19:04:	19:06:					9'00	2'00	2		
Wootton Bassett Jn		19:15:	1'00				6'00				
Swindon	19:22:								2		

C.08   Flexed services for 1B84

1V62DC Manchester Piccadilly to Carmarthen - original service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Maindee West Jn		21:49:				1'00	1'00			ML	
Newport (South Wales)	21:51:	21:56:					2'30	5'30	2	ML	
Ebbw Jn		21:59:					2'30			ML	
Marshfield		22:01:	1'00				4'30			ML	
Long Dyke Jn		22:07:					1'30			D	
Cardiff Central	22:08:	22:18:					2'00	9'30	3A	D	
Leckwith Loop North Jn		22:20:					10'00				
Pontyclun	22:30:	22:30:					4'00	0'30			
Llanharan	22:34:	22:35:					3'30	1'00			
Pencoed	22:39:	22:39:					4'30	0'30			
Bridgend	22:44:	22:45:					4'30	1'00	1		
Stormy		22:49:		2'00			2'30				
Margam Moors Jn.		22:54:					3'30				
Port Talbot Parkway	22:57:	22:58:					5'00	1'00			
Court Sart Jn		23:03:					2'00				
Dynevor Jn		23:05:					4'30				
Felin Fran		23:10:					11'30				
Morlais Jn		23:21:					4'00				
Llandeilo Jn		23:25:					1'30				
Llanelli	23:27:	23:29:					5'00	2'00	DPL		
Pembrey & Burry Port	23:34:	23:34:					5'30	0'30			
Kidwelly	23:40:	23:40:					5'00	0'30			
Ferryside	23:45:	23:46:	2'00				7'30	0'30			
Carmarthen Jn		23:55:				0'30	2'00				
Carmarthen	23:58:								2		

1V62DC Manchester Piccadilly to Carmarthen - flexed service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Maindee West Jn		21:51:				1'00	1'00			ML	
Newport (South Wales)	21:53:	21:56:					2'30	3'00	2	ML	
Ebbw Jn		21:59:					2'30			ML	
Marshfield		22:01:	1'00				4'30			ML	
Long Dyke Jn		22:07:					1'30			D	
Cardiff Central	22:08:	22:18:					2'00	9'30	3A	D	
Leckwith Loop North Jn		22:20:					10'00				
Pontyclun	22:30:	22:30:					4'00	0'30			
Llanharan	22:34:	22:35:					3'30	1'00			
Pencoed	22:39:	22:39:					4'30	0'30			
Bridgend	22:44:	22:45:					4'30	1'00	1		
Stormy		22:49:		2'00			2'30				
Margam Moors Jn.		22:54:					3'30				
Port Talbot Parkway	22:57:	22:58:					5'00	1'00			
Court Sart Jn		23:03:					2'00				
Dynevor Jn		23:05:					4'30				
Felin Fran		23:10:					11'30				
Morlais Jn		23:21:					4'00				
Llandeilo Jn		23:25:					1'30				
Llanelli	23:27:	23:29:					5'00	2'00	DPL		
Pembrey & Burry Port	23:34:	23:34:					5'30	0'30			
Kidwelly	23:40:	23:40:					5'00	0'30			
Ferryside	23:45:	23:46:	2'00				7'30	0'30			
Carmarthen Jn		23:55:				0'30	2'00				
Carmarthen	23:58:								2		

5D79DA Didcot Parkway to Swindon Cocklebury – original service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Didcot Parkway		20+10					1'00		3	RL	
Foxhall Jn		20:11:					1'30			RL	
Milton Jn	20:12:	20:27:					7'00	14'30		ML	
Wantage Road		20:34:					4'30			RL	
Challow	20:38:	20:53:					2'30	14'30			
Uffington		20:55:	1'00			1'00	8'30				
Swindon	21:06:	21:13:				15'0	25'00	7'00	3		
Swindon Cocklebury	21+53										

5D79DA Didcot Parkway to Swindon Cocklebury – flexed service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Didcot Parkway		20+10					1'00		3	RL	
Foxhall Jn		20:11:					1'30			RL	
Milton Jn	20:12:	20:27:					7'00	14'30		ML	
Wantage Road		20:34:					4'30			RL	
Challow	20:38:	20:58:		0'30			2'30	19'30			
Uffington		21:01:	1'00	0'30		1'00	8'30				
Swindon	21:12:	21:19:				15'0	25'00	7'00	3		
Swindon Cocklebury	21+59										

6C65DA Hayes & Harlington Tarmac Sidings to East Usk Yard – original service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Goring & Streatley		20:15:	1'00	1'30			8'00			RL	
Didcot East Jn		20:26:					0'30			RL	
Didcot Parkway		20:26:		0'30			1'00		3	RL	
Foxhall Jn		20:28:		1'00			2'30			RL	
Milton Jn	20:31:	20:50:		1'00			7'00	18'30		ML	
Wantage Road		20:58:					4'00			ML	
Challow		21:02:					2'30				
Uffington		21:04:					11'30				
Swindon		21:16:	1'00				6'30		4		
Wootton Bassett Jn		21:23:					12'30				
Hullavington	21:36:	21:55:		8'30		1'00	14'30	19'00			
Westerleigh Jn		22:19:		1'00		1'30	4'30				
Bristol Parkway		22:26:		1'00			1'30		2		
Patchway		22:28:					7'30		2		
Pilning	22:36:	22:53:					2'00	17'30			
Severn Tunnel East		22:55:					5'30				
Severn Tunnel West		23:01:					1'30				
Severn Tunnel Junction		23:02:					11'00		3	RL	
Llanwern West Junction		23:13:					2'00			RL	
East Usk Jn.		23:15:				0'30	5'00			RL	
East Usk Yard (FHH)	23:21:										

6C65DA Hayes & Harlington Tarmac Sidings to East Usk Yard – flexed service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Goring & Streatley		20:15:	1'00	1'30			8'00			RL	
Didcot East Jn		20:26:					0'30			RL	
Didcot Parkway		20:26:		0'30			1'00		3	RL	
Foxhall Jn		20:28:		1'00			2'30			RL	
Milton Jn	20:31:	20:55:					7'00	23'30		ML	
Wantage Road		21:02:					4'00			ML	
Challow		21:06:					2'30				
Uffington		21:08:					11'30				
Swindon		21:20:	1'00				6'30		4		
Wootton Bassett Jn		21:27:					12'30				
Hullavington	21:40:	21:55:		8'30		1'00	14'30	15'00			
Westerleigh Jn		22:19:		1'00		1'30	4'30				
Bristol Parkway		22:26:		1'00			1'30		2		
Patchway		22:28:					7'30		2		
Pilning	22:36:	22:53:					2'00	17'30			
Severn Tunnel East		22:55:					5'30				
Severn Tunnel West		23:01:					1'30				
Severn Tunnel Junction		23:02:					11'00		3	RL	
Llanwern West Junction		23:13:					2'00			RL	
East Usk Jn.		23:15:				0'30	5'00			RL	
East Usk Yard (FHH)	23:21:										

6C65DB Hayes & Harlington Tarmac Sidings to East Usk Yard – original service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Heathrow Airport Jn		19:27:					7'30			RL	
Slough		19:35:		4'00			6'00		4	RL	
Maidenhead		19:45:					7'00		4	RL	
Twyford		19:52:				1'30	4'30		3	RL	
Kennet Bridge Jn		19:58:	1'00			1'00	1'30			DRL	
Reading		20:01:				0'30	2'00		12	RL	
Reading West Jn		20:04:		4'00			7'30			RL	
Goring & Streatley		20:15:	1'00	1'30			8'00			RL	
Didcot East Jn		20:26:					0'30			RL	
Didcot Parkway		20:26:		0'30			1'00		3	RL	
Foxhall Jn		20:28:		1'00			2'30			RL	
Milton Jn	20:31:	20:50:		1'00			7'00	18'30		ML	
Wantage Road		20:58:					4'00			ML	
Challow		21:02:					2'30				
Uffington		21:04:					11'30				
Swindon		21:16:	1'00				6'30		4		
Wootton Bassett Jn		21:23:					12'30				
Hullavington	21:36:	21:55:		8'30		1'00	14'30	19'00			
Westerleigh Jn		22:19:		1'30			5'30				
Bristol Parkway	22:26:	22:28:					3'00	2'00	DGL		
Bristol Parkway Sig BL6586	22:31:	22:33:					5'00	2'00			
Stoke Gifford FHH	22:38:										

6C65DB Hayes & Harlington Tarmac Sidings to East Usk Yard – original service

6C65DB Hayes & Harlington Tarmac Sidings to East Usk Yard – flexed service

Location	Arr	Dep	Eng	Path	Perf	SRT adj	Running time	Dwell	Platform	Line	Path Code
Heathrow Airport Jn		19:27:					7'30			RL	
Slough		19:35:		4'00			6'00		4	RL	
Maidenhead		19:45:					7'00		4	RL	
Twyford		19:52:				1'30	4'30		3	RL	
Kennet Bridge Jn		19:58:	1'00			1'00	1'30			DRL	
Reading		20:01:				0'30	2'00		12	RL	
Reading West Jn		20:04:		4'00			7'30			RL	
Goring & Streatley		20:15:	1'00	1'30			8'00			RL	
Didcot East Jn		20:26:					0'30			RL	
Didcot Parkway		20:26:		0'30			1'00		3	RL	
Foxhall Jn		20:28:		1'00			2'30			RL	
Milton Jn	20:31:	20:55:					7'00	23'30		ML	
Wantage Road		21:02:					4'00			ML	
Challow		21:06:					2'30				
Uffington		21:08:					11'30				
Swindon		21:20:	1'00				6'30		4		
Wootton Bassett Jn		21:27:					12'30				
Hullavington	21:40:	21:55:		8'30		1'00	14'30	15'00			
Westerleigh Jn		22:19:		1'30			5'30				
Bristol Parkway	22:26:	22:28:					3'00	2'00		DGL	
Bristol Parkway Sig BL6586	22:31:	22:33:					5'00	2'00			
Stoke Gifford FHH	22:38:										

6C65DB Hayes & Harlington Tarmac Sidings to East Usk Yard – flexed service

Part D: Appendix D - F3 Prints

D.01 1L73 07:34 Cardiff Central to London Paddington

Location	Location Name	Working Times		Public Times		Dwell	Activity	Line		Allowances				Public Offsets	
		Arr	Dep	Arr	Dep			Plat	Line	Eng	pth	prf	Adj	Arr	Dep
CRDFCEN	Cardiff Central		07.34		07.34		TB	2 Up	B				½		
LNGDYKJ	Long Dyke Jn		07/36			/			ML						
MSHFILD	Marshfield		07/40			/			ML						
EBBWJ	Ebbw Jn		07/42½			/			ML		2½				
NWPTRTG	Newport (South Wales)	07.47	07.49	07.47	07.49	2:00	T	4 Up	ML						
MAINDWJ	Maindee West Jn		07/50			/			ML						
LWERWJN	Llanwern West Junction		07/52			/			ML		2½				
SEVTNLJ	Severn Tunnel Junction	08.01	08.03	08.01	08.03	2:00	T	4 Up					½		
SEVTNLW	Severn Tunnel West		08/05			/									
SEVTNLE	Severn Tunnel East		08/08½			/									
PILNING	Pilning		08/09½			/			1 Up		1				
PATCHWY	Patchway		08/13			/			1 Up			2			
BRSTPWY	Bristol Parkway	08a16½	08.20	08.17	08.20	3:30	T	3 Up					½		
WSTLGHJ	Westerleigh Jn		08/24			/									
HLVNGTN	Hullavington		08/30½			/									
WTNBSTJ	Wootton Bassett Jn		08/37			/					1			½	
SDON	Swindon		08/42			/			UML Up						
UFNGTN	Uffington		08/47½			/									
CHALLOW	Challow		08/49			/									
WANTRD	Wantage Road		08/50½			/					1	1			
DIDCOTP	Didcot Parkway		08/56			/			2 Up	ML		½			
GORASTR	Goring & Streatley		09/00½			/				ML	1	½			
RDNGHLJ	Reading High Level Jn		09/06½			/				ML		1			
RDNGSTN	Reading		09/08½			/			10 Up	ML					
RDNGKBJ	Kennet Bridge Jn		09/09½			/				ML					
TWYFORD	Twyford		09/12½			/			2 Up	ML					
MDNHEAD	Maidenhead		09/16			/			2 Up	ML					
SLOUGH	Slough		09/19			/			3 Up	ML		1			
STKYJN	Stockley Junction		09/23			/				ML					
HTRWAJN	Heathrow Airport Jn		09/23½			/				ML		½			
STHALL	Southall		09/25			/			2 Up	ML		1½			

ACTONW	Acton West		09/28			/			ML	1					
LDBRKJ	Ladbroke Grove		09/31½			/			3						
PRTOBJP	Portobello Jn (London)		09/32			/			3						
ROYAOJN	Royal Oak Junction		09/33			/									
PADTON	London Paddington	09.34		09.34		TF	3 Bay								

D.02 1B70 09:58 London Paddington to Cardiff Central

Location	Location Name	Working Times		Public Times		Dwell	Activity	Line		Allowances				Public Offsets	
		Arr	Dep	Arr	Dep			Plat	Line	Eng	pth	prf	Adj	Arr	Dep
PADTON	London Paddington		09.58		09.58		TB	3 Bay Down	2				½		
ROYAOJN	Royal Oak Junction		09/59½			/			2						
PRTOBJP	Portobello Jn (London)		10/00½			/			2						
LDBRKJ	Ladbroke Grove		10/01			/			ML						
ACTONW	Acton West		10/03½			/			ML						
STHALL	Southall		10/05½			/		1 Down	ML						
HTRWAJN	Heathrow Airport Jn		10/06½			/			ML						
SLOUGH	Slough		10/10			/		2 Down	ML						
MDNHEAD	Maidenhead		10/13			/		1 Down	ML						
TWYFORD	Twyford		10/17			/		1 Down	ML	1	1				
RDNGKBJ	Kennet Bridge Jn		10/21			/			DML		½				
RDNGSTN	Reading		10/22			/		9 Down	ML		½			-1:00	
RDNGHLJ	Reading High Level Jn		10/23½			/			ML		½				
GORASTR	Goring & Streatley		10/29½			/			ML	1	1½				
DIDCOTP	Didcot Parkway		10/36			/		1 Down						-1:00	
WANTRD	Wantage Road		10/39½			/									
CHALLOW	Challow		10/41½			/									
UFNGTN	Uffington		10/42½			/				1					
SDON	Swindon		10/49			/		4 Down					1	-1:00	
WTNBSTJ	Wootton Bassett Jn		10/53½			/									
HLVNGTN	Hullavington		11/00			/				1					
WSTLGHJ	Westerleigh Jn		11/07½			/									
BRSTPWY	Bristol Parkway	11a10½	11.12	11.11	11.12	1:30	T	2 Down			½		½		
PATCHWY	Patchway		11/14½			/		2 Down			2				
PILNING	Pilning		11/19			/		2 Down							
SEVTNLE	Severn Tunnel East		11/20			/									

SEVTNLW	Severn Tunnel West		11/23½			/								½	
SEVTNLJ	Severn Tunnel Junction	11.25	11p26½	11.25	11.26	1:30	T	3 Down	ML				½	
LWERWJN	Llanwern West Junction		11/32½			/			ML	1				
MAINDWJ	Maindee West Jn		11/35½			/			ML	1				
NWPTRTG	Newport (South Wales)	11a37½	11.39	11.38	11.39	1:30	T	2 Down	ML					
EBBWJ	Ebbw Jn		11/41½			/			ML					
MSHFILD	Marshfield		11/44			/			ML	1				
LNGDYKJ	Long Dyke Jn		11/49			/			D					
CRDFCEN	Cardiff Central	11a51½		11.52			TF	3						

D.03 1L75 09:31 Cardiff Central to London Paddington

Location	Location Name	Working Times		Public Times		Dwell	Activity	Line		Allowances				Public Offsets	
		Arr	Dep	Arr	Dep			Plat	Line	Eng	pth	prf	Adj	Arr	Dep
CRDFCEN	Cardiff Central		09.31		09.31		TB	1 Up	B				½		
LNGDYKJ	Long Dyke Jn		09/33			/			ML		1				
MSHFILD	Marshfield		09/38			/			ML		1				
EBBWJ	Ebbw Jn		09/41½			/			ML		1½				
NWPTRTG	Newport (South Wales)	09.45	09.50	09.45	09.50	5:00	T	3 Up	ML						
MAINDWJ	Maindee West Jn		09/51			/			ML						
LWERWJN	Llanwern West Junction		09/53			/			ML						
SEVTNLJ	Severn Tunnel Junction	09a59½	10.01	10.00	10.01	1:30	T	4 Up					½		
SEVTNLW	Severn Tunnel West		10/03			/									
SEVTNLE	Severn Tunnel East		10/06½			/									
PILNING	Pilning		10/07½			/			1 Up		1				
PATCHWY	Patchway		10/11			/			1 Up						
BRSTPWY	Bristol Parkway	10a12½	10.14	10.13	10.14	1:30	T	3 Up			½		½		
WSTLGHJ	Westerleigh Jn		10/18½			/									
HLVNGTN	Hullavington		10/25			/									

Location	Location Name	Arr	Dep	Arr	Dep	Dwell	Activity	Plat	Line	Eng	pth	prf	Adj	Arr	Dep
WTNBSTJ	Wootton Bassett Jn		10/31½				/			1			½		
SDON	Swindon		10/36½				/	1 Up							
UFNGTN	Uffington		10/42				/								
CHALLOW	Challow		10/43½				/								
WANTRD	Wantage Road		10/45				/			1					
DIDCOTP	Didcot Parkway		10/49½				/	2 Up	ML						
GORASTR	Goring & Streatley		10/53½				/		ML	1					
RDNGHLJ	Reading High Level Jn		10/59				/		ML						
RDNGSTN	Reading		11/00				/	10 Up	UML						
RDNGKBJ	Kennet Bridge Jn		11/01				/		ML						
TWYFORD	Twyford		11/04				/	2 Up	ML						
MDNHEAD	Maidenhead		11/07½				/	2 Up	ML		2				
SLOUGH	Slough		11/12½				/	3 Up	ML		½				
STKYJN	Stockley Junction		11/16				/		ML						
HTRWAJN	Heathrow Airport Jn		11/16½				/		ML						
STHALL	Southall		11/17½				/	2 Up	ML		½				
ACTONW	Acton West		11/19½				/		ML	1					
LDBRKJ	Ladbroke Grove		11/23				/		3		½				
PRTOBJP	Portobello Jn (London)		11/24				/		3						
ROYAOJN	Royal Oak Junction		11/25				/								
PADTON	London Paddington	11.26		11.26			TF	9 Bay							

D.04 1B72 11:57:30 London Paddington to Cardiff Central

Location	Location Name	Working Times		Public Times		Dwell	Activity	Line		Allowances				Public Offsets	
		Arr	Dep	Arr	Dep			Plat	Line	Eng	pth	prf	Adj	Arr	Dep
PADTON	London Paddington		11p57½		11.57		TB	9 Bay Down	3				½		
ROYAOJN	Royal Oak Junction		11/59			/			2						
PRTOBJP	Portobello Jn (London)		12/00			/			2						
LDBRKJ	Ladbroke Grove		12/00½			/			ML						
ACTONW	Acton West		12/03			/			ML						
STHALL	Southall		12/05			/		1 Down	ML		½				
HTRWAJN	Heathrow Airport Jn		12/06½			/			ML						
SLOUGH	Slough		12/10			/		2 Down	ML						
MDNHEAD	Maidenhead		12/13			/		1 Down	ML						
TWYFORD	Twyford		12/17			/		1 Down	ML	1					
RDNGKBJ	Kennet Bridge Jn		12/20			/			DML		½				

Code	Name													
RDNGSTN	Reading		12/21			/		9 Down	ML		½		-1:00	
RDNGHLJ	Reading High Level Jn		12/22½			/			ML	1				
GORASTR	Goring & Streatley		12/29			/			ML	1	1½			
DIDCOTP	Didcot Parkway		12/35½			/		1 Down					-1:00	
WANTRD	Wantage Road		12/39			/								
CHALLOW	Challow		12/41			/								
UFNGTN	Uffington		12/42			/				1	½			
SDON	Swindon		12/49			/		4 Down				½	-1:00	
WTNBSTJ	Wootton Bassett Jn		12/53			/								
HLVNGTN	Hullavington		12/59½			/				1				
WSTLGHJ	Westerleigh Jn		13/07			/								
BRSTPWY	Bristol Parkway	13.10	13.12	13.10	13.12	2:00	T	2 Down			½	½		
PATCHWY	Patchway		13/14½			/		2 Down			1			
PILNING	Pilning		13/18			/		2 Down			1			
SEVTNLE	Severn Tunnel East		13/20			/								
SEVTNLW	Severn Tunnel West		13/23½			/								
SEVTNLJ	Severn Tunnel Junction	13.25	13p26½	13.25	13.26	1:30	T	3 Down	ML			½		
LWERWJN	Llanwern West Junction		13/32½			/			ML	1				
MAINDWJ	Maindee West Jn		13/35½			/			ML					
NWPTRTG	Newport (South Wales)	13a36½	13.38	13.37	13.38	1:30	T	2 Down	ML					
EBBWJ	Ebbw Jn		13/40½			/			ML					
MSHFILD	Marshfield		13/43			/			ML	1	6			
LNGDYKJ	Long Dyke Jn		13/54			/			D					
CRDFCEN	Cardiff Central	13a56½		13.57			TF	3						

D.05 1L77 10:38 Cardiff Central to London Paddington

Location	Location Name	Working Times		Public Times		Dwell	Activity	Line		Allowances				Public Offsets	
		Arr	Dep	Arr	Dep			Plat	Line	Eng	pth	prf	Adj	Arr	Dep
CRDFCEN	Cardiff Central		10.38		10.38		TB	1 Up	B				½		
LNGDYKJ	Long Dyke Jn		10/40			/			ML						
MSHFILD	Marshfield		10/44			/			ML						
EBBWJ	Ebbw Jn		10/46½			/			ML						
NWPTRTG	Newport (South Wales)	10a48½	10.50	10.49	10.50	1:30	T	3 Up	ML						
MAINDWJ	Maindee West Jn		10/51			/			ML						
LWERWJN	Llanwern West Junction		10/53			/			ML						
SEVTNLJ	Severn Tunnel Junction	10a59½	11.01	11.00	11.01	1:30	T	4 Up					½		
SEVTNLW	Severn Tunnel West		11/03			/									
SEVTNLE	Severn Tunnel East		11/06½			/									
PILNING	Pilning		11/07½			/			1 Up		1				
PATCHWY	Patchway		11/11			/			1 Up						
BRSTPWY	Bristol Parkway	11a12½	11.14	11.13	11.14	1:30	T	3 Up					½		
WSTLGHJ	Westerleigh Jn		11/18			/									
HLVNGTN	Hullavington		11/24½			/									
WTNBSTJ	Wootton Bassett Jn		11/31			/					1			½		
SDON	Swindon		11/36			/			UML Up			5				
UFNGTN	Uffington		11/46½			/						1				
CHALLOW	Challow		11/49			/									
WANTRD	Wantage Road		11/50½			/					1				
DIDCOTP	Didcot Parkway		11/55			/			2 Up	ML						
GORASTR	Goring & Streatley		11/59			/				ML	1				
RDNGHLJ	Reading High Level Jn		12/04½			/				ML		1				
RDNGSTN	Reading		12/06½			/			10 Up	UML						
RDNGKBJ	Kennet Bridge Jn		12/07½			/				ML						
TWYFORD	Twyford		12/10½			/			2 Up	ML						
MDNHEAD	Maidenhead		12/14			/			2 Up	ML						
SLOUGH	Slough		12/17			/			3 Up	ML						
STKYJN	Stockley Junction		12/20			/				ML						
HTRWAJN	Heathrow Airport Jn		12/20½			/				ML						
STHALL	Southall		12/21½			/			2 Up	ML						
ACTONW	Acton West		12/23			/				ML	1				
LDBRKJ	Ladbroke Grove		12/26½			/				3		2				
PRTOBJP	Portobello Jn (London)		12/29			/				3						

| ROYAOJN | Royal Oak Junction | | 12/30 | | | / | | | | | | | | | |
| PADTON | London Paddington | 12.31 | | 12.31 | | | TF | 11 Bay | | | | | | | |

D.06 1B75 12:58 London Paddington to Cardiff

Location	Location Name	Working Times		Public Times		Dwell	Activity	Line		Allowances				Public Offsets	
		Arr	Dep	Arr	Dep			Plat	Line	Eng	pth	prf	Adj	Arr	Dep
PADTON	London Paddington		12.58		12.58		TB	11 Bay Down	3				½		
ROYAOJN	Royal Oak Junction		12/59½			/			2						
PRTOBJP	Portobello Jn (London)		13/00½			/			2						
LDBRKJ	Ladbroke Grove		13/01			/			ML						
ACTONW	Acton West		13/03½			/			ML						
STHALL	Southall		13/05½			/		1 Down	ML						
HTRWAJN	Heathrow Airport Jn		13/06½			/			ML						
SLOUGH	Slough		13/10			/		2 Down	ML						
MDNHEAD	Maidenhead		13/13			/		1 Down	ML						
TWYFORD	Twyford		13/17			/		1 Down	ML	1					
RDNGKBJ	Kennet Bridge Jn		13/20			/			DML		½				
RDNGSTN	Reading		13/21			/		9 Down	ML					-1:00	
RDNGHLJ	Reading High Level Jn		13/22			/			ML		2				
GORASTR	Goring & Streatley		13/29½			/			ML	1					
DIDCOTP	Didcot Parkway		13/34½			/		1 Down						-1:00	
WANTRD	Wantage Road		13/38			/									
CHALLOW	Challow		13/40			/									
UFNGTN	Uffington		13/41			/				1					
SDON	Swindon		13/47½			/		4 Down			1		½	-1:00	
WTNBSTJ	Wootton Bassett Jn		13/52½			/									
HLVNGTN	Hullavington		13/59			/				1					
WSTLGHJ	Westerleigh Jn		14/06½			/									
BRSTPWY	Bristol Parkway	14a09½	14.12	14.10	14.12	2:30	T	2 Down					½		
PATCHWY	Patchway		14/14			/		2 Down							
PILNING	Pilning		14/16½			/		2 Down			1½				
SEVTNLE	Severn Tunnel East		14/19			/									
SEVTNLW	Severn Tunnel West		14/22½			/									
SEVTNLJ	Severn Tunnel Junction	14.24	14p25½	14.24	14.25	1:30	T	3 Down	ML				½		
LWERWJN	Llanwern West Junction		14/31½			/			ML	1					
MAINDWJ	Maindee West Jn		14/34½			/			ML						

NWPTRTG	Newport (South Wales)	14a35½	14.37	14.36	14.37	1:30	T	2 Down	ML		½				
EBBWJ	Ebbw Jn		14/40				/		ML						
MSHFILD	Marshfield		14/42½				/		ML	1					
LNGDYKJ	Long Dyke Jn		14/47½				/		D						
CRDFCEN	Cardiff Central	14.50		14.50			TF	3							

D.07 1L81 12:38 Cardiff Central to London Paddington

Location	Location Name	Working Times		Public Times		Dwell	Activity	Line		Allowances				Public Offsets	
		Arr	Dep	Arr	Dep			Plat	Line	Eng	pth	prf	Adj	Arr	Dep
CRDFCEN	Cardiff Central		12.38		12.38		TB	1 Up	B		½		½		
LNGDYKJ	Long Dyke Jn		12/40½				/		ML						
MSHFILD	Marshfield		12/44½				/		ML						
EBBWJ	Ebbw Jn		12/47				/		ML						
NWPTRTG	Newport (South Wales)	12.49	12p50½	12.49	12.50	1:30	T	3 Up	ML						
MAINDWJ	Maindee West Jn		12/51½				/		ML						
LWERWJN	Llanwern West Junction		12/53½				/		ML						
SEVTNLJ	Severn Tunnel Junction	13.00	13p01½	13.00	13.01	1:30	T	4 Up					½		
SEVTNLW	Severn Tunnel West		13/03½				/								
SEVTNLE	Severn Tunnel East		13/07				/								
PILNING	Pilning		13/08				/		1 Up		1				
PATCHWY	Patchway		13/11½				/		1 Up						
BRSTPWY	Bristol Parkway	13.13	13p14½	13.13	13.14	1:30	T	3 Up					½		
WSTLGHJ	Westerleigh Jn		13/18½				/								
HLVNGTN	Hullavington		13/25				/								
WTNBSTJ	Wootton Bassett Jn		13/31½				/				1	1		½		
SDON	Swindon		13/37½				/		UML Up			4				
UFNGTN	Uffington		13/47				/								
CHALLOW	Challow		13/48½				/								
WANTRD	Wantage Road		13/50				/				1				
DIDCOTP	Didcot Parkway		13/54½				/		2 Up	ML						
GORASTR	Goring & Streatley		13/58½				/			ML	1					
RDNGHLJ	Reading High Level Jn		14/04				/			ML		2½				
RDNGSTN	Reading		14/07½				/		10 Up	UML						
RDNGKBJ	Kennet Bridge Jn		14/08½				/			ML						
TWYFORD	Twyford		14/11½				/		2 Up	ML						
MDNHEAD	Maidenhead		14/15				/		2 Up	ML						

Location	Location Name	Arr	Dep	Arr	Dep									
SLOUGH	Slough		14/18			/		3 Up	ML					
STKYJN	Stockley Junction		14/21			/			ML					
HTRWAJN	Heathrow Airport Jn		14/21½			/			ML					
STHALL	Southall		14/22½			/		2 Up	ML					
ACTONW	Acton West		14/24			/			ML	1				
LDBRKJ	Ladbroke Grove		14/27½			/			3					
PRTOBJP	Portobello Jn (London)		14/28			/			3					
ROYAOJN	Royal Oak Junction		14/29			/								
PADTON	London Paddington	14.30		14.30			TF	3 Bay						

D.08 1B77 15:12 London Paddington to Cardiff Central

Location	Location Name	Working Times		Public Times		Dwell	Activity	Line		Allowances				Public Offsets	
		Arr	Dep	Arr	Dep			Plat	Line	Eng	pth	prf	Adj	Arr	Dep
PADTON	London Paddington		15.12		15.12		TB	3 Bay Down	3				½		
ROYAOJN	Royal Oak Junction		15/13½			/			2		½				
PRTOBJP	Portobello Jn (London)		15/15			/			2						
LDBRKJ	Ladbroke Grove		15/15½			/			ML						
ACTONW	Acton West		15/18			/			ML		½				
STHALL	Southall		15/20½			/		1 Down	ML						
HTRWAJN	Heathrow Airport Jn		15/21½			/			ML						
SLOUGH	Slough		15/25			/		2 Down	ML						
MDNHEAD	Maidenhead		15/28			/		1 Down	ML						
TWYFORD	Twyford		15/32			/		1 Down	ML	1					
RDNGKBJ	Kennet Bridge Jn		15/35			/			DML						
RDNGSTN	Reading		15/35½			/		9 Down	ML						
RDNGHLJ	Reading High Level Jn		15/36½			/			ML						
GORASTR	Goring & Streatley		15/42			/			ML	1					
DIDCOTP	Didcot Parkway		15/47			/		1 Down			½				
WANTRD	Wantage Road		15/51			/					½				
CHALLOW	Challow		15/53½			/					1				
UFNGTN	Uffington		15/55½			/				1	2				
SDON	Swindon		16/04			/		4 Down					½		
WTNBSTJ	Wootton Bassett Jn		16/08			/									
HLVNGTN	Hullavington		16/14½			/				1					
WSTLGHJ	Westerleigh Jn		16/22			/									
BRSTPWY	Bristol Parkway	16.25	16p26½	16.25	16.26	1:30	T	2 Down					½		

PATCHWY	Patchway		16/28½			/		2 Down						½	
PILNING	Pilning		16/31			/		2 Down							
SEVTNLE	Severn Tunnel East		16/32			/									
SEVTNLW	Severn Tunnel West		16/35½			/									
SEVTNLJ	Severn Tunnel Junction	16.37	16p38½	16.37	16.38	1:30	T	3 Down	ML					½	
LWERWJN	Llanwern West Junction		16/44½			/			ML	1					
MAINDWJ	Maindee West Jn		16/47½			/			ML						
NWPTRTG	Newport (South Wales)	16a48½	16.50	16.49	16.50	1:30	T	2 Down	ML						
EBBWJ	Ebbw Jn		16/52½			/			ML						
MSHFILD	Marshfield		16/55			/			ML	1	½				
LNGDYKJ	Long Dyke Jn		17/00½			/			D						
CRDFCEN	Cardiff Central	17.03		17.03			TF	3							

D.09 1L83 14:31 Cardiff Central to London Paddington

Location	Location Name	Working Times		Public Times		Dwell	Activity	Line		Allowances				Public Offsets	
		Arr	Dep	Arr	Dep			Plat	Line	Eng	pth	prf	Adj	Arr	Dep
CRDFCEN	Cardiff Central		14.31		14.31		TB	1 Up	B				½		
LNGDYKJ	Long Dyke Jn		14/33			/			ML		1				
MSHFILD	Marshfield		14/38			/			ML		½				
EBBWJ	Ebbw Jn		14/41			/			ML						
NWPTRTG	Newport (South Wales)	14.43	14.48	14.43	14.48	5:00	T	3 Up	ML						
MAINDWJ	Maindee West Jn		14/49			/			ML						
LWERWJN	Llanwern West Junction		14/51			/			ML						
SEVTNLJ	Severn Tunnel Junction	14a57½	15.00	14.58	15.00	2:30	T	4 Up			1		½		
SEVTNLW	Severn Tunnel West		15/03			/									
SEVTNLE	Severn Tunnel East		15/06½			/									
PILNING	Pilning		15/07½			/			1 Up		1				
PATCHWY	Patchway		15/11			/			1 Up						
BRSTPWY	Bristol Parkway	15a12½	15.14	15.13	15.14	1:30	T	3 Up					½		
WSTLGHJ	Westerleigh Jn		15/18			/									
HLVNGTN	Hullavington		15/24½			/									
WTNBSTJ	Wootton Bassett Jn		15/31			/					1		½		
SDON	Swindon		15/36			/			UML Up			4½			
UFNGTN	Uffington		15/46			/					1				
CHALLOW	Challow		15/48½			/									
WANTRD	Wantage Road		15/50			/					1				
DIDCOTP	Didcot Parkway		15/54½			/			2 Up	ML					

GORASTR	Goring & Streatley		15/58½			/			ML	1					
RDNGHLJ	Reading High Level Jn		16/04			/			ML		2				
RDNGSTN	Reading		16/07			/		10 Up	UML						
RDNGKBJ	Kennet Bridge Jn		16/08			/			ML						
TWYFORD	Twyford		16/11			/		2 Up	ML						
MDNHEAD	Maidenhead		16/14½			/		2 Up	ML						
SLOUGH	Slough		16/17½			/		3 Up	ML						
STKYJN	Stockley Junction		16/20½			/			ML						
HTRWAJN	Heathrow Airport Jn		16/21			/			ML						
STHALL	Southall		16/22			/		2 Up	ML		1				
ACTONW	Acton West		16/24½			/			ML	1					
LDBRKJ	Ladbroke Grove		16/28			/			3		½				
PRTOBJP	Portobello Jn (London)		16/29			/			3						
ROYAOJN	Royal Oak Junction		16/30			/									
PADTON	London Paddington	16.31		16.31			TF	2 Bay							

D.10 1B80 16:45 London Paddington to Cardiff Central

Location	Location Name	Working Times		Public Times		Dwell	Activity	Line		Allowances				Public Offsets	
		Arr	Dep	Arr	Dep			Plat	Line	Eng	pth	prf	Adj	Arr	Dep
PADTON	London Paddington		16.45		16.45		TB	2 Bay Down	2				½		
ROYAOJN	Royal Oak Junction		16/46½			/			2						
PRTOBJP	Portobello Jn (London)		16/47½			/			2						
LDBRKJ	Ladbroke Grove		16/48			/			ML		1				
ACTONW	Acton West		16/51½			/			ML		½				
STHALL	Southall		16/54			/		1 Down	ML						
HTRWAJN	Heathrow Airport Jn		16/55			/			ML		½				
SLOUGH	Slough		16/59			/		2 Down	ML						
MDNHEAD	Maidenhead		17/02			/		1 Down	ML						
TWYFORD	Twyford		17/06			/		1 Down	ML	1	1				
RDNGKBJ	Kennet Bridge Jn		17/10			/			DML		½				
RDNGSTN	Reading		17/11			/		9 Down	ML						
RDNGHLJ	Reading High Level Jn		17/12			/			ML						
GORASTR	Goring & Streatley		17/17½			/			ML	1					
DIDCOTP	Didcot Parkway		17/22½			/		1 Down							
WANTRD	Wantage Road		17/26			/									
CHALLOW	Challow		17/28			/									

Location	Location Name	Arr	Dep	Arr	Dep	Dwell	Activity	Plat	Line	Eng	pth	prf	Adj	Arr	Dep
UFNGTN	Uffington		17/29				/			1	2				
SDON	Swindon		17/37½				/	4 Down			1		½		
WTNBSTJ	Wootton Bassett Jn		17/42½				/								
HLVNGTN	Hullavington		17/49				/			1	1½				
WSTLGHJ	Westerleigh Jn		17/58				/				½				
BRSTPWY	Bristol Parkway	18a01½	18.03	18.02	18.03	1:30	T	2 Down					½		
PATCHWY	Patchway		18/05				/	2 Down							
PILNING	Pilning		18/07½				/	2 Down							
SEVTNLE	Severn Tunnel East		18/08½				/								
SEVTNLW	Severn Tunnel West		18/12				/								
SEVTNLJ	Severn Tunnel Junction	18a13½	18.15	18.14	18.15	1:30	T	3 Down	ML				½		
LWERWJN	Llanwern West Junction		18/21				/		ML	1					
MAINDWJ	Maindee West Jn		18/24				/		ML						
NWPTRTG	Newport (South Wales)	18.25	18p26½	18.25	18.26	1:30	T	2 Down	ML						
EBBWJ	Ebbw Jn		18/29				/		ML						
MSHFILD	Marshfield		18/31½				/		ML	1					
LNGDYKJ	Long Dyke Jn		18/36½				/		D						
CRDFCEN	Cardiff Central	18.39		18.39			TF	3							

D.11 1L85 15:38 Cardiff Central to London Paddington

Location	Location Name	Working Times		Public Times		Dwell	Activity	Line		Allowances				Public Offsets	
		Arr	Dep	Arr	Dep			Plat	Line	Eng	pth	prf	Adj	Arr	Dep
CRDFCEN	Cardiff Central		15.38		15.38		TB	1 Up	B				½		
LNGDYKJ	Long Dyke Jn		15/40				/		ML						
MSHFILD	Marshfield		15/44				/		ML		1				
EBBWJ	Ebbw Jn		15/47½				/		ML						
NWPTRTG	Newport (South Wales)	15a49½	15.51	15.50	15.51	1:30	T	3 Up	ML						
MAINDWJ	Maindee West Jn		15/52				/		ML						
LWERWJN	Llanwern West Junction		15/54				/		ML						
SEVTNLJ	Severn Tunnel Junction	16a00½	16.02	16.01	16.02	1:30	T	4 Up					½		
SEVTNLW	Severn Tunnel West		16/04				/								
SEVTNLE	Severn Tunnel East		16/07½				/								
PILNING	Pilning		16/08½				/	1 Up		1					
PATCHWY	Patchway		16/12				/	1 Up							
BRSTPWY	Bristol Parkway	16a13½	16.15	16.14	16.15	1:30	T	3 Up					½		

Location	Location Name	Arr	Dep	Arr	Dep	Dwell	Activity	Plat	Line	Eng	pth	prf	Adj	Arr	Dep
WSTLGHJ	Westerleigh Jn		16/19			/									
HLVNGTN	Hullavington		16/25½			/									
WTNBSTJ	Wootton Bassett Jn		16/32			/				1			½		
SDON	Swindon		16/37			/		UML Up			4				
UFNGTN	Uffington		16/46½			/									
CHALLOW	Challow		16/48			/									
WANTRD	Wantage Road		16/49½			/				1					
DIDCOTP	Didcot Parkway		16/54			/		2 Up	ML						
GORASTR	Goring & Streatley		16/58			/			ML	1					
RDNGHLJ	Reading High Level Jn		17/03½			/			ML		½				
RDNGSTN	Reading		17/05			/		10 Up	UML						
RDNGKBJ	Kennet Bridge Jn		17/06			/			ML						
TWYFORD	Twyford		17/09			/		2 Up	ML						
MDNHEAD	Maidenhead		17/12½			/		2 Up	ML						
SLOUGH	Slough		17/15½			/		3 Up	ML						
STKYJN	Stockley Junction		17/18½			/			ML						
HTRWAJN	Heathrow Airport Jn		17/19			/			ML						
STHALL	Southall		17/20			/		2 Up	ML		1				
ACTONW	Acton West		17/22½			/			ML	1					
LDBRKJ	Ladbroke Grove		17/26			/			3						
PRTOBJP	Portobello Jn (London)		17/26½			/			3						
ROYAOJN	Royal Oak Junction		17/27½			/							½		
PADTON	London Paddington	17.29		17.29			TF	11 Bay							

D.12 1B82 18:15 London Paddington to Cardiff Central

Location	Location Name	Working Times		Public Times		Dwell	Activity	Line		Allowances				Public Offsets	
		Arr	Dep	Arr	Dep			Plat	Line	Eng	pth	prf	Adj	Arr	Dep
PADTON	London Paddington		18.15		18.15		TB	9 Bay Down	3				½		
ROYAOJN	Royal Oak Junction		18/16½			/			2						
PRTOBJP	Portobello Jn (London)		18/17½			/			2						
LDBRKJ	Ladbroke Grove		18/18			/			ML						
ACTONW	Acton West		18/20½			/			ML						
STHALL	Southall		18/22½			/		1 Down	ML						
HTRWAJN	Heathrow Airport Jn		18/23½			/			ML						
SLOUGH	Slough		18/27			/		2 Down	ML						
MDNHEAD	Maidenhead		18/30			/		1 Down	ML						

Location	Location Name	Arr	Dep	Arr	Dep	Dwell	Activity	Plat	Line	Eng	pth	prf	Adj	Arr	Dep
TWYFORD	Twyford		18/34			/		1 Down	ML	1	1				
RDNGKBJ	Kennet Bridge Jn		18/38			/			DML		1				
RDNGSTN	Reading		18/39½			/		9 Down	ML						
RDNGHLJ	Reading High Level Jn		18/40½			/			ML						
GORASTR	Goring & Streatley		18/46			/			ML	1	1				
DIDCOTP	Didcot Parkway		18/52			/		1 Down			1				
WANTRD	Wantage Road		18/56½			/									
CHALLOW	Challow		18/58½			/									
UFNGTN	Uffington		18/59½			/				1	2				
SDON	Swindon		19/08			/		4 Down					½		
WTNBSTJ	Wootton Bassett Jn		19/12			/									
HLVNGTN	Hullavington		19/18½			/				1					
WSTLGHJ	Westerleigh Jn		19/26			/					1				
BRSTPWY	Bristol Parkway	19.30	19p33½	19.30	19.33	3:30	T	2 Down					½		
PATCHWY	Patchway		19/35½			/		2 Down							
PILNING	Pilning		19/38			/		2 Down			½				
SEVTNLE	Severn Tunnel East		19/39½			/									
SEVTNLW	Severn Tunnel West		19/43			/									
SEVTNLJ	Severn Tunnel Junction		19/44			/		3 Down	ML						
LWERWJN	Llanwern West Junction		19/49			/			ML	1					
MAINDWJ	Maindee West Jn		19/52			/			ML						
NWPTRTG	Newport (South Wales)	19.53	19p54½	19.53	19.54	1:30	T	2 Down	ML						
EBBWJ	Ebbw Jn		19/57			/			ML						
MSHFILD	Marshfield		19/59½			/			ML	1					
LNGDYKJ	Long Dyke Jn		20/04½			/			D						
CRDFCEN	Cardiff Central	20.06		20.06			TF	2							

D.13 1L89 17:34 Cardiff Central to London Paddington

Location	Location Name	Working Times		Public Times		Dwell	Activity	Line		Allowances				Public Offsets	
		Arr	Dep	Arr	Dep			Plat	Line	Eng	pth	prf	Adj	Arr	Dep
CRDFCEN	Cardiff Central		17.34		17.34		TB	1 Up	B				½		
LNGDYKJ	Long Dyke Jn		17/36			/			ML	1					
MSHFILD	Marshfield		17/41			/			ML		½				
EBBWJ	Ebbw Jn		17/44			/			ML						
NWPTRTG	Newport (South Wales)	17.46	17.51	17.46	17.51	5:00	T	3 Up	ML						
MAINDWJ	Maindee West Jn		17/52			/			ML						

LWERWJN	Llanwern West Junction		17/54				/		ML			
SEVTNLJ	Severn Tunnel Junction	18a00½	18.02	18.01	18.02	1:30	T	4 Up				½
SEVTNLW	Severn Tunnel West		18/04				/					
SEVTNLE	Severn Tunnel East		18/07½				/					
PILNING	Pilning		18/08½				/	1 Up		1		
PATCHWY	Patchway		18/12				/	1 Up			½	
BRSTPWY	Bristol Parkway	18.14	18p15½	18.14	18.15	1:30	T	3 Up				½
WSTLGHJ	Westerleigh Jn		18/19½				/					
HLVNGTN	Hullavington		18/26				/					
WTNBSTJ	Wootton Bassett Jn		18/32½				/			1		½
SDON	Swindon		18/37½				/	UML Up				
UFNGTN	Uffington		18/43				/					
CHALLOW	Challow		18/44½				/					
WANTRD	Wantage Road		18/46				/			1		
DIDCOTP	Didcot Parkway		18/50½				/	2 Up	ML			
GORASTR	Goring & Streatley		18/54½				/		ML	1		
RDNGHLJ	Reading High Level Jn		19/00				/		ML			
RDNGSTN	Reading		19/01				/	11 Up	UML			
RDNGKBJ	Kennet Bridge Jn		19/02				/		ML			
TWYFORD	Twyford		19/05				/	2 Up	ML			
MDNHEAD	Maidenhead		19/08½				/	2 Up	ML			
SLOUGH	Slough		19/11½				/	3 Up	ML			
STKYJN	Stockley Junction		19/14½				/		ML			
HTRWAJN	Heathrow Airport Jn		19/15				/		ML			
STHALL	Southall		19/16				/	2 Up	ML		3	
ACTONW	Acton West		19/20½				/		ML	1		
LDBRKJ	Ladbroke Grove		19/24				/		3			
PRTOBJP	Portobello Jn (London)		19/24½				/		3			
ROYAOJN	Royal Oak Junction		19/25½				/					½
PADTON	London Paddington	19.27		19.27			TF	10 Bay				

D.14 1B84 20:15 London Paddington to Cardiff Central

Location	Location Name	Working Times		Public Times		Dwell	Activity	Line		Allowances				Public Offsets	
		Arr	Dep	Arr	Dep			Plat	Line	Eng	pth	prf	Adj	Arr	Dep
PADTON	London Paddington		20.15		20.15		TB	9 Bay Down	3				½		
ROYAOJN	Royal Oak Junction		20/16½			/			2						
PRTOBJP	Portobello Jn (London)		20/17½			/			2						
LDBRKJ	Ladbroke Grove		20/18			/			ML						
ACTONW	Acton West		20/20½			/			ML						
STHALL	Southall		20/22½			/		1 Down	ML		½				
HTRWAJN	Heathrow Airport Jn		20/24			/			ML						
SLOUGH	Slough		20/27½			/		2 Down	ML						
MDNHEAD	Maidenhead		20/30½			/		1 Down	ML						
TWYFORD	Twyford		20/34½			/		1 Down	ML	1	½				
RDNGKBJ	Kennet Bridge Jn		20/38			/			DML						
RDNGSTN	Reading		20/38½			/		9 Down	ML		½				
RDNGHLJ	Reading High Level Jn		20/40			/			ML						
GORASTR	Goring & Streatley		20/45½			/			ML	1					
DIDCOTP	Didcot Parkway		20/50½			/		1 Down							
WANTRD	Wantage Road		20/54			/									
CHALLOW	Challow		20/56			/									
UFNGTN	Uffington		20/57			/					1				
SDON	Swindon		21/03½			/		4 Down					½		
WTNBSTJ	Wootton Bassett Jn		21/07½			/									
HLVNGTN	Hullavington		21/14			/					1				
WSTLGHJ	Westerleigh Jn		21/21½			/					½				
BRSTPWY	Bristol Parkway	21.25	21p26½	21.25	21.26	1:30	T	2 Down					½		
PATCHWY	Patchway		21/28½			/		2 Down							
PILNING	Pilning		21/31			/		2 Down							
SEVTNLE	Severn Tunnel East		21/32			/									
SEVTNLW	Severn Tunnel West		21/35½			/									
SEVTNLJ	Severn Tunnel Junction	21.37	21p38½	21.37	21.38	1:30	T	3 Down	ML				½		
LWERWJN	Llanwern West Junction		21/44½			/			ML	1					
MAINDWJ	Maindee West Jn		21/47½			/			ML						
NWPTRTG	Newport (South Wales)	21a48½	21.50	21.49	21.50	1:30	T	2 Down	ML						
EBBWJ	Ebbw Jn		21/52½			/			ML						
MSHFILD	Marshfield		21/55			/			ML	1					
LNGDYKJ	Long Dyke Jn		22/00			/			D				½		

CRDFCEN	Cardiff Central	22.02		22.02			TF	3							

Grand Union Trains - London Paddington Platforming Assessment

Capacity Analysis – System Operator

Technical Note

27/10/2020

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Overview

What we did?

This analysis incorporated previous CTP works conducted by both Future Services Integration (FSI) and Capacity Analysis (CA), to work collaboratively with GUT in the development of a solution framework for platforming seven Grand Union Train (GUT) service pairings at London Paddington Station throughout a typical week day.

What we found?
- It is possible to construct a compliant timetable in which six pairs of GUT services operate in London Paddington Station once the Elizabeth Line commences operation from the Central Operating Section, additionally two ECS movements involving North Pole depot are required to facilitate this.
- 138 changes to services, which involve a combination of platforming, routing or flexing, are required to accommodate solution frameworks. This includes the 12 GUT services.
- Some of the revised paths require the utilisation of Line 2 for inbound services, a known performance risk which is minimised as far as possible in the current timetable.
- A select number of non-GUT services see journey and turnround time degradations in excess of 2 minutes whilst a substantial number seeing degradations below 2 minutes.
  - Changing platform occupancy dynamics could introduce performance risk.

What were the assumptions?
- Geographic scope: Ladbroke Grove to London Paddington
- Timetable Planning Rules: Western and Wales 2020 (V4.1)
- Rolling stock: Class 802-9E with 30 second adjustment departing London Paddington to account for Class 91 and Mark 4 rolling stock.
- Source timetables: Western Event Steering Group for Phase 5 of Elizabeth Line Concept Train Plan in culmination with Concept Train Plan (CTP) produced by CA for GUT service pair accommodation.

What are the risks?
- Utilisation of line 2 for inbound working is a known a performance risk and increases in utilisation should be treated as such in this solution framework.
- Changing platforming dynamics may present unforeseen performance risks.
- Utilisation of North Pole depot is still an assumption at this stage.

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Abbreviations	
Acronym	**Meaning**
CA	Capacity Analysis
CTP	Concept Train Plan
ECS	Empty Coaching Stock
ESG	Event Steering Group
FSI	Future Services Integration
GUT	Grand Union Trains
TPR	Timetable Planning Rules

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Part A: **Executive Summary**

This piece of analysis was a collaborative exercise between Capacity Analysis (CA) and Grand Union Trains (GUT) which aimed to assess to feasibility of platforming 6 GUT pairs at London Paddington throughout a typical weekday. This was carried out as a continuation of previous work conducted Future Services Integration (FSI) and CA in which concept train plans (CTPs) were generated as part of a wider timetable redevelopment on the route. The CTP, which has been used as the base, is still under development.

This analysis found that it was possible to accommodate 6 GUT pairs across the day in a compliant timetable which would require the alteration of 138 services across the entire day. This ranges between platforming, routing, flexing and any combination of each of the aforementioned (*Table 1*). This also includes a provision allowing ECS moves in the evening peak to North Pole depot to accommodate the GUT timetable plan. The resolutions provided here are also only possible once the Elizabeth Line commences operation from the Central Operating Section.

Pair	Up Service	Platform	Arrival at London Paddington	Turnaround at London Paddington (minutes)	Down Service	Departure from London Paddington	Services altered in addition to previous analysis outputs
1	1L73	2	09:36:00	22	1B70	09:58:00	19
2	1L75	11	11:26:00	33	1B72	11:59:00	4
3	1L77	9	12:31:00	27	1B75	12:58:00	19
4	1L81	11	14:30:00	42	5L81	15:12:00	20
5	5B80	4	16:43:00	32	1B80	17:15:00	31
6	1L85	11	17:31:00	44	1B82	18:15:00	14
7	1L89	11	19:27:00	45	1B84	20:12:00	18

Table 1: Overview of GUT platform placements.

One of the key differences between this analysis and previous analysis was the introduction of Empty Coaching Stock (ECS) moves for pairs 4 and 5 in which non-compliant paths were circumnavigated by using North Pole depot to house GUT rolling stock from the inbound path in pair 4 and then dispatch that same ECS service to form the outbound working of the 5th pair in a later hour.

The general solution framework primarily used high numbered platforms for the GUT service pairs as these tended to be the least populated. Whilst solution frameworks were therefore less intrusive at Paddington, as a result of this framework a significant number of services had to have routing alterations or flexing in order to accommodate the complex interactions between London Paddington and mainline access at Ladbroke Grove. Two of

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the pairs did not follow this strategy and required the utilisation of lower numbered platforms, in turn inducing much more substantial change across the timetable when the wider timetable interacted with these pairs.

Whilst a compliant timetable was constructed with the goal of producing the least intrusive and most optimal solutions, a number of risks have been identified. The first is that as it stands, the service plan from an operational standpoint is significantly dependent on the ability for North Pole to stage GUT ECS formations. Without this functionality, evening peak services dependent on these ECS moves are not possible and will require interdisciplinary conversations with Operations to assess its feasibility.

Another potential risk is that the solution frameworks identified in this analysis necessitated the utilisation of Line 2 on the approach to London Paddington from Ladbroke for some inbound workings. Utilisation of Line 2 has previously been identified as a performance risk and thus should be considered as such until further study can quantify this risk conclusively. The utilisation of Line 2 for inbound working is a necessity and some solution frameworks would not work in instances where the typical routing segregation is not being diminished.

The other associative risks are also performance related and can be distilled into the following subjects:

- A decrease in performance buffers as the result of marginal turnround degradations in a high number of trains (32 total).

- Changing capacity utilisation dynamics underpinned by overall increases in utilisation across a number of platforms.

- Changing capacity dynamics as the result of significant platform alterations and increases in capacity utilisation.

In conjunction with these risks, impacts on timetable structure have been noted for consideration. The first is an increase in journey time in 32 services. This is tied to the second drawback which involves an increased amount of pathing in services to generate a compliant timetable strategy. In some cases, this adds pathing allowance to locations that already have pathing allocated, some as a result of previous CTP work. In a limited number of examples, this results in pathing allowance "stacking" at one location of up to 3.5 minutes (specifically Ladbroke Grove or Royal Oak where the utility of pathing is most apparent) or extenuates already elongated journey times further away from fastest feasible flighting. This can be expected to impact on the headway as services with this much pathing will in reality be at a stand, rather than travelling at speed, in turn this can have performance impacts.

In all, the exercise has demonstrated that with extensive alteration to other services it is possible to platform the additionally proposed GUT services at London Paddington but this should be examined with consideration of other impacts to the wider timetable in particular in terms of risk to performance.

Part B: **Introduction**

B.01   Background

Grand Union Trains (GUT) is an aspirant Open Access Operator working collaboratively with Capacity Analysis (CA), with aims to evaluate the viability of platforming 7 pairs of GUT services at London Paddington. This report is a continuation of two previous works including a Concept Train Plan (CTP) produced by Future Service Integration (FSI) for Event Steering Group 5 (ESG) and additional CTP work conducted by CA to facilitate GUT service paths. These CTPs were combined for the purpose of this analysis in order to generate a more conclusive depiction of timetables moving forward.

Pair	Up Service	Arrival at London Paddington	Status	Flexes required	Turnaround at London Paddington (minutes)	Down Service	Departure from London Paddington	Status	Flexes required
1	1L73	09:34	Path conflict free	3 services flexed	24	1B70	09:58	Path conflict free	3 services flexed
2	1L75	11:26	Path conflict free	10 services flexed	33	1B72	11:59	Path conflict free	1 service flexed
3	1L77	12:31	Path conflict free	17 services flexed	28	1B75	12:59	Path conflict free	5 services flexed
4	1L81	14:30	Path conflict free	10 services flexed	42	1B77	15:12	Conflicts not resolved	17 services flexed
5	1L83	16:31	Conflicts not resolved	11 services flexed	44	1B80	17:15	Path conflict free	3 services flexed
6	1L85	17:29	Path conflict free	8 services flexed	46	1B82	18:15	Path conflict free	7 services flexed
7	1L89	19:27	Path conflict free	6 services flexed	48	1B84	20:15	Path conflict free	8 services flexed

Table 2: Summary of services reviewed by CA in July 2020.

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2 of the 7 pairs involved in this analysis differ from the others due to path compliancy issues found in the CA GUT analysis conducted in early 2020. These pairs incorporate a change in which the GUT service is dispatched as Empty Coaching Stock (ECS) from London Paddington towards North Pole Depot before being sent back an hour later to form the outbound GUT working. This affects pairs 4 and 5 as shown in **Error! Reference source n ot found.**.

B.02   Aims and Objectives

The aim of this analysis was to evaluate the feasibility and strategies involved in platforming the seven GUT service pairs identified in the previous CA exercise. This was done by examining each pair and changing a number of parameters including; platforms, routing and flexing. The aim was to accommodate GUT services whilst attempting to minimise the impact to the wider CTP.

B.03   Geographic Scope

The geographic scope for this analysis consisted of the London Paddington Platform area although it was later determined that this scope would have to extended to include the wider junction areas including Royal Oak Junction, Portobello Junction and Ladbroke Grove as a function of routing requirements.
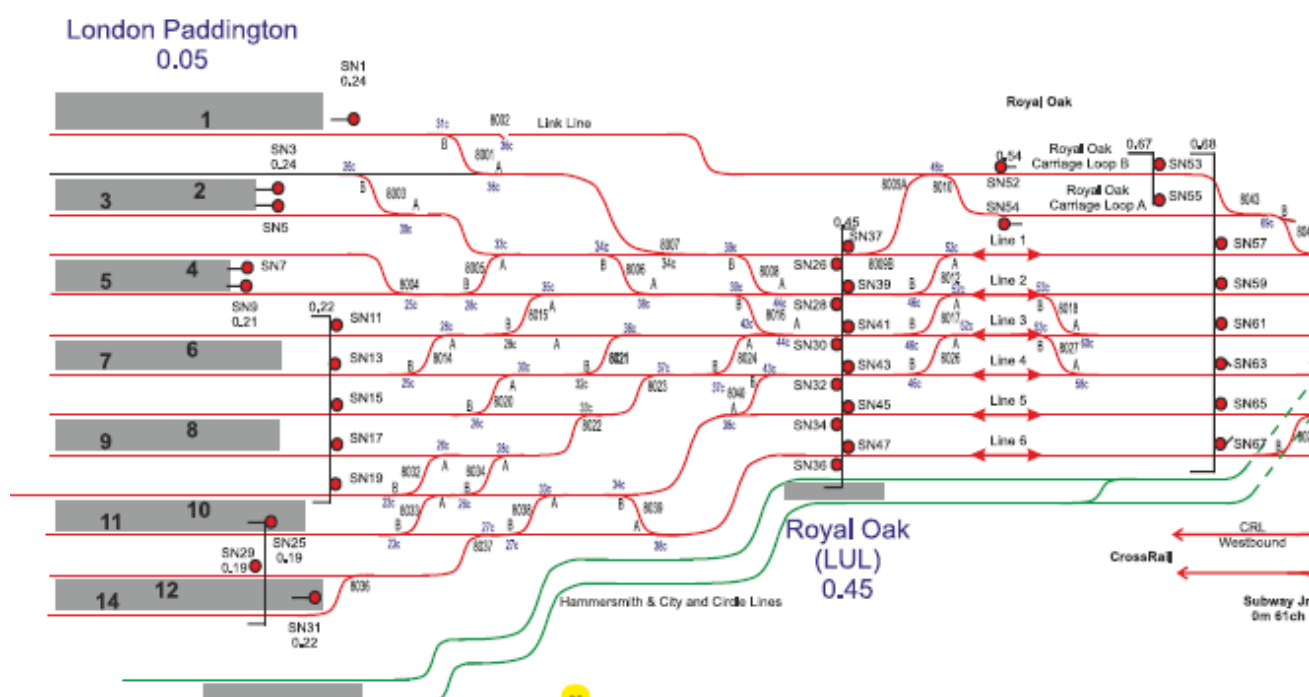
Figure 1: Geographical scope at London Paddington (noting that Portobello Junction and Ladbroke Grove have also been required to be examined).

Part C: **Findings**

The analysis was conducted pair to pair and thus Section C explores the changes to trains through the day in chronological order of the GUT services. Most of these pairs are segregated enough that the solution frameworks can be explored in isolation. Two of the GUT service formations, consisting of two evening peak formations, have enough cross-hour interactions that they are discussed in tandem. The analysis produced shows that it is possible to Platform the seven GUT service pairs, albeit with alterations to the wider timetable. In total 138 services saw alterations of some kind with these changes consisting of either platform, routing or flexing related changes. Of those 138 services, 12 are GUT services and the remainder are changes to the wider FSI and CA combined CTP. This was to accommodate the complex interactions at the 12 platforms, around the station throat and intermediary route between Acton West and Paddington; including Ladbroke Grove, Portobello Junction and Royal Oak Junction.

This section will explore a general overview of the solution frameworks employed for each GUT service pair accommodation. The primary detail is recorded within the project timetable although alterations to services during this exercise are recorded in Tables at the end of each subsection. The following subsections also explore several metrics effected by the changes such as alterations to journey times of other services as a result of flexing or the modifications to platform occupancy which can affect the performance robustness of a timetable.

In each instance of alteration, careful attention was paid to not alter pre-existing engineering or allowance adjustments which primarily effect train interactions at Ladbroke Grove and London Paddington respectively.

The following sections also explore platform utilisation. Due to limitations of the tool used to generate these graphs, only 1-hour periods can be calculated a time. This means that in some instances, to capture all the changing platform dynamics, multiple graphs are produced. Areas identified in red on the graphs are the trains themselves and the grey sections represent a Timetable Planning Rule (TPR). To note, this doesn't capture the pre-existing capacity in other platforms and the potential for "gaps" in the timetable to absorb perturbation. However, as a generalised overview, there is little additional capacity at London Paddington or the surrounding infrastructure for this to be significantly relevant on the topics of platform utilisation and performance robustness.

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C.01   Important Caveats

Some overarching caveats are presented in this section. The first is related to pathing allowances in which a common theme within this analysis involves the "stacking" of pathing at locations on the lead up to London Paddington. This is an important part of the solution frameworks in order to generate compliancy. As a result of previous work by both FSI and CA, pathing was already present in some of the services changed in this analysis. Therefore, some instances arise where additional pathing has been added atop pathing attributed in previous analysis exercise. The result is that locations where pathing has most utility such as Royal Oak or Ladbroke Grove result in having more copious amounts of pathing stacked at one location. The result is that individual locations can exhibit pathing as high as 3.5 minutes. Whilst no specific rule exists prohibiting this from happing, this is not considered a desirable outcome by operators or timetable planners. In some instances, this would effectively bring services to a standstill on the approach to Paddington. Even in instances in which pathing is more spread out over the route, the addition of new pathing to services that may already of had some only leads to further increases in journey time on top of those generated in previous stages of the analysis. To that end, pathing allowance is necessary and has a high degree of utility for generating compliant solution frameworks but may be indicative of impact on timetabling dynamics and performance.

The second point to note is the increase in services using line 2 for inbound working. There is a total of 9 services that are required to use line 2 for inbound working in addition to those already in the CTP, which should be taken forward as a risk given previous concerns raised about utilisation of line 2 and the associative performance risk. Whilst there are already services in the CTP that exhibit line 2 working, these are additive to those already in the timetable. That being noted, the analysis conducted here attempted to route services with line 2 and 3 segregation in mind but could not feasibly do so in all situations. Scenarios where services are routed over line 2 when inbound are done so out of necessity.

The third point to make is about the reductions in turnround times and how this relates to performance. One of the key options explored in improving performance on a network is to increase turnrounds in order to give a greater degree of performance buffer, particularly in the instances of late arrivals. Whilst the degree of flexing of services may be considered marginal in relation to journey time changes, the reduction in performance buffer irrespective of the TPR minimums may induce further performance risk that extends beyond performance concerns garnered from pervious pieces of analysis. Whilst this cannot be definitively quantified in the scope of this analysis and whilst the changes to turnround are generally marginal, it would be prudent to note that it is a frequent trend across all the solution frameworks (32 reduced turnrounds in total) and therefore carries some degree of risk until the performance dynamics of such a change can be thoroughly assessed.

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The fourth point, building on comments made about turnround reductions, is the changes to platform utilisation dynamics and the subsequent risk to performance this may provide. As will be observed throughout the rest of this chapter, there has been a consistent increase in platform utilisation in hours were platforms have been amended to accommodate GUT services. This primarily a function of the GUT services increasing the time within a given hour in which any given platform is occupied, and the subsequent changes involved to generate compliancy. This dynamic is to be observed as a function of new services being introduced but this will induce a risk in so far as decreasing the amount of free available platforming space to absorb delay. This coupled with marginal but frequent turnround reductions all contribute to potential performance risk across the timetable.

The final caveat is in relation to the utilisation of North Pole depot by GUT, which is a core assumption required for the timetabling solutions provided in this analysis to work. Interdisciplinary action will be needed to assess the feasibility of this provision.

C.02   Pair One: 1L73 and 1B70

The accommodation of 1L73 and 1B70 in the morning peak was challenging because of the already prominent quantum of trains present in the morning peak hours at London Paddington. The primary way in which the pair was accommodated was by platforming the GUT services in a lower numbered platform, in this instance platform 2, and then reshuffle a number of other services in the CTP to generate a compliant timetable both immediately at Paddington and across the route through to the mainline access at Ladbroke Grove. In total 12 additional services, or 6 service groups, experienced platform changes in order to accommodate this change. The changes to platform occupancy as the result of these changes are reflected in *Figure 2* and *Figure 3*.
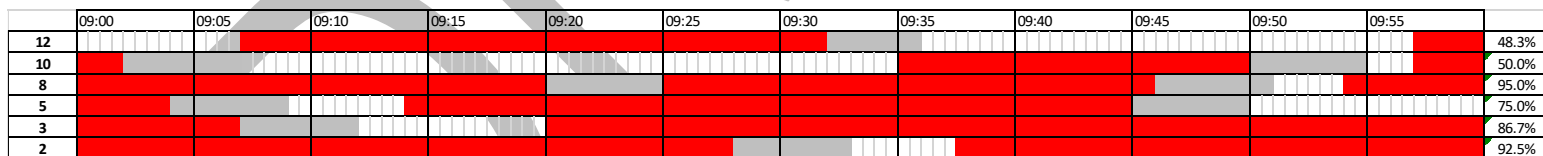
Figure 2: Platform occupancy diagram for the original CTP between 09:00 and 09:59.
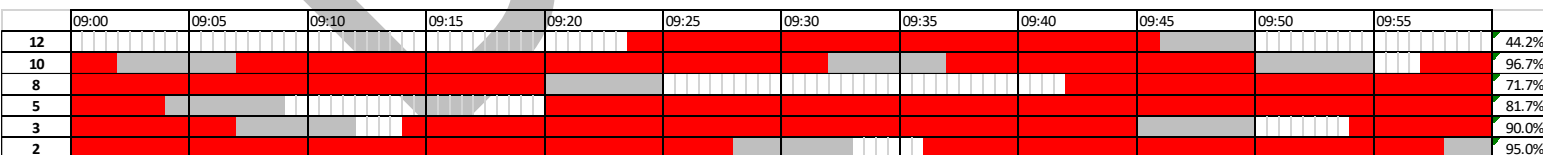
Figure 3: Platform occupancy diagram with amendments associated with GUT service Pair 1 between 09:00 and 09:59.

09:00-09:59	Original	Revised	Difference
12	48.3%	44.2%	-4.1%
10	50.0%	96.7%	46.7%
8	95.0%	71.7%	-23.3%
5	75.0%	81.7%	6.7%
3	86.7%	90.0%	3.3%
2	92.5%	95.0%	2.5%

Table 3: Platform occupancy percentages 09:00 and 09:59, comparison between the original CTP and revised platforming structure for Pair 1.

The above figures demonstrate the platforming alterations. In conjunction with *Table 3* it demonstrates the changing dynamics within the platforms and how capacity alters as a function of the amended timetable. For Pair 1, its observed that a more substantial increase in capacity utilisation occurs. This is accompanied by a number of smaller increases. Platform 8 demonstrates an improvement although this does not offset the increases in capacity utilisation overall.

The shuffling of these services between new platforms also required some consideration of routing change from Ladbroke Grove to London Paddington, inclusive of the inverse direction. This ultimately culminates in a change to routing to generate compliant crossing and passes on the approaches and departures from Paddington. In total, 9 services have seen their routing changed to accommodate the aforementioned platform alterations. In most instances this is to resolve potential compliancy issues at either Ladbroke Grove or Royal Oak Junction where the quantum of trains that are likely to conflict are highest. In addition to route changes, some pathing allowance was shifted between locations on the track sections between Acton West and London Paddington although in these instances no new pathing time was added therefore not impacting the arrivals or departures of the services changed.

As a result of the large quantum of trains that have seen platform alterations in the morning peak, markedly few trains have had to be flexed. Three services in total have seen a change to arrival times in order to generate compliancy at either one of the locations proceeding London Paddington or to resolve platform end conflicts at the station itself. Of those three, one is the inbound working of the GUT service pair, 1L73. The result of this change is that 1L73 and 1A12 see increase in journey time of 2 minutes as a result of pathing time assigned from Ladbroke Grove to Royal Oak whilst 1Y39 sees a more nominal change to journey time of 30 seconds. This has also decreased the turnround times of these services as a result of the previously noted pathing increase. This is whilst maintaining turnrounds that are compliant with those defined in the Timetable Planning Rules (TPRs).

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Overall, it is possible to accommodate 1L73 and 1B70 with the primary alterations being focused on 12 additional platform changes, 9 subsequent routing alterations and finally the flexing of 3 other services. These changes are summarised in Appendix C, *Table 11*.

C.03   Pair Two: 1L75 and 1B72

Pair two encompassed the most marginal changes when compared to all other pairs. 1L75 and 1B72 are platformed into platform 11, where a pre-existing space was available. As a result, no additional services required platform alterations. The change in platform 11 occupancy is reflected in *Figure 4* and *Figure 5*.

	11:00	11:05	11:10	11:15	11:20	11:25	11:30	11:35	11:40	11:45	11:50	11:55	
11													41.7%
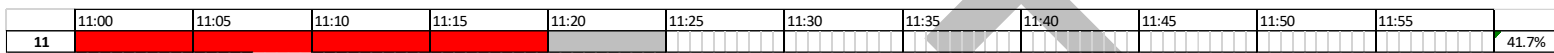
Figure 4: Platform occupancy diagram for the original CTP between 11:00 and 11:59.

	11:00	11:05	11:10	11:15	11:20	11:25	11:30	11:35	11:40	11:45	11:50	11:55	
11													98.3%
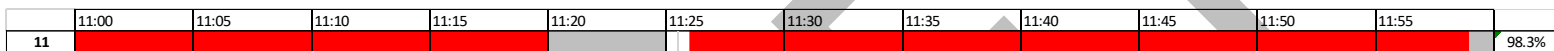
Figure 5: Platform occupancy diagram with amendments associated with GUT service Pair 2 between 11:00 and 11:59.

11:00-11:59	Original	Revised	Difference
11	41.7%	98.3%	56.7%

Table 4: Platform occupancy percentages 11:00 and 11:59, comparison between the original CTP and revised platforming structure for Pair 2.

The above figures demonstrate the platforming alterations. In conjunction with *Table 4* it demonstrates the changing dynamics within the platforms and how capacity alters as a function of the amended timetable. For Pair 2, this results in a large spike in capacity utilisation as previous space is occupied. Whilst this is one of the highest single increases observed in any hour, the capacity utilisation change only effects one platform.

A further 3 services required routing changes in order to generate compliancy on the track sections proceeding Paddington station. Of these routing changes, one of these services, 1L70, is routed inbound to London Paddington on line 2. Whilst a compliant path, some concern has been raised in previous exercises that this may induce performance risk as typical segregation of inbound and outbound traffic over lines 2 and 3 respectively is diminished in examples where inbound trains are routed over line 2. Therefore, this should be noted as a potential risk to performance although in this scenario only 1 additional service is required to be routed in such a way.

Two services had flexing applied; one in the form of 1.5 minutes pathing at Ladbroke Grove and one as removed pathing at Royal Oak. This therefore increases the journey time of 1Y48 by the previously noted time in conjunction with decreasing the services overall turnround time. In contrast, 1L70 demonstrates a 1 minute improvement to journey and turnround time.

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Overall, it is possible to accommodate 1L75 and 1B72 with no additional platform alterations, 3 routing changes and 2 flexed services. These changes are summarised in Appendix C, *Table 12*.

C.04   Pair Three: 1L77 and 1B75

1L77 and 1B75 required more significant changes to the overall timetable to accommodate. This GUT service pair was placed in platform 9 which required the platform reassignment of a subsequent 11 services or 5 service groups. Whilst most of these platforming changes required only movement either to other lower or higher number platforms, 1K51 and 1K52 were required to be relocated from a lower numbered platform (4) up to a higher numbered platform (9). The effects of these platform changes are reflected with platform occupancy graphs as seen in *Figure 6* and *Figure 7*.
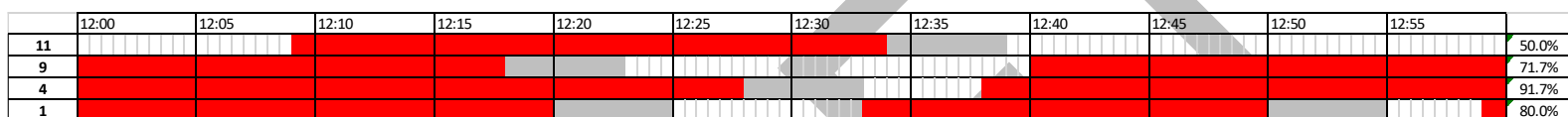
Figure 6: Platform occupancy diagram for the original CTP between 12:00 and 12:59.
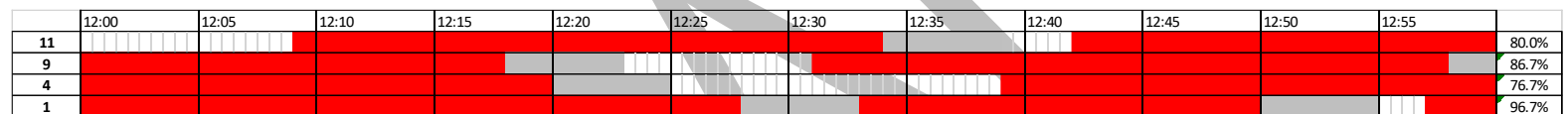
Figure 7: Platform occupancy diagram with amendments associated with GUT service Pair 3 between 12:00 and 12:59.

12:00-12:59	Original	Revised	Difference
11	50.0%	80.0%	30.0%
9	71.7%	86.7%	15.0%
4	91.7%	76.7%	-15.0%
1	80.0%	96.7%	16.7%

Table 5: Platform occupancy percentages 12:00 and 12:59, comparison between the original CTP and revised platforming structure for Pair 3.

The above figures demonstrate the platforming alterations. In conjunction with *Table 5* it demonstrates the changing dynamics within the platforms and how capacity alters as a function of the amended timetable. For Pair 3, platform 4 sees a decrease in platform utilisation although this does not offset a generally consist increase in capacity utilisation across the rest of the altered platforms.

As a result of this change in platforming dynamics and the movement of previously lower numbered platform group into a higher number platform resulted in a total of 9 routing changes. Of these 9 services, 2 inbound services are routed exclusively over line 2 which accompanies similar caveats surrounding performance as outlined in Section C.03.

More significant flexing of services is experienced in this hour with a total of 6 services being flexed to accommodate surrounding platforming changes. 1L72 experiences a

journey time improvement and subsequent lengthening of turnround at London Paddington as a result of the removal of 2 minutes pathing time and the subsequent 2-minute earlier arrival. 1K52, 1A78, and 1K52 all experience 1 to 2 minutes degradation in journey times and turnround as a result of the requirement of changing arrival or departure to accommodate conflicts on the approach to Paddington or platform end conflicts at the station itself. 1D22 sees the highest degree of journey time degradation at 4 minutes as a result of 2 minutes of pathing at both Portobello and Royal Oak to generate compliancy.

Overall, it is possible to accommodate 1L77 and 1B75 with a total of 11 platform changes, 9 routing changes and 6 flexed services. It should be noted that the journey and turnround time in 1D22 is significant compared to typical flexing tolerances. These changes are summarised in Appendix C, *Table 13*.

C.05   Pair Four (ECS for Inbound Service): 1L81 and 5L81

Whilst 1L81 and 5L81 represent the "fourth" pair in terms of inbound and outbound working, from a practical standpoint this is the first half of the fourth overall GUT pair. This is because non-compliances uncovered in previous CA work meant that the typical inbound and outbound working for the GUT services could not be accommodated further along the wider route. As a result, an alternative strategy was formulated in which 5L81 would be created as the outbound working for 1L81 and be dispatched to North Pole depot. The service would remain at North Pole depot until being dispatched to London Paddington later in the evening peak as 5B80 to form the outbound working of 1B80. This effectively allows 1L81 and 1B80 to act as the fourth service pair by using North Pole depot as a measure to circumnavigate the non-compliant paths identified in previous analysis and the otherwise unfeasible long turnround that would be required at London Paddington for 1L81 to form 1B80 directly at the station. See *Table 2* for a summary of this change. It is important to caveat that, whilst the solutions provided here produce a compliant timetable, operational considerations at North Pole are not factored into this analysis and would need interdisciplinary discussion to confirm the operational feasibility.

This section (C.05) examines the first half of the working, for the fourth GUT pairing. This working is substantially less intrusive and complex than the second half of the fourth pairs working but still represents some significant changes. The strategy in this scenario was to platform 1L81 and 5L81 into platform 11. Whilst ideally, pairs involving ECS moves would be platformed into a lower number platform for better access to North Pole, this was not possible within timetable structures. As a result, the ECS service is required to be in a higher numbered platform and thusly must cross the entire station throat to reach North Pole depot. Whilst a compliant path can be found and similar examples are noted within current timetable structures, this could have the potential to induce both operational and performance risks which cannot be implicitly quantified under this analytical methodology. This change required a substantial platform reshuffle that is paralleled to that identified in the morning peak (C01). 12 services in total require platform alterations or 6 service groups.

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Half of these platform alterations the complete reshuffle of services between higher and lower numbered platforms. The changing capacity dynamics at the station as the result of these changes is reflected in the platform occupancy diagrams in *Figure 8* and *Figure 9*.
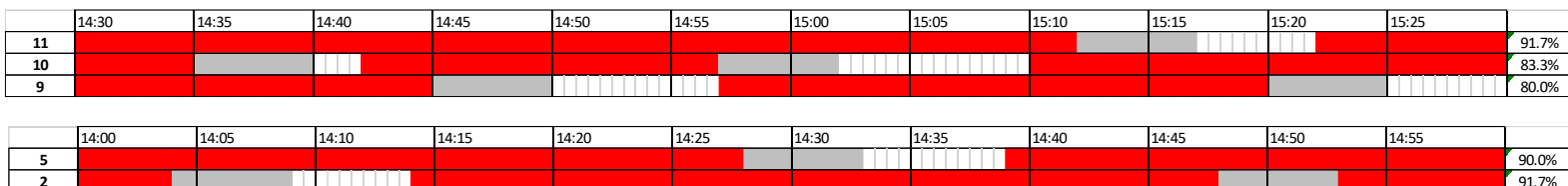
Figure 8: Platform occupancy diagram for the original CTP. This is split into two, 1 hour periods to capture the changes for platforms 11/10/9 and 5/2.
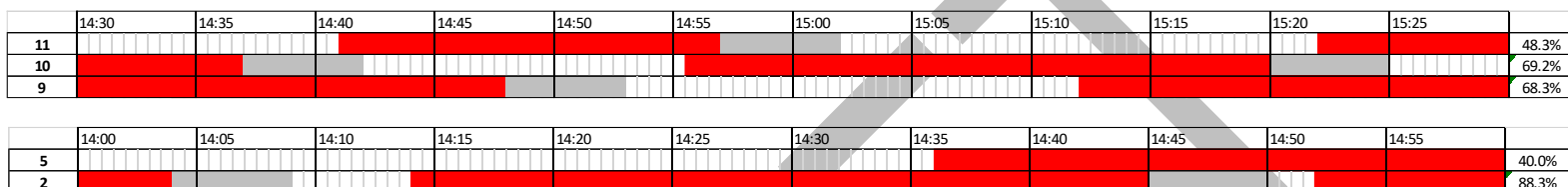
Figure 9: Platform occupancy diagram with amendments associated with GUT service Pair 4. This is split into two, 1 hour periods to capture the changes for platforms 11/10/9 and 5/2.

14:00-15:29	Original	Revised	Difference
11	48.3%	91.7%	43.4%
10	69.2%	83.3%	14.2%
9	68.3%	80.0%	11.7%
5	40.0%	90.0%	50.0%
2	88.3%	91.7%	3.3%

Table 6: Platform occupancy percentages 14:00 and 15:29, comparison between the original CTP and revised platforming structure for Pair 4.

The above figures demonstrate the platforming alterations. In conjunction with *Table 6* it demonstrates the changing dynamics within the platforms and how capacity alters as a function of the amended timetable. For Pair 4, significant increases to capacity utilisation are observed in two of the altered platforms (11 and 5) in conjunction with some more marginal increases in other platforms. This increase in utilisation across all platforms is a result of a higher turnround time than in other hours for the GUT service of 42 minutes. Pair 4 experiences the highest net change increase to capacity utilisation than in any other hour.

The result of this change in platform dynamics also necessitates a total of 10 services with routing changes between Ladbroke Grove and London Paddington. In 3 instances this requires the brief utilisation of line 2 at Royal Oak for inbound services. This is markedly less utilisation of line 2 than in some other pairs.

In total 7 services are flexed as a result of this pair. In one such instance, 1L20, a 2 minute improvement to journey times and turnround is observed. Similarly, and ECS service, 5C19, has had pathing removed improving its journey time by 3 minutes. This improvement is admittedly less impactful than improvements in standard passenger services. In all 5 other instances an earlier departure or later arrival is necessitated to generate compliancy which

results in journey time and turnround degradations in the ranges of 0.5 to 2 minutes. These changing dynamics are reflected *Table 14*.

Overall, 1L77 and 1B75 require more significant alterations than previous hours although remains comparable to the morning peak GUT pair solution framework. This pattern of more significant change required to accommodate GUT service pairs is reflected through the remainder of the pairs. In this instance, 12 services require platform alterations, 10 services require routing changes and 7 services require flexing. These changes are summarised in Appendix C, *Table 14*.

C.06   Pair Five (ECS for Outbound Service): 5B80 and 1B80

The second half of the ECS paring consist of the inbound ECS (5B80) from North Pole depot and the subsequent outbound GUT working (1B80). This section, alongside Section C.06, should be taken with special notice. This is due to the close proximity of this pair and pair six resulting in the subsequent overlap in workflows when attempting to accommodate the two pairs. As a result, it can be hard to disambiguate what services where exactly effected by any one of the two pairs. This is particularly true more precisely around 1B80's departure and 1L85's arrival in which the spacing between the two is as low as 16 minutes. Therefore, any change implemented to resolve compliancy faults in one pair also effected the other and vice versa. Whilst care has been taken to try and correctly attribute changes made to the wider timetable to the correct GUT pair, some changes are unavoidably affected by both pairs. Whilst Pair 5 may seem to have more exorbitant changes than of the other pairs, some of those closer to the timings of 1L85 should be considered collaboratively effected by both Pair 5 and 6.

Irrespective of this, it should not be lost that between the two pairs substantial change is required to accommodate all aspirations for station capacity.

Much like some of the other hours, 12 services (or 6 service associations) require changes to platforming in order to accommodate 5B80 and 1B80. In this instance, 5B80 and 1B80 where platformed in the lower numbered platform 4 in order to reduce the requirement for compliant paths crossing the station throat from North Pole depot. Whilst most of these platforming changes are segregated only between the higher and lower numbered platforms, 1P04 and 1W33 see a larger swap from Platform 5 to 8. Most of these changes are necessitated as a means to eliminate platform end conflicts as the result of Pair 5's accommodation. The changes in platform occupancy dynamics are reflected in *Figure 10* and *Figure 11*.

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	16:30	16:35	16:40	16:45	16:50	16:55	17:00	17:05	17:10	17:15	17:20	17:25	
10													55.0%
8													81.7%
5													93.3%
2													88.3%
1													80.0%
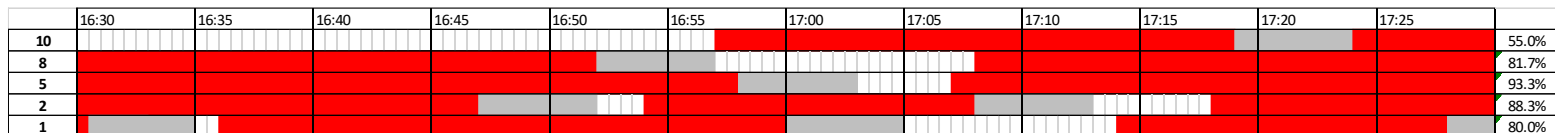
Figure 10: Platform occupancy diagram for the original CTP between 16:30 and 17:29.

	16:30	16:35	16:40	16:45	16:50	16:55	17:00	17:05	17:10	17:15	17:20	17:25	
10													96.7%
8													91.7%
5													100.0%
2													100.0%
1													66.7%
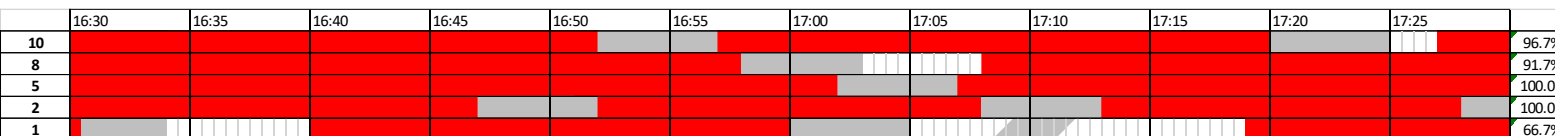
Figure 11: Platform occupancy diagram with amendments associated with GUT service Pair 5 between 16:30 and 17:29.

16:30-17:29	Original	Revised	Difference
10	55.0%	96.7%	41.7%
8	81.7%	91.7%	10.0%
5	93.3%	100.0%	6.7%
2	88.3%	100.0%	11.7%
1	80.0%	66.7%	-13.3%

Table 7: Platform occupancy percentages 16:30 and 17:29, comparison between the original CTP and revised platforming structure for Pair 5.

The above figures demonstrate the platforming alterations. In conjunction with *Table 7* it demonstrates the changing dynamics within the platforms and how capacity alters as a function of the amended timetable. For Pair 5, similar dynamics to that of Pair 3 are observed in terms of improvements and degradations of platform utilisation.

The more numerous changes come in the form of routing alterations on the approaches and exits to London Paddington. In total, 14 services see routing changes as a means to efficiently accommodate the additional GUT pair. The large number of routing changes is also a biproduct of the changes required for 1L85's arrival and flexed services observed in the previous work conducted by CA. To that end, it would not be reasonable to singularly attribute the large quantum of routing changes to Pair 5. Some of the routing changes could be seen as a benefit such as the movement of 1T69's outbound working from Line 3 to Line 2 (a more typical routing dynamic for outbound trains). However, with that being noted there are also two examples of services where it has been necessitated to have the inbound working on Line 2. As already established in Section C.02, utilisation of line 2 for inbound working is a known performance risk and should be noted as such if any consideration is made surrounding the viability of this platforming solution. To note, this risk is not quantifiable within the scope of this analysis but understandings about the performance risks can be applied based on observations in previous timetables and prior experienced operations.

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This pairing also sees the most substantial flexing of services than any other pair. In total, 12 services are flexed to accommodate the solution framework. Eleven of these services see both journey time and turnround degradations in the form of 1 to 2 minutes, whilst one service (1H46) sees a journey time improvement and subsequent turnround lengthening of 1 minute. The degree of change in any given service is 2 minutes or below. This means that whilst the quantum of change is high, the degree of change in any given service could be observed to be within acceptable bounds in this solution framework.

Overall, 5B80 and 1B80 can be accommodated but is associated with a requirement for substantial change in all three categories of platforming, routing and flexing. This primarily a product of the closely associated working between Pair 5 and 6. In all other examples, the space between pairs is substantial enough that the required change is isolated to the given half hour to an hour in which the GUT pair is present. In this example, the required changes are essentially weighted and stacked as resolution frameworks require consideration of four new service accommodations within close proximity of one another. In total, 12 platform changes are required, 14 routing changes and 11 flexed services. These changes are surmised in Appendix C, *Table 15*.

C.07   Pair Six: 1L85 and 1B82

As previously noted, 1L85 and 1B82 are closely associated to one another as a function of the close departure and arrival of 1B80 and 1L85 respectively. To reiterate, disambiguating what services are expressly affected by either Pair 5 or 6 is not entirely possible and to that end some of the associative problems noted in C.06are paralleled in this section.

In spite of this, 1L85 and 1B82 do require fewer clearly attributable changes than Pair 5. In total, 6 services or 2 service groups required a platform change. This was to accommodate 1L85 and 1B82 in platform 11. The use of this higher numbered platform differs from Pair 1 or 5 but shares similarities with all other pairs. The changes in platforming in these instances remain only amongst higher number platforms. The changes in platform capacity are reflected in *Figure 12* and *Figure 13*.
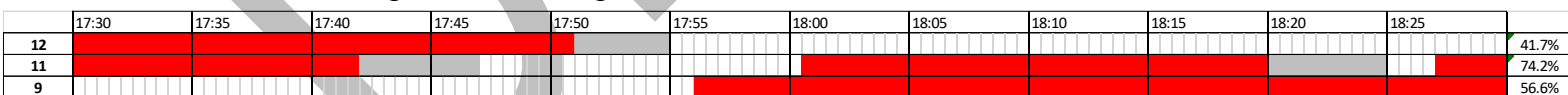
Figure 12: Platform occupancy diagram for the original CTP between 17:30 and 18:29.
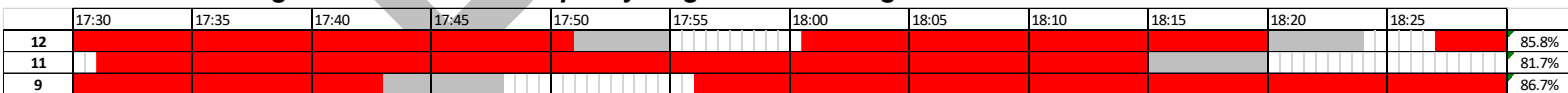
Figure 13: Platform occupancy diagram with amendments associated with GUT service Pair 6 between 17:30 and 18:29.

17:30-18:29	Original	Revised	Difference
12	41.7%	85.8%	44.2%
11	74.2%	81.7%	7.5%
9	56.6%	86.7%	30.1%

Table 8: Platform occupancy percentages 17:30 and 18:29, comparison between the original CTP and revised platforming structure for Pair 6.

The above figures demonstrate the platforming alterations. In conjunction with *Table 8* it demonstrates the changing dynamics within the platforms and how capacity alters as a function of the amended timetable. For Pair 6, a consistent increase in capacity utilisation is observed. Although this effects fewer platforms than in other hours, both platforms 12 and 9 see more significant increases to their utilisation.

A more substantial change to routing was required in which 9 services see routing changes. However, it should be reiterated that it's also likely that some routing changes identified in Section C.05 are likely part attributable to Pair 6 and vice versa. One service in this instance is required to be routed inbound on line 2, with the same risk identified in previous sections being noted here as well.

In total, 7 services require flexing in order to accommodate compliant paths. One of these changes results in a journey time and turnround improvement of 1 minute for 1D91 as a result of the removal of 1 minute of pathing at Ladbroke Grove. For the other 6 services, the inverse is true. For two such services, 1K57 and 1P34 the impact on journey times and turnround are more substantial at 5 and 3 minutes respectively. In the case of 1K57 this a product of 2 converging issues in which a platform change was required but this also coincided with constraints generated in the previous CA exercise when initial pathing solutions where being identified for GUT services. The attempt that was made in this instance revolved around the aim of allowing a platform alteration and keeping the path generated in the previous CA exercise; whilst also attempting to push the path of 1K57 back to its original CTP flighting beyond Acton Wells to accommodate a myriad of other conflicts. Whilst this process was successful from a compliancy standpoint it does have the associative issue of egregious pathing between Ladbroke Grove and Paddington alongside the detriment to journey time. Of the services flexed, one is the inbound GUT service (1L85). This has seen a journey time increase of 2 minutes but it has been stipulated by GUT that some level of departure or arrival changes is acceptable in instances where it results in a complaint pathing option.

Overall, 1L85 and 1B82 can be accommodated with generally fewer changes than most of pairs despite the evening peak status. Yet, some of the most egregious applications of pathing to reach this end goal are observed in this instance and thus may impede on the overall quality or robustness of the timetable. To reiterate, many of these issues identified are a culmination of the close associations between Pair 5 and 6. In total, 6 services observe platform alterations, 9 exhibit routing changes and 7 require some degree of flexing. These changes are summarised in Appendix C, *Table 16.*

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C.08   Pair Seven: 1L89 and 1B84

1L85 and 1B82 could be accommodate with moderate changes in line with GUT service pairs discussed in Sections C.03 or C.04. In total, 11 services or 5 service groups see platform changes. This is to accommodate 1L89 and 1B84 in Platform 11. Of the platform changes service groups 3D81/1D81 and 1A30/1C31 see more dramatic shifts between high and lower numbered platforms. The remaining platform changes are segregated to changes amongst the higher numbered platforms only. The changes in platform capacity dynamics can be observed in *Figure 14* and *Figure 15*.
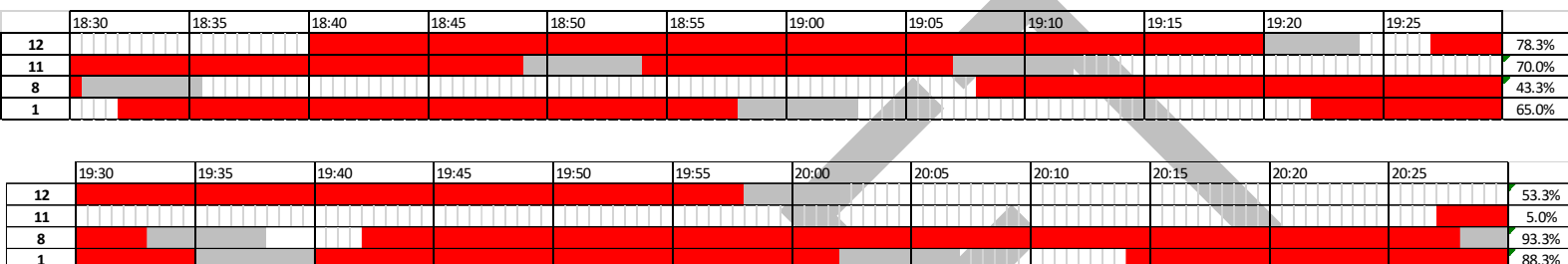
Figure 14: Platform occupancy diagram for the original CTP. This is split into two, 1 hour periods to capture all the appropriate changes (18:30-19:29 and 19:30 to 20:29 respectively).
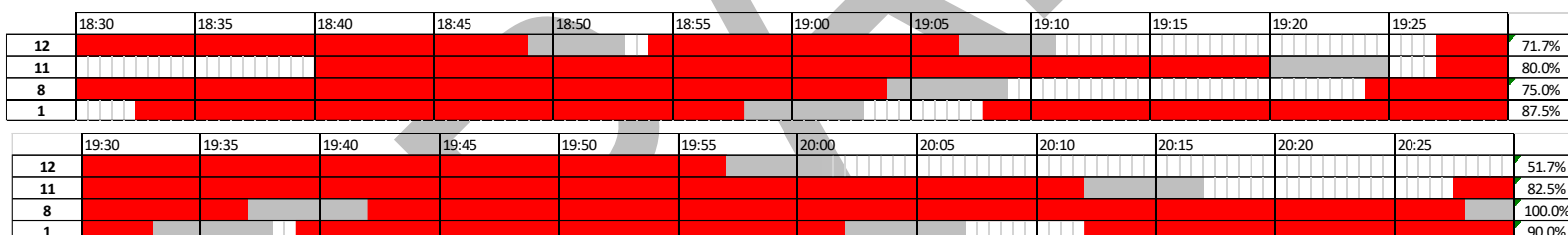
Figure 15: Platform occupancy diagram with amendments associated with GUT service Pair 7. This is split into two, 1 hour periods to capture all the appropriate changes (18:30-19:29 and 19:30 to 20:29 respectively).

18:30-19:29	Original	Revised	Difference
12	78.3%	71.7%	-6.6%
11	70.0%	80.0%	10.0%
8	43.3%	75.0%	31.7%
1	65.0%	87.5%	22.5%

Table 9: Platform occupancy percentages 18:30 and 19:29, comparison between the original CTP and revised platforming structure for Pair 7.

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19:30-20:29	Original	Revised	Difference
12	53.3%	51.7%	-1.7%
11	5.0%	82.5%	77.5%
8	93.3%	100.0%	6.7%
1	88.3%	90.0%	1.7%

Table 10: Platform occupancy percentages 19:30 and 20:29, comparison between the original CTP and revised platforming structure for Pair 7.

The above figures demonstrate the platforming alterations. In conjunction with *Table 9* and *Table 10* it demonstrates the changing dynamics within the platforms and how capacity alters as a function of the amended timetable. For Pair 7, whilst improvements in platform 12 can be observed, the pair exhibits the highest net increase in utilisation as a function of the presence of the GUT service and the highest single increase in utilisation at 77.5% in platform 11 between 19:30 and 20:29.

In total, 9 routing changes can be observed as a result of this GUT pair. Four of these routing changes logically follow as a result of the changes between high and low numbered platforms. Other routing changes exist to accommodate a myriad of compliancy requirements from Ladbroke Grove up to London Paddington.

In total, 5 services are flexed as the result of this GUT pair accommodation. 1L30 and 2P70 see journey time improvements of 2 and 0.5 minutes respectively as the result of the removal of some pathing allowances. 1B84, the GUT outbound service, sees a journey time degradation of 3 minutes as the result for the requirement of an earlier departure and subsequent pathing necessitated to keep the pathing compliant beyond Acton West. GUT have affirmed that this is an acceptable adjustment in order to produce the compliant path required out of London Paddington Station. The two other services see journey time degradations and subsequent turnround reductions of 0.5 to 2 minutes. In many ways, the flexing required for this pair has a balanced offset between improvements to journey time and degradations; when the increase in GUT journey time is removed from the equation.

1L89 and 1L84 can be accommodated with moderate change and perhaps has one of the less egregious flexing scenarios as a result of deficits to journey times being offset by improvements. In total, 11 services see alterations to their platforming, 9 have routing changes and five incorporate flexing. These changes are summarised in Appendix C, *Table 17*.

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Part D: **Conclusion**

To conclude, this analysis has shown that it is feasible to generate a compliant platforming plan at London Paddington with six GUT pairs under extensive change to the surrounding timetable structure. This has been achieved by flexing a total of 138 services across the day, where interactions between the CTP and GUT service paths intersect. Part of this plan involves the use of North Pole depot as a staging area to accommodate GUT rolling stock in the evening peak until platforming slots become available. Therefore, whilst seven new service pairs are observed, the passenger service quantum for GUT is technically six service groups. Whilst the analysis may show compliant platforming resolutions, this is not without some degree of cost to the wider timetable. This can be distilled into two key elements; impacted timetable traits and performance concerns.

The presence of additional pathing, in some instances heavily stacked at single locations on the approach to London Paddington, is cause for some concern as this results in journey times that are extenuated on top of pathing allowances applied from previous analysis. The presence of pathing in excess of 3 minutes at singular locations does not represent an ideal application of pathing within the timetable but is often a necessary process in this exercise in order to generate compliancy with platform end conflicts or at constrained locations such as Royal Oak Junction and Ladbroke Grove.

There also needs to be interdisciplinary action to determine the feasibility of utilising North Pole depot as a staging area for GUT rolling stock in the evening peak. This is likely an operational consideration. As the platforming plan hinges on this functionality, it should be taken forward as a potential risk until it can be affirmed that such operational functionality exists at North Pole in context of the wider daily operations.

Whilst performance concerns cannot be quantified or summarised within the scope of this project, it should be noted that certain findings generated by this report should be taken forward as potential performance risks. This includes key elements such as; the frequent reduction in turnround times at London Paddington, increased utilisation of Line 2 for some inbound working and changing capacity dynamics within the platforms themselves. Timetable formation represents more than just maximum feasible quantum of trains within a day and thusly risks such as these cannot be waylaid given the already complex dynamics observed at London Paddington today.

In all, the analysis has shown that there is technically feasible capacity for all GUT services at London Paddington but this will need to be evaluated against potential risks associated with the resolution frameworks produced.

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Appendix A – Assumptions

Timetable Scope

The scope covers weekday services from approximately 07:00 to midnight.

Timetable Planning Rules

The Western and Wales 2020 v4.1 Timetable planning Rules (TPRs) are used for this analysis.

Timing Load Assumptions

Grand Union Trains initially plans to use class 91 locomotives with 7 Mark 4 carriages. Indicative Running Times have been calculated for this rolling stock and are currently out for industry consultation.

Comparison has previously been undertaken between this rolling stock and class 802 (electric) timing loads. This is both Grand Union Trains intended rolling stock for these services once extended beyond Cardiff and the rolling stock currently in use by Great Western Railway services on this route. This comparison indicated that the main difference in running times was lesser acceleration from a standing start for the class 91 formation.

In light of this comparison and in line with the previous analysis undertaken by the Future Services Integration Team this analysis uses Class 802 timing loads under electric traction (802-9E) with 30 seconds of adjustment added on departure from London Paddington..

Source Timetable

This analysis is undertaken within the Western Event Steering Group for Phase 5 of the Elizabeth Line concept train plan with the addition of Grand Union Trains.

Infrastructure

The assumed infrastructure for the May 2020 timetable.

Appendix B - Methodology

1. Set up ESG Concept Train Plan timetable.

2. Overlaid Grand Union Trains proposed paths from July 2020 output.

   o Provided the output to Grand Union Trains Timetable Consultant (Toby Hart).

3. Worked collaboratively with Grand Union Trains to identify platform conflicts and explore potential timetabling solutions.

Appendix C – Changed Trains Log

Train No.	Direction	Initial Dep.	Initial Arr.	Revised Dep.	Revised Arr.	Initial Pl.	Revised Pl.	Initial Route	Revised Route	Notes
1P83PD	Inbound	-	-	-	-	8	12	-	-	*Platform change.*
5P83PD	Outbound	-	-	-	-	8	12	-	-	*Platform change.*
1A07PD	Inbound	-	-	-	-	12	10	-	-	*Platform change.*
1C08PD	Outbound	-	-	-	-	12	10	5,4,4	3,2,2	*Platform and route change.*
1P03PD	Inbound	-	-	-	-	2	8	-	-	*Platform change.*
1D20PD	Outbound	-	-	-	-	3	8	2,2,2	3,2,2	*Platform and route change.*
1A72PD	Inbound	-	09:21:00	-	09:20:00	3	5	2,2,2	3,3,2	*Platform and route change. Pathing removed from Acton West onwards.*
1C76PD	Outbound	-	-	-	-	3	5	-	-	*Platform change.*
1L08PD	Inbound	-	-	-	-	5	3	-	-	*Platform change.*
1H11PD	Outbound	-	-	-	-	5	3	2,2,2	3,2,2	*Platform and route change.*

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1P19PD	Inbound	-	-	-	-	8	3	-	-	*Platform change.*
5P19PD	Outbound	-	-	-	-	8	3	-	-	*Platform change.*
1L73PD	Inbound	-	09:34:00	-	09:36:00	3	2	-	-	***GUT Service.*** *2 minutes pathing added @ Royal Oak.*
1B70PD	Outbound	-	-	-	-	3	2	-	-	***GUT Service.***
1A12PD	Inbound	-	10:07:00	-	10:09:00	-	-	-	-	*Arrival time change.*
1Y39PD	Inbound	-	09:48:30	-	09:49:00	-	-	-	-	*1 min pathing added @ Royal Oak Junction.*
1K07PD	Inbound	-	-	-	-	-	-	3,3,3	3,4,4	*Route change.*
5N22PD	Inbound	-	-	-	-	-	-	4,5,5	6,5,5	*Route change. 1.5 min pathing moved from Ladbroke Grove to Royal Oak Junction*
2N20PD	Outbound	-	-	-	-	-	-	5,5,5	4,4,4	*Route change.*
5L07PD	Outbound	-	-	-	-	-	-	5,5,5	4,4,4	*Route change.*
1H09PD	Outbound	-	-	-	-	-	-	2,2,2	1,1,1	*Route change.*

Table 11: Log of changes related to Pair 1 GUT accommodation. Refer to C.02 for more detail. Note 1L73 and 1B70 are included in this table for point of reference.

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Train No.	Direction	Initial Dep.	Initial Arr.	Revised Dep.	Revised Arr.	Initial Pl.	Revised Pl.	Initial Route	Revised Route	Notes
1L75PD	Inbound	-	-	-	-	-	11	-	-	*GUT Service.*
1B72PD	Outbound	-	-	-	-	-	11	-	-	*GUT Service.*
1P23PD	Inbound	-	-	-	-	-	-	2,2,2	3,3,3	*Route change.*
1L70PD	Inbound	-	12:00:00	-	11:59:00	-	-	3,3,2	2,2,2	*Route change.1 min pathing removed @Royal Oak.*
1T51PD	Outbound	-	-	-	-	-	-	2,2,2	3,3,3	*Route change.*
1Y48PD	Inbound	-	12:02:00	-	12:03:30	-	-	-	-	*1.5 min pathing added @ Ladbroke Grove.*

Table 12: Log of changes related to Pair 2 GUT accommodation. Refer to C.03 for more detail. Note 1L75 and 1B72 are included in this table for point of reference.

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Train No.	Direction	Initial Dep.	Initial Arr.	Revised Dep.	Revised Arr.	Initial Pl.	Revised Pl.	Initial Route	Revised Route	Notes
1B15PD	Outbound	-	-	-	-	-	-	3,2,2	4,4,3	*Route change.*
1L77PD	Inbound	-	-	-	-	-	9	-	-	***GUT Service.***
1B75PD	Outbound	-	-	-	-	-	9	-	-	***GUT Service.***
1L15PD	Inbound	-	-	-	-	9	11	-	-	*Platform change.*
1B16PD	Outbound	-	-	-	-	9	11	-	-	*Platform change.*
1T55PD	Outbound	-	-	-	-	-	-	2,2,2	3,3,3	*Route change.*
1L72PD	Inbound	-	12:59:00	-	12:58:00	-	-	2,2,2	2,1,1	*Route change. 1 min pathing removed @ Royal Oak.*
1Y52PD	Inbound	-	13:02:00	-	13:03:30	-	-	-	-	*1.5 min pathing added @ Ladbroke Grove.*
1T53PD	Inbound	-	-	-	-	-	-	3,3,3	2,2,2	*Route change.*
1A78PD	Inbound	-	12:27:00	-	12:29:00	-	-	2,2,2	3,3,3	*Route change. 2 min pathing added @ Royal Oak Junction.*
1K51PD	Inbound	-	-	-	-	4	9	2,2,2	3,3,4	*Platform and route change.*
1K52PD	Outbound	11:36:00	-	11:34:00	-	4	9	1,1,1	3,2,2	*Platform and route change. 2 min pathing*

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		-	-	-	-					*added @ Ladbroke Grove.*
1H22PD	Inbound	-	-	-	-	1	4	-	-	*Platform change.*
1H19PD	Outbound	-	-	-	-	1	4	-	-	*Platform change.*
1H24PD	Inbound	-	-	-	-	4	1	-	-	*Platform change.*
1H21PD	Outbound	-	-	-	-	4	1	-	-	*Platform change.*
1L70PD	Inbound	-	-	-	-	1	4	3,3,3	3,3,2	*Platform and route change.*
1D24PD	Outbound	-	-	-	-	1	4	-	-	*Platform change.*
1G15PD	Outbound	-	-	-	-	4	1	-	-	*Platform change.*
1D22PD	Inbound	-	11:20:00	-	11:24:00	-	-	-	-	*2 min pathing added @ Portobello + Royal Oak Junction*
1P25PD	Inbound	-	12:54:00	-	12:56:00	-	-	-	-	*3 min pathing added @ Ladbroke Grove. 1 min pathing removed @ Royal Oak.*

Table 13: Log of changes related to Pair 3 GUT accommodation. Refer to C.04 for more detail. Note 1L77 and 1B75 are included in this table for point of reference.

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Train No.	Direction	Initial Dep.	Initial Arr.	Revised Dep.	Revised Arr.	Initial Pl.	Revised Pl.	Initial Route	Revised Route	Notes
1T62PD	Outbound	-	-	-	-	-	-	2,2,1	2,1,1	*Route change.*
1L81PD	Inbound	-	-	-	-	-	11	-	-	***GUT Service.***
5L81PD	Outbound	-	-	-	15:12:00	-	11	-	-	***GUT Service..***
1L74PD	Inbound	-	-	-	-	11	5	-	-	*Platform change.*
G19PD	Outbound	-	-	-	-	11	5	-	-	*Platform change.*
1L19PD	Inbound	-	-	-	-	11	10	-	-	*Platform change.*
5L19PD	Outbound	-	-	-	-	11	10	-	-	*Platform change.*
1P29PD	Inbound	-	-	-	-	10	9	-	-	*Platform change.*
1W30PD	Outbound	-	-	-	-	10	9	2,2,2	3,2,2	*Platform and route change.*
1L20PD	Inbound	-	15:12:00	-	15:10:00	9	10	3,3,3	3,4,4	*Platform change and route. 2 min pathing removed @ royal oak junction.*
1B21PD	Outbound	-	-	-	-	9	10	-	-	*Platform change.*
1C85PD	Outbound	-	14:37:00	-	14:35:00	-	-	-	-	*2 min pathing added @ Ladbroke Grove.*
1T64PD	Outbound	-	-	-	-	-	-	2,2,2	3,3,2	*Route change.*

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1Y61PD	Inbound	-	15:18:00	-	15:18:30	-	-	-	-	*0.5 min pathing added @ Ladbroke Grove.*
1Y63PD	Inbound	-	-	-	-	-	-	3,3,3	3,3,2	*Route change.*
1K19PD	Inbound	-	14:51:00	-	14:52:00	-	-	-	-	*1.5 min pathing added @ Royal Oak Junction.*
1H34PD	Inbound	-	-	-	-	2	9	3,3,3	3,4,4	*Platform and route change.*
1H31PD	Outbound	-	-	-	-	2	9	2,1,1	3,2,2	*Platform and route change.*
1H36PD	Inbound	-	14:45:00	-	14:47:00	-	-	3,3,3	2,1,1	*Route change. 2 min pathing added @ Portobello.*
1L18PD	Inbound	-	14:12:00	-	14:14:00	9	2	3,3,3	3,3,2	*Platform and route change. 2.5 min pathing added @ Royal Oak.*
1B19PD	Outbound	-	-	-	-	9	2	4,4,2	1,1,1	*Platform and route change.*
5C19PD	Inbound	-	14:41:00	-	14:37:00	-	-	-	-	*Departs 1 min earlier. 3 mins pathing removed beyond North Pole.*

Table 14: Log of changes related to Pair 4 GUT accommodation. Refer to C.05 for more detail. Note 1L81 and 5L81 are included in this table for point of reference.

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Train No.	Direction	Initial Dep.	Initial Arr.	Revised Dep.	Revised Arr.	Initial Pl.	Revised Pl.	Initial Route	Revised Route	Notes
1A88PD	Inbound	-	17:27:30	-	17:29:00	-	-	2,2,2	3,3,3	*1.5 min pathing added @ Royal Oak. 0.5 min adjustment moved from Paddington to Royal Oak as pathing.*
2P60PD	Inbound	-	-	-	-	12	10	4,5,5	4,4,4	*Platform and route change.*
1D76PD	Outbound	-	-	-	-	12	10	3,2,2	3,2,2	*Platform change.*
1B26PD	Outbound	17:18:00	-	17:17:00	-	-	-	3,2,2	4,3,3	*Routing change. 1 min pathing added @ Acton West. Adjustment moved to Ladbroke Grove.*
5B80PD	Inbound	-	-	-	16:44:00	-	4	-	1,1,1	***GUT Service.***
1B80PD	Outbound	-	-	-	17:15:00	-	4	-	1,1,1	***GUT Service.***
1L22PD	Inbound	-	-	-	-	4	5	-	-	*Platform change.*
1C24PD	Outbound	-	-	-	-	4	5	-	-	*Platform change.*
1P04PD	Inbound	-	16:24:00	-	16:25:00	5	8	-	-	*Platform change. 1 min pathing added @ Royal Oak.*

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1W33PD	Outbound	-	-	-	-	5	8	2,1,1	3,2,2	*Platform and route change.*
3D47PD	Inbound	-	16:26:00	-	16:27:00	8	10	-	-	*Platform change. 1 min pathing added @ Royal Oak.*
1D47PD	Outbound	-	-	-	-	8	10	-	-	*Platform change.*
2P58PD	Inbound	-	16:28:00	-	16:29:00	-	-	-	-	*1 min pathing added @ Royal Oak.*
1L80PD	Inbound	-	-	-	-	-	-	3,3,3	3,4,4	*Route change.*
1H46PD	Inbound	-	17:14:00	-	17:13:00	1	2	-	-	*Platform change. 1 min pathing removed @ Acton West.*
1G25PD	Outbound	-	-	-	-	1	2	-	-	*Platform change.*
5W03PD	Inbound	-	17:18:00	-	17:19:00	2	1	-	-	*Platform change. Path moved 1 min later.*
1W03PD	Outbound	-	-	-	-	2	1	-	-	*Platform change.*
1A26PD	Inbound	-	-	-	-	-	-	-	-	*1 minute of pathing time moved forward from Royal Oak to Ladbroke Grove.*
1T69PD	Outbound	-	-	-	-	-	-	3,3,3	2,2,2	*Route change.*

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										Notes
1C89PD	Outbound	16:38:00	-	16:36:00	-	-	-	-	-	*2 min pathing added @Acton West.*
1A25PD	Inbound	-	16:39:00	-	16:40:00	-	-	-	-	*1 min pathing added @ Ladbroke Grove.*
1T70PD	Outbound	-	-	-	-	-	-	2,2,2	3,2,2	*Route change.*
1L23PD	Inbound	-	-	-	-	-	-	3,3,3	3,4,4	*Route change.*
1C22PD	Outbound	-	-	-	-	-	-	3,2,2	3,3,3	*Route change.*
1Y66PD	Inbound	-	-	-	-	-	-	3,3,3	2,2,2	*Route change.*
1P33PD	Inbound	-	-	-	-	-	-	3,4,4	3,3,3	*Route change.*
1L80PD	Inbound	-	-	-	-	-	-	-	-	*1 min pathing moved from Royal Oak to Portobello.*
1L24PD	Inbound	-	07:10:00	-	07:11:00	-	-	3,3,3	2,2,2	*Route change. 1 min pathing added @ Royal Oak.*
1T72PD	Outbound	-	-	-	-	-	-	4,3,3	3,3,3	*Route change.*
1Y69PD	Inbound	-	17:17:00	-	17:18:30	-	-	-	-	*1.5 min pathing added @ Ladbroke Grove.*
1K22PD	Inbound	17:08:00	-	17:07:00	-	-	-	-	-	*1 min pathing added @ Ladbroke Grove.*

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| 5K22PD | Outbound | - | 16:59:00 | - | 16:57:00 | - | - | - | - | *Departs North Pole 2.5 min earlier with 0.5 min pathing added @ Ladbroke Grove.* |

Table 15: Log of changes related to Pair 5 GUT accommodation. Refer to C.06 for more detail. Note 5B80 and 1B80 are included in this table for point of reference.

Train No.	Direction	Initial Dep.	Initial Arr.	Revised Dep.	Revised Arr.	Initial Pl.	Revised Pl.	Initial Route	Revised Route	Notes
1B28PD	Outbound	-	-	-	-	-	-	2,2,2	1,1,1	*Route change.*
1L26PD	Inbound	-	-	-	-	-	-	3,3,3	2,2,2	*Route change.*
1K57PD	Inbound	-	17:20:00	-	17:25:00	11	9	4,3,3	3,3,3	*Platform and route change. 2.5 pathing added @ Acton West. 3 min pathing added @ Ladbroke Grove.*
3D91PD	Inbound	-	-	-	-	11	9	-	-	*Platform change.*
1D91PD	Outbound	17:42:00	-	17:43:00	-	11	9	3,4,4	3,2,2	*Route change. 1 min pathing removed @ Ladbroke Grove.*
3D78PD	Inbound	-	-	-	-	11	12	-	-	*Platform change.*
2P65PD	Inbound	-	-	-	-	11	12	-	-	*Platform change.*
1D78PD	Outbound	-	-	-	-	11	12	5,5,4	4,3,2	*Platform and route change.*
1A90PD	Inbound	-	18:22:00	-	18:24:00	-	-	2,2,3	3,3,3	*Route change. 2 min pathing added @ Ladbroke Grove. 30 secs pathing moved from Royal Oak to Ladbroke.*

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1L85PD	Inbound	-	17:29:00	-	17:31:00	11	11	2,2,3	3,4,4	*GUT Service.* 1.5 min pathing @Ladbroke Grove. 2 min pathing added @ Acton West.
1B82PD	Outbound	-	-	-	-	9	11	3,2,2	3,2,2	***GUT Service.***
1A88PD	Inbound	-	17:27:30	-	17:29:00	-	-	-	-	*2 min pathing @ Acton West. 2 min pathing added @ Ladbroke Grove.*
1T73PD	Outbound	-	-	-	-	-	-	3,3,3	2,2,2	*Route change.*
1P34PD	Inbound	-	17:24:00	-	17:27:00	-	-	-	-	*1 min pathing @ Royal Oak. 1 min pathing added @ Acton West. 3 min pathing @ Ladbroke Grove.*
1Y70PD	Inbound	-	17:33:00	-	17:33:30	-	-	-	-	*0.5 min pathing added @ Ladbroke Grove.*

Table 16: Log of changes related to Pair 6 GUT accommodation. Refer to C.07 for more detail. Note 1L85 and 1B82 are included in this table for point of reference.

Train No.	Direction	Initial Dep.	Initial Arr.	Revised Dep.	Revised Arr.	Initial Pl.	Revised Pl.	Initial Route	Revised Route	Notes
1L30PD	Inbound	-	18:14:00	-	18:12:00	-	-	-	-	*2 min pathing removed @ Royal Oak.*
1A94PD	Inbound	-	-	-	-	-	-	-	-	*0.5 min pathing moved from Acton Wells to Ladbroke Grove.*
1L89PD	Inbound	-	-	-	-	10	11	-	-	**GUT Service.**
1B84PD	Outbound	20:15:00	-	20:12:00	-	9	11	-	-	**GUT Service.** *3 min pathing added @ Acton West.*
1K28PD	Outbound	20:06:00	-	20:08:00	-	-	-	-	-	*Entire path moved 2 minutes forward to Maidenhead.*
3K58PD	Inbound	-	19:29:30	-	19:31:00	-	-	-	-	*1.5 min pathing added @Royal Oak.*
3D80PD	Inbound	-	-	-	-	12	11	-	-	*Platform change.*
1D80PD	Outboud	-	-	-	-	12	11	-	-	*Platform change.*
5D79PD	Inbound	-	-	-	-	11	12	-	-	*Platform change.*
1P97PD	Inbound	-	-	-	-	11	12	-	-	*Platform change.*
1D79PD	Outbound	-	-	-	-	11	12	3,3,2	4,3,3	*Platform and route change.*

1K27PD										
	Outbound	-	-	-	-	11	12	-	-	*Platform change.*
	Inbound	-	-	-	-	1	8	2,2,2	3,4,4	*Platform and route change. 2 min pathing added @ Royal Oak.*
	Inbound	-	-	-	-	9	1	3,3,4	3,3,2	*Platform change and route change.*
	Inbound	-	-	-	-	-	-	2,1,1	3,3,2	*Route change.*

Table 17: Log of changes related to Pair 7 GUT accommodation. Refer to C.08 for more detail. Note 1L89 and 1B84 are included in this table for point of reference.

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Western Congested Infrastructure:
OPSG: 11 September 2020

Position paper

> OSPG is asked to NOTE that:
>
> Network Rail is planning to submit a declaration of congested infrastructure to the ORR and DfT for the:
>
> **Great Western Main Line: between Didcot Parkway and Wootton Bassett Junction inclusive Monday to Friday from 0700 – 1930 on the Up Main and from 1000 – 2000 on the Down Main.**
>
> This paper sets out the context for this declaration, the capacity and performance challenges that it faces and paths that have already been rejected and why. It also sets out the next steps and raises for awareness a potential further declaration on the relief lines between Airport Junction and Acton West later in the year.

Western Route context

The scope of the Western Route is extensive and diverse, the focal element being the Great Western Main Line which runs from London to Bristol, through the south west to Penzance. The core of the Great Western Main Line (GWML) is the high-speed section from London Paddington through the Thames Valley, Swindon and Bristol Parkway and on to the Severn Tunnel (for Wales). Designated as part of the Trans-European Network, this key element of the east to west route provides fast interurban links between the English and Welsh capital cities. The route diverges at Wootton Bassett Junction, to the west of Swindon, towards Chippenham and Bath, and at Bristol Parkway towards Bristol Temple Meads. The GWML is also a key freight corridor for traffic from the south west (specifically Bristol) and south Wales to London and it forms part of the national Strategic Freight Network (SFN) and is the second busiest freight corridor for freight into London.

Across the route and over several years a number of capacity challenges have been identified. The Great Western RUS (2010) and Western Route Study (2015) collectively identified that there were challenges to deliver the Intercity Express Programme (IEP) these included: London Paddington to Reading, Reading station, Didcot to Wootton Bassett, Bristol Parkway and Filton Bank. Whilst some of these have been addressed through investment, some remain and in particular the section between Didcot and Wootton Bassett.

December 2019 Timetable Change

December 2019 saw the introduction of a new train timetable on the Great Western Main Line representing the culmination in a spend £5bn pound spend of public funds electrifying the railway to Newbury, Chippenham and Cardiff from the outer London suburbs; with new track layouts at many locations, new signalling and station layouts.

The timetable change was the biggest change in over 40 years; to establish the highest level of passenger trains on the GWML line since construction. This change built on a trend of the last 5 years; where train services have increased to take advantage of new or enhanced infrastructure

on the Great Western Main Line provided by Network Rail; largely funded by Department for Transport and to meet the needs of passengers and freight users where growth has occurred in the region.

Train service changes extended from London to South Wales and to the West Country; for both MTR, GWR; while supporting existing passenger train timetables for Cross Country, TfW Rail and Freight customers.

The timetable saw additional off peak GWR services; and additional services in the PM peak on the GWML and stepped up services on branch lines. Additional MTR started operations to Reading – albeit not its full suite of services for which it holds access rights.

This new timetable saw a 5.9 % increase in the number of trains run and a heightened level of timetable complexity; including multiple coupling/uncoupling activity at key locations such as Paddington, Oxford, Bristol and Plymouth; to junction weaves on the Paddington – Reading - Didcot corridor to meet the volumes of passengers travelling.

The rights for the increase in GWML services were supported only up until the end of the GWR contract, as the Open Access Application for Grand Union Trains (GUT) was known about when NR was considering the GWR 38th Supplemental Agreement. It was known at that time that the two applications would be competing for timetable capacity.

Performance challenges since December 2019

The introduction of the December 19 timetable saw:
- the reduction in point to point running times to match more closely the higher performance of the Class 800 rolling stock; trading a large part of the ability for a single train to recover to path following perturbation for improved journey times;
- an increase in frequency of service and the number of trains running; most marked on the Main Lines between London Paddington and Swindon which saw an increase of 2.5tph – the majority of this increase on the Main Lines was in the inter-peak with some strengthening of quantum in the evening peak out of London; and
- a notable increase in complexity in the Main Line timetable; larger differences in stopping pattern and average speed were introduced to provide stronger market segmentation has led to a more fragile timetable structure in response to perturbation.

The long-term trend of GWR long-term trend for right time arrivals, shows that in the period following the introduction of the December 2018 timetable there was a level of improved performance when increased trains ran in electric mode but in old HST sectional running times. There was a clear decline in right time operations with the new December 2019 timetable with its increased train numbers.
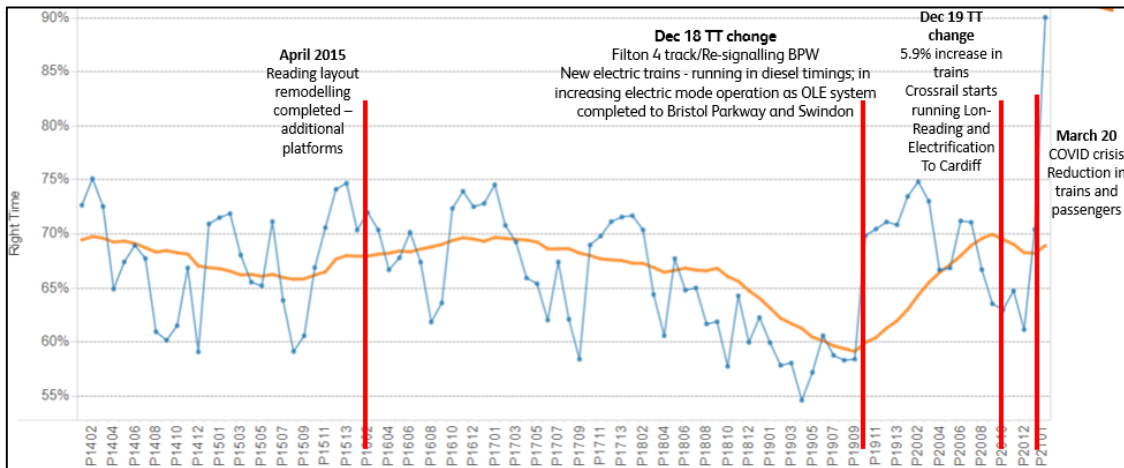
Figure 1: GWR periodic right time operations since 2013/14

The December 2019 timetable change witnessed an increase in trains in mid-afternoon through the evening peak with trains operation on minimum headways. This has led to delays per train particularly caused by reactionary and turnaround reaction delay, peaking between 1500 – 1900.
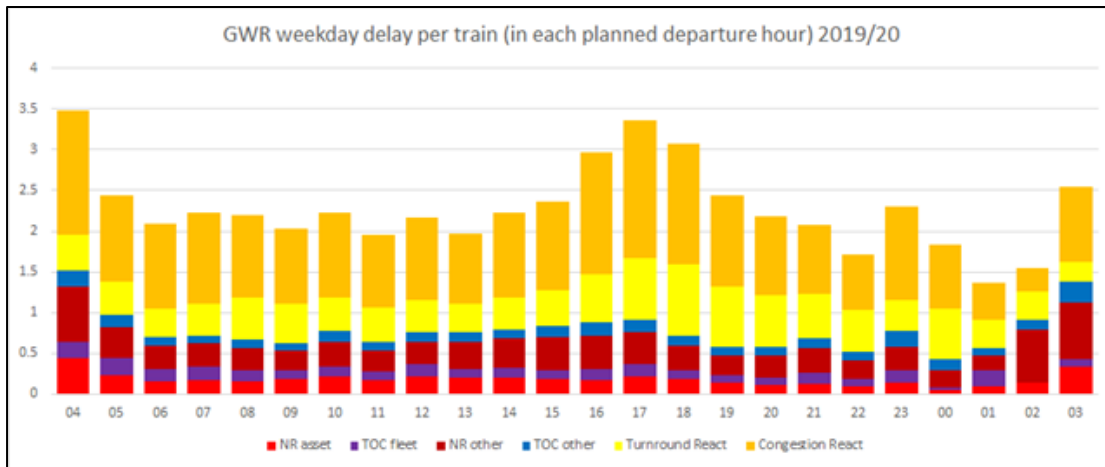
Figure 2: GWR performance by hour since December 2019

London Paddington is the gateway to the Great Western Main line has seen progressive increases in train services since the start of Heathrow Express train services in the late 1990s. The December 2019 timetable saw further additional GWR trains; notably long-distance services. Additionally, the December 2019 timetable saw an increase in coupling and uncoupling activity supporting the new train plan; capitalising on new multiple unit trains.

As part of the preparation for the introduction of the December 2019 timetable there was an assumption made as to the platform locations for planned couple/uncouple of trains. However, practical experience has been gained since the introduction and has found that the assumption is unfounded. This will be reviewed in future timetables as to what can be supported to make this more robust and less of a performance issue.

Performance at the station is reflected on the following slides; highlighting the indifferent levels of train performance and concerns that exist as to the ability to run further traffic in a timely manner.
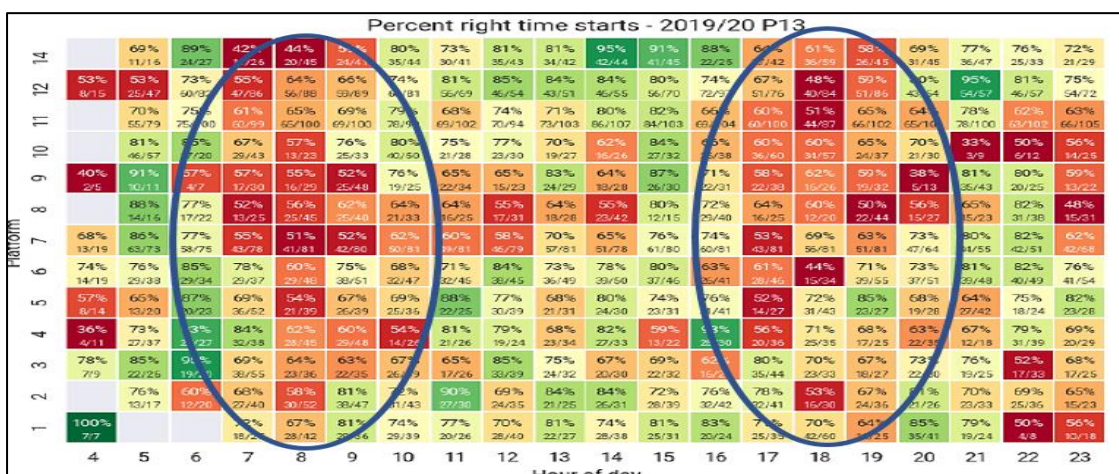
Figure 3: % of right time starts – 2019/20 P13 at London Paddington

Figure 3 reflects the challenge of operating the busy station. The afternoon into the evening peak witnesses successive down trains departing London Paddington on minimum headways.

Given the performance challenges that the Western route is facing to run the December 2019 timetable and a history of capacity challenges, this rest of this paper sets out the rationale for a declaration of Congested Infrastructure between **Didcot Parkway station (MLN1, 53m 10ch) and Wootton Bassett junction (MLN1/SWB, 82m 72ch)**.

Didcot Parkway to Wootton Bassett junction context
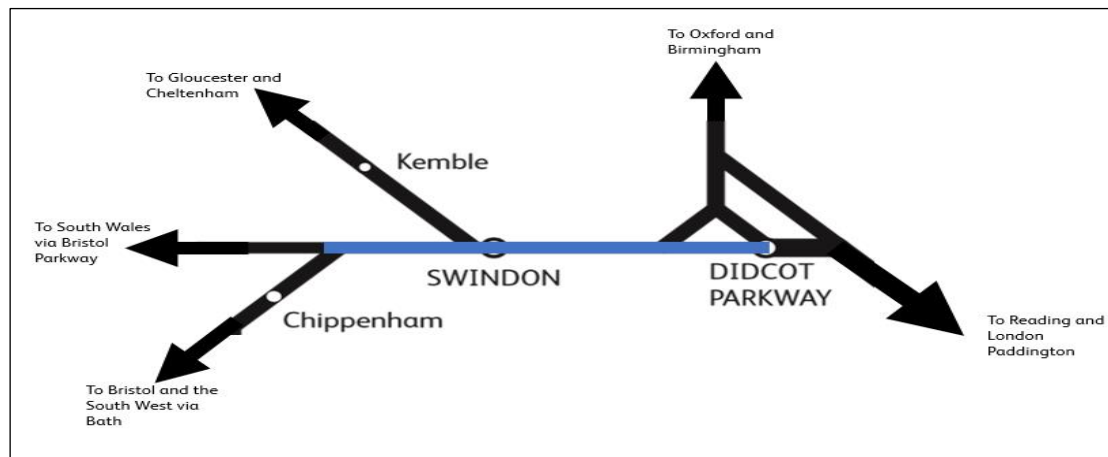
Diagram 1: Didcot Parkway to Wootton Bassett junction

As highlighted above, the Western route into and out of London Paddington faces performance challenges as a result of the volume of trains in the timetable. East of Didcot Parkway into London Paddington the railway is a four-track formation split between main lines and relief lines.

West of Didcot Parkway however, the section to Wootton Bassett junction (six miles west of Swindon) is predominately a two-track railway that carries a significant amount of mixed-use traffic. Coupled with the speed differentials between services on this section with limited passing places, it has historically been identified through strategic planning documents such as the Western Route Study (2015), as a capacity challenge that needs to be addressed.

It sees long-distance high-speed passenger services between London Paddington and Bristol, South Wales, and Gloucestershire, and freight services between facilities in the west, southwest, and South Wales and London, the southeast, and Midlands.

Evidence to support a Congested Infrastructure declaration
Building on the performance challenges, there are a number of operational and capacity issues that lead to a declaration of Congested Infrastructure. These range from headways, through to capacity utilisation and on to paths that have already been rejected on capacity grounds.

This route section was already running near to capacity in the morning peak but since the introduction of the December 2019 timetable and the increase in services, this has now been extended through the off-peak and into the evening peaks in both directions.

It should be noted that this assessment is based on the December 2019 working timetable (WTT) and its allocated paths. This timetable was in place for four periods from 15th December 2019 to 22nd March 2020 at which stage emergency timetables were introduced in line with the Government's response to the COVID-19 global pandemic.

This is the number of services that were running throughout day pre and post December 2019:

NetworkRail

Timetable	Location	Time of day (weekday)	Direction	Total no. of services	Difference from May 19	Typical speed
May 2019 Timetable	Wootton Bassett Junction to Didcot Parkway Station	AM peak (07.00 – 10:00)	Up Direction	20 passenger	N/A	90/125mph for passenger services 60/75mph for freight services
				2 freight		
		Inter-peak (10:00 – 16:00)		33 passenger		
				8.2 freight*		
		PM-peak (16:00 – 19:00)		14 passenger		
				2.6 freight*		
	Didcot Parkway Station to Wootton Bassett Junction	AM peak (07.00 – 10:00)	Down Direction	14 passenger		
				1 freight		
		Inter-peak (10:00 – 16:00)		33 passenger		
				6.8 freight*		
		PM-peak (16:00 – 19:00)		16 passenger		
				1.8 freight*		
December 2019 Timetable	Wootton Bassett Junction to Didcot Parkway Station	AM peak (07.00 – 10:00)	Up Direction	24 passenger	+4	90/125mph for passenger services 60/75mph for freight services
				2.2 freight*	+0.2	
		Inter-peak (10:00 – 16:00)		46 passenger	+13	
				7 freight	-1.2	
		PM-peak (16:00 – 19:00)		21 passenger	+7	
				4 freight	+1.4	
	Didcot Parkway Station to Wootton Bassett Junction	AM peak (07.00 – 10:00)	Down Direction	21 passenger	+7	
				1 freight	-	
		Inter-peak (10:00 – 16:00)		46 passenger	+13	
				7.8 freight*	+1	
		PM-peak (16:00 – 19:00)		23 passenger	+7	
				1.6 freight*	-0.2	

some freight services only run on certain days of the week

This increase in service numbers throughout the day has extended the capacity and performance challenges and means that it makes it even more challenge to recover the timetable after an incident, particularly given the mixed-use traffic and the speed differentials. For passenger services, the inter-peak has become as busy, and when freight services are added then busier, than the AM peak, which has traditionally been the area of focus (both for operations and future investment).

Capacity Utilisation

Following the introduction of the December 2019 timetable, assessment of the levels of capacity already taken has found that this is consistently high and exceeds the Western planning limit and European best practice. If all WTT paths run, Capacity Utilisation Index (CUI), based on planning headways, on the section between Didcot Parkway and Wootton Bassett junction is:

Direction	AM Peak (0700 – 1000)	Inter-peak (1000-1600)	PM Peak (1600 – 1900)	Western Planning Best Practice
Up	97 %	92 %	94 %	90 %
Down	81 %	91 %	95 %	

Both clearly have times of the day when they exceed the Western planning best practice of 90 % for mixed-traffic railways. This means that even before additional services are added to this section, there are capacity issues that require further investigation and mitigation. It also highlights how rigid the pattern is over this section with the freight and mixed stopping patterns.

Previously rejected paths

Further evidence of the timetabling challenges and a key reason for declaring Congested Infrastructure on this section is evident in the rejection of bids for paths. As part of the assessment of the bids for the December 2019 timetable, the following applications were rejected between Didcot Parkway and Wootton Bassett junction due to capacity constraints:

Headcode	Origin	Destination	Reason for rejection
6B33DA	Theale Murco	Robeston Sidings	Unable to find a compliant path between Didcot Parkway and Swindon due to the increased frequency of services for the Dec 2019 timetable
6B52DB	Swindon Stores	Llanwern Exchange Sidings	Direct conflict with 1C20DA from Swindon to Wootton Bassett and conflict with 1L24DA's departure from Platform 1 at Swindon
6C48PP	Appleford Sidings	Whatley Quarry	Headway conflicts at Foxhall junction, Challow, Highworth Junction and Wootton Bassett junction

Headways

As a result of this fuller network between Didcot Parkway and Wootton Bassett junction, trains are having to run close to or on the minimum of 4-minute headways. Even in the off-peak hour, all eight passenger and two freight trains are running close to or on minimum 4-minute headways. This means that there is very little, if any, flexibility in the timetable and significant risk of reactionary delay.
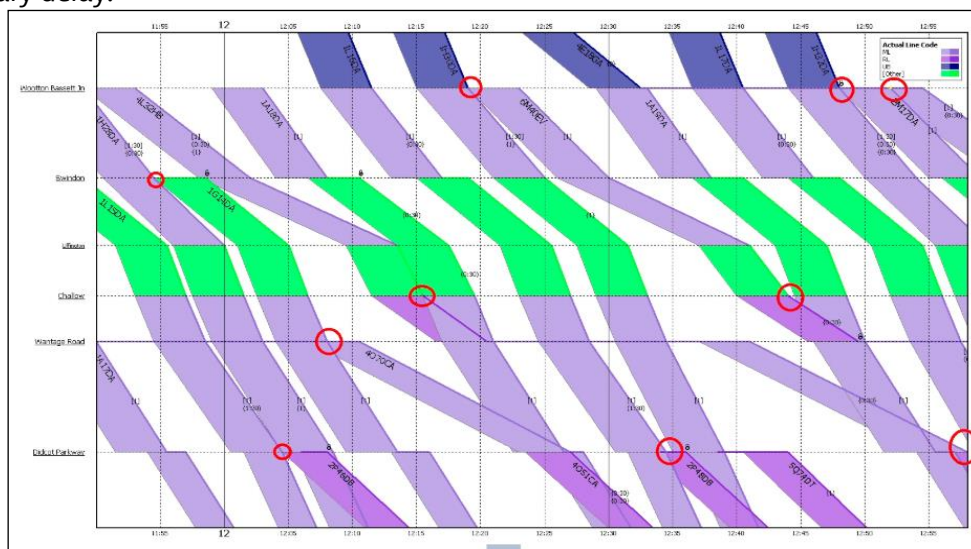
Figure 4: train planning graph of inter-peak hour (11:55 – 12:55) between Didcot Parkway and Wootton Bassett junction

Performance

Further evidence of the impact on the busier timetable is demonstrated in the two following diagrams which shows the % of trains arriving early or on-time at Wootton Bassett junction and at Didcot Parkway station following the introduction of the new timetable:
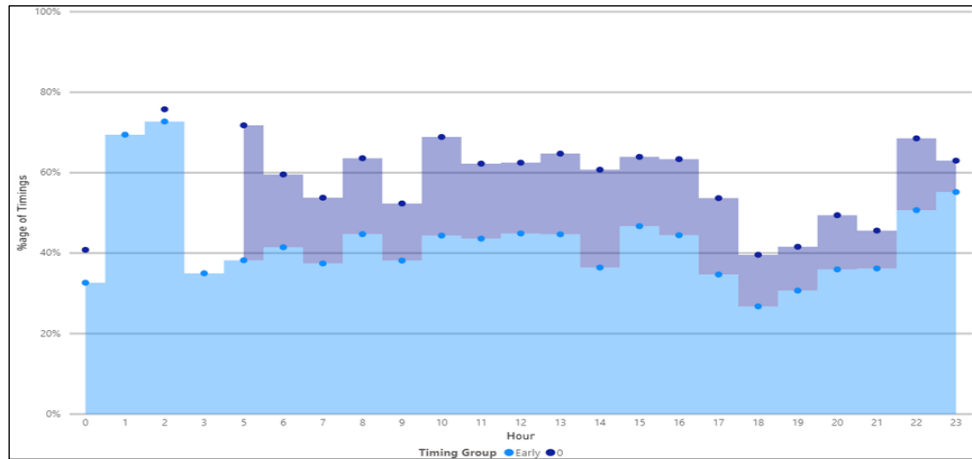
Figure 5: % of trains arriving early or on time at Wootton Bassett Junction on the December 2019 timetable
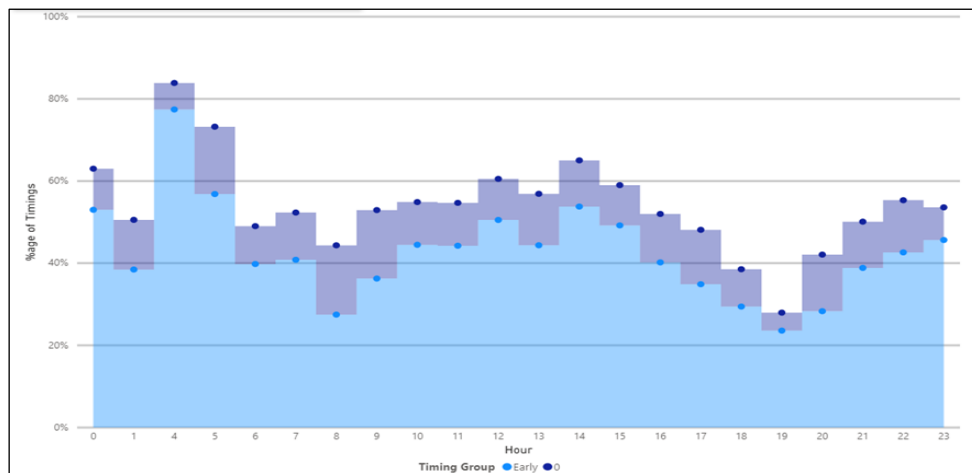
Figure 6: % of trains arriving early or on time at Didcot Parkway station on the December 2019 timetable

Both show that there are challenges throughout the day, in particular during the PM peak where we see as low as 30 % of trains arriving early or on time at Didcot Parkway and around the 40 % mark for the same measure at Wootton Bassett Junction.

As the Western route continues to undertake forensic analysis of train performance, consideration has been given to delays and where delays occur. An example of the 'tightened' section run times on the GMWL heading towards Swindon. The following diagram which demonstrates, the % of trains which attained the sectional running times between Wootton Bassett junction and Swindon Station pre and post December 2019 timetable change:
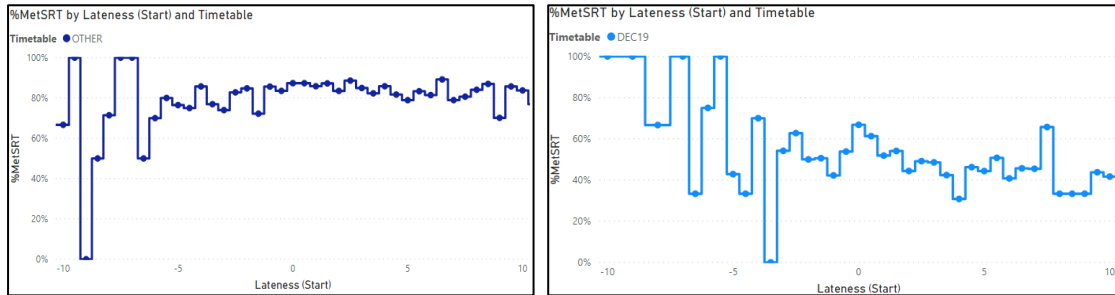
Figure 7: passenger train sectional run time attainment: Wootton Bassett Junction to Swindon pre (left) and post (right) December 2019 timetable change

Future path analysis

This assessment in this paper to this point has focussed on the current challenges and demonstrated that there is a volume of evidence for how congested this section is.

Grand Union Trains is an aspirant Open Access operator seeking access rights to 7 train slots per day between Cardiff Central and London Paddington from Dec 2021, and 7 train slots per day between Paddington and Carmarthen from Dec 2023.

Following on from analysis carried out by Network Rail in May 2020, this analysis was designed to undertake a further, more detailed evaluation to understand if there is sufficient capacity to operate the proposed 14 Grand Union Trains services. Working in collaboration with Grand Union Trains, these services were analysed within the May 20 timetable to evaluate required capacity.

The 14 services were analysed in pairs with one service in the up direction and one in the down direction. This was done so that a train wouldn't be planned into London Paddington without a return journey.

Of the 7 pairs analysed;

- The 5 pairs found to be compliant are only considered so because existing services have been changed and are heavily reliant on the ability to flex associated services. It must also consider the large number of proposed flexes and the number of operators involved; and
- 2 pairs have been demonstrated to be non-compliant with unresolved conflicts even after a significant number of associated services have had proposed flexes included.

For the five pairs, 93 flexes needed to existing services to make the GUT paths conflict free. Of these, 46 flexes were needed to services between Didcot Parkway and Wootton Bassett junction. Given the capacity issues on the route section, this is evidence of the challenges of introducing additional services onto an already congested network, and that a decision must be made as to which operator should be awarded rights beyond December 2021, as Network Rail does not support the continued sale of rights to the two competing aspirations (GWR's fast line increases in service group EF02, part of GWR 38th Supplemental Agreement, and GUT's Section 17 application for rights).

Conclusions

Historically, the section between Didcot Parkway and Wootton Bassett junction due to its mixed-use traffic and subsequent speed differentials across a predominately two-track railway has always been challenging from a capacity and performance point of view.

The introduction of the December 2019 timetable has exacerbated this
challenge further and as evidenced above the section is at capacity throughout the day. Not all
the access rights requested for the December 2019 timetable were able to be accommodated.

Therefore, on the evidence of rejected paths; the lack of capacity for additional services on this
route section; the impact on route performance; and the deliverability of a resilient timetable
Network Rail wishes to declare Congested Infrastructure on the **Great Western Main Line:
between Didcot Parkway and Wootton Bassett Junction inclusive Monday to Friday from
0700 – 1930 on the Up Main and from 1000 – 2000 on the Down Main.**

Next steps
Following OPSG, and prior to formally declaring Congested Infrastructure to the ORR and DfT,
Network Rail will take a position paper to PMO Steering Groups to brief our proposal.

Under 3.5 of the Congested Infrastructure process, Network Rail must advise all stakeholders by
letter what is being declared as congested and the reasons for this. Work is underway on the
letter and an Access Rights Policy Statement to articulate to our customers how access rights
applications will be handled for this section once Congested Infrastructure has been declared.

Following declaration, the Wales and Western Region will, within six months of declaration,
complete the required Capacity Analysis Report and, within twelve months of declaration, produce
the Enhancement Action Plan for submission.

In addition to this declaration, work is also underway to review the capacity challenges on the
Great Western Main Line relief lines between Airport Junction and Acton West. Analysis, including
the review of freight pathing and utilisation on that corridor, is due to conclude in the next few
months. The outputs will confirm whether there is evidence to declare this part of the network.

Paul Stanford
Performance Director, Western
11 September 2020

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Lead Strategic Planner, Western

NetworkRail

Grand Union Trains Phase 1 Cardiff - Paddington
Path Variance Review Reading - Paddington
Technical Note

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1. Background

The following paths have been identified through collaborative work between Grand Union Trains (GUT) and Network Rail (NR).

Pair	Up Service	Arrival at London Paddington	Down Service	Departure from London Paddington
1	1L73	09:36	1B70	09:58
2	1L75	11:26	1B72	11:59
3	1L77	12:31	1B75	12:58
4	1L81	14:30	~~1B77~~	~~15:12~~
	~~1L83~~	~~16:31~~	1B80	17:15
5	1L85	17:31	1B82	18:15
6	1L89	19:27	1B84	20:15

Table { SEQ Table * ARABIC } Grand Union Trains Paths

The paths crossed through in the table **{ REF _Ref54373177 \p \h }** have not proven feasible so are not tested in this analysis. Paths have been tested against the timetable in operation from the December 2019 timetable change date until the introduction of the Emergency Timetable in March 2020.

2. Analysis

The analysis in this report is focussed on the operation of the path immediately in front of each Grand Union path as it runs either Reading – Paddington or Paddington – Reading. The reason for this is to determine if congestion related delay is likely to impact on the viability of the Grand Union paths identified.

Each graph is based on a median day to represent a common level of lateness of each particular service.

2.1. 1L73 – 09:36 Paddington arrival
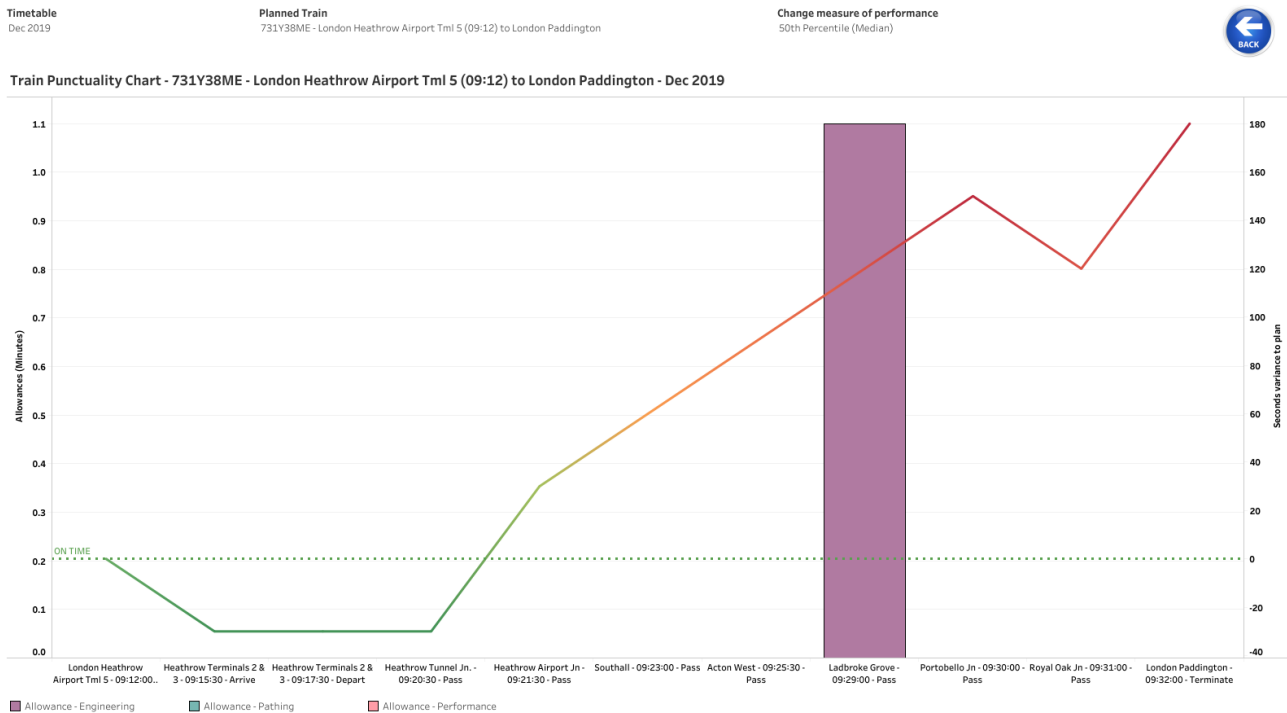
The service 2½ minutes in front of 1L73 is 1Y38 between Heathrow Airport Terminal 5 and London Paddington. As indicated by the graph above, this service is frequently delayed by congestion related to the tail-end of the morning peak. Median lateness increases steadily from Airport Junction at 30s to 3 minutes by Paddington. This means it is highly likely 1L73 will be delayed and in turn, this delay will impact on to 1K07 which is 2 ½ minutes behind 1L73.

2.2. 1L75 – 11:26 Paddington Arrival
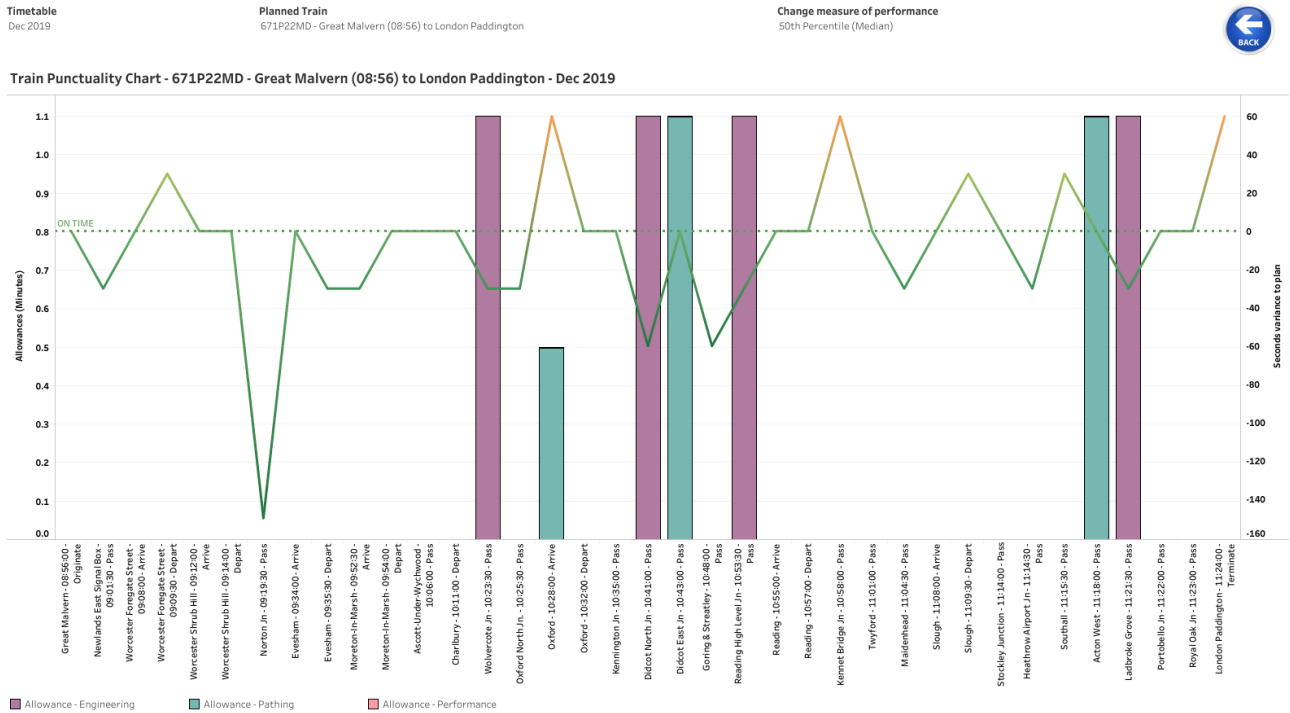
The service in front of 1L75 is 1P22 (represented above). The median punctuality profile for this service is generally good however there is a spike of up to 60s arriving at London Paddington. The risk of impact to 1L75 is low.

2.3. 1L77 – 12:31 Paddington Arrival
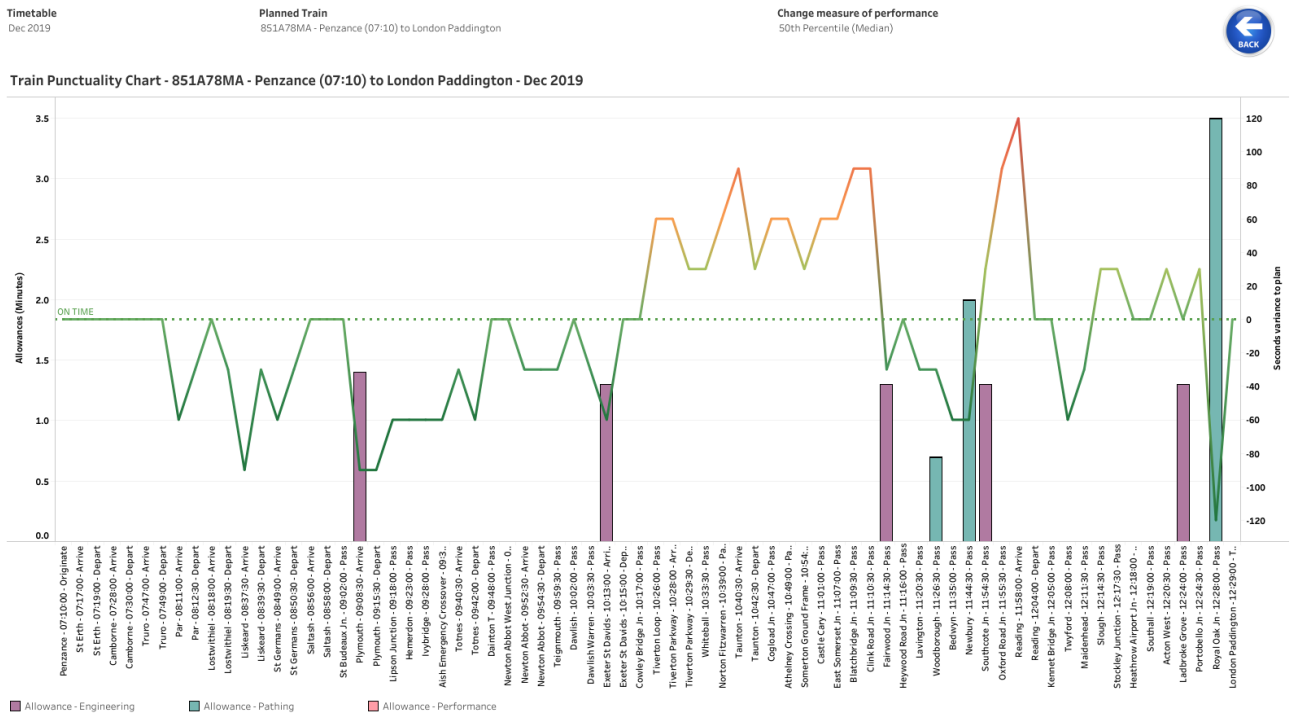
The service in front of 1L77 is 1A78. The median punctuality profile for this service shows delays outside the Reading – Paddington section however this is usually recovered by Reading. The risk of impact to 1L77 is low.

2.4. 1L81 – 14:30 Paddington Arrival
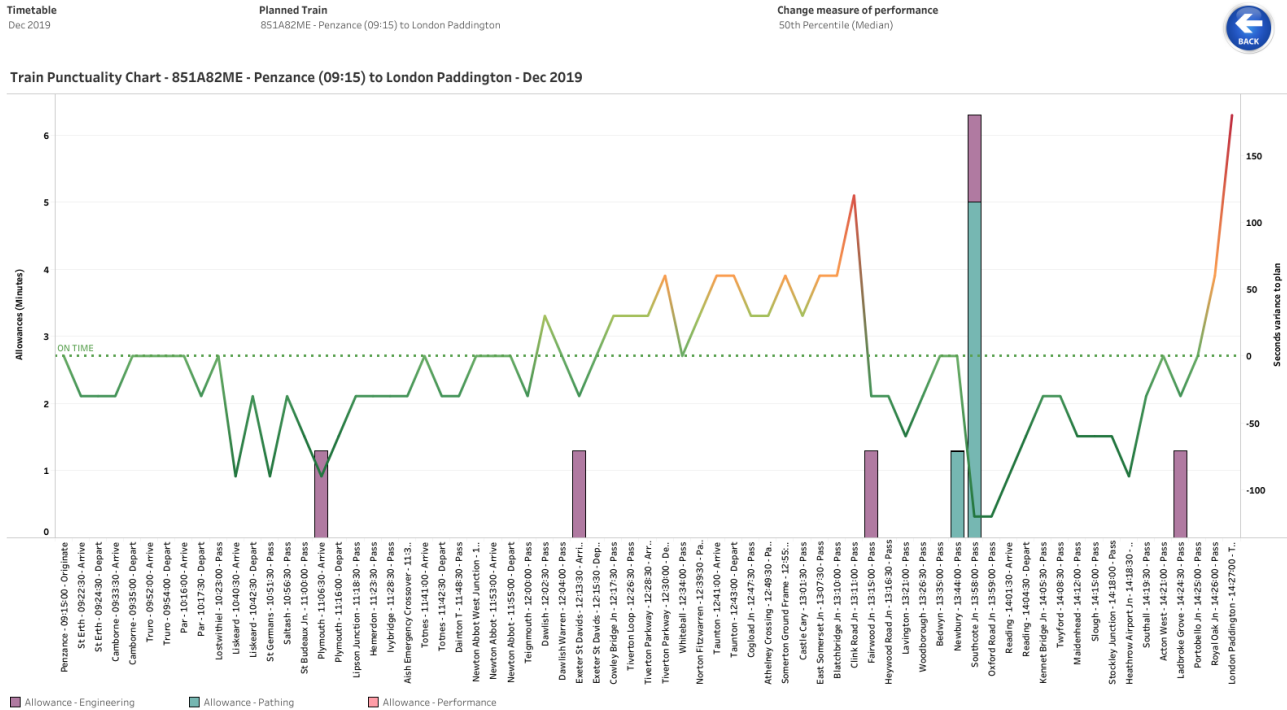
The service in front of 1L81 is 1A82 between Penzance and Paddington. Despite generally good punctuality through the Thames Valley, median lateness increases between Portobello Junction and Paddington. This means there is a significant chance of 1L81 being delayed in consequence on the approaches to Paddington. As 1A82 is planned in to Platform 8 in the Grand Union Trains Concept Train Plan and 1L81 is planned in to Platform 11 there will be no practical alternative but for 1L81 to queue on Line 3 behind 1A82 on the occasions it is delayed.

2.5. 1L85 – 17:31 arrival in London Paddington

Timetable	Planned Train	Change measure of performance	
Dec 2019	851A88MK - Penzance (12:16) to London Paddington	50th Percentile (Median)	BACK

Train Punctuality Chart - 851A88MK - Penzance (12:16) to London Paddington - Dec 2019
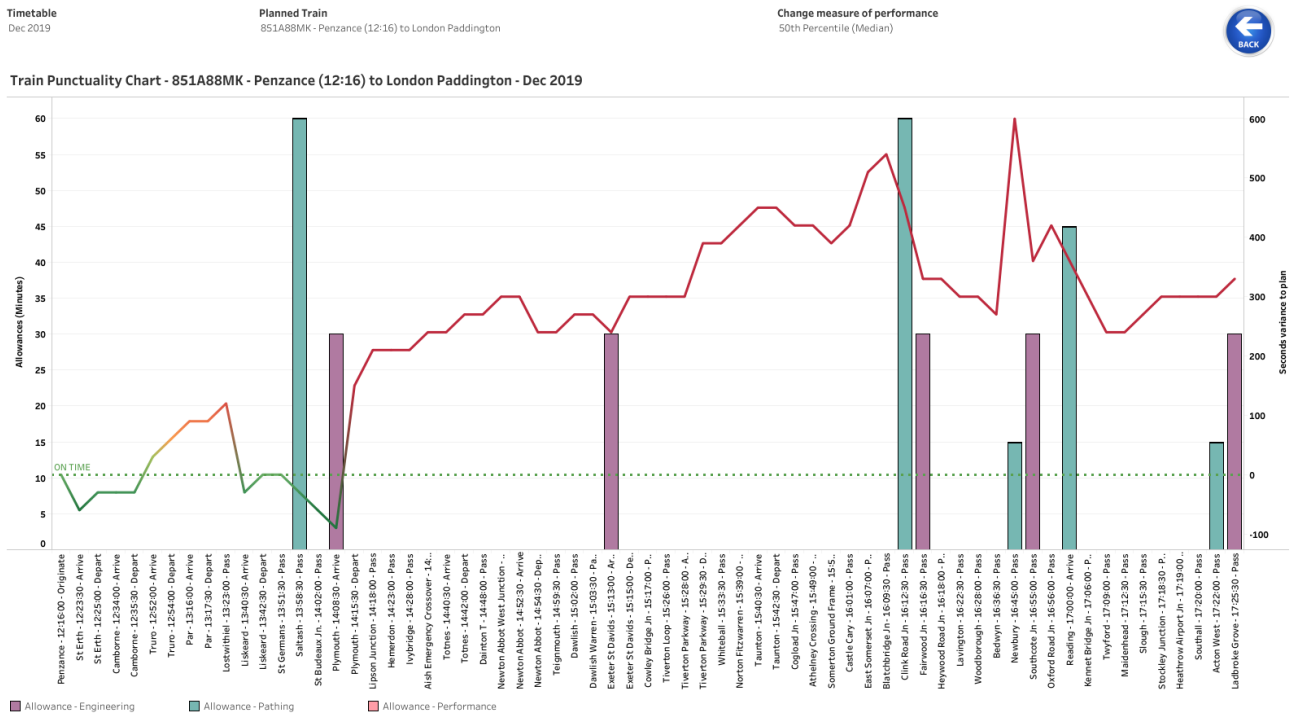
The service in front of 1L85 is 1A88 between Penzance and London Paddington. The median punctuality of this train is poor with frequent lateness in to the Thames Valley of more than one train pathway. It is worth noting that the insertion of 1L85 increases the performance risk because the dwell at Reading has been reduced from 5 minutes to 2 minutes, essentially eliminating the recovery potential.

This means that on a median day, 1A88 will not be in the timetabled path and if it is then regulated in deference to 1L85 at Reading is likely to directly impact on 1Y70, which would be following 1L85. 1Y70 currently has a median lateness on arrival to Paddington of 2 minutes. The risk of reactionary delay on to 1L85 or the services following 1L85 is high.

2.6. 1L89 – 19:27 arrival in London Paddington
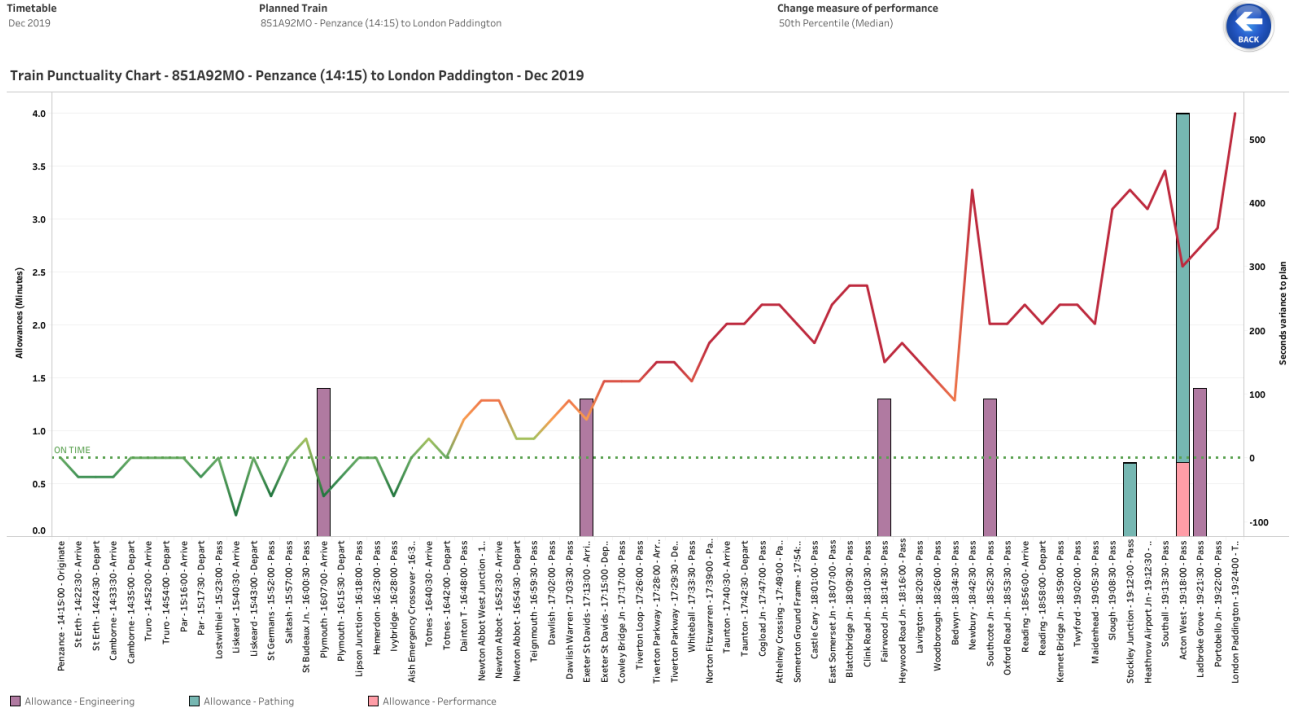
The service in front of 1L89 is 1A92 between Penzance and London Paddington. Similarly to 1A88 the punctuality profile of this service in to the Thames Valley is poor with further delays caused due to congestion by running contra-peak through the evening peak period.

Across the evening peak period, contra-peak punctuality is poor as the high-intensity evening peak service is prioritised. Given the poor punctuality during this period due to congestion, the risk of reactionary delay to 1L89 is high.

2.7. 1B70 – 09:58 departure from London Paddington

Timetable	**Planned Train**	**Change measure of performance**	
Dec 2019	731T43MF - London Paddington (09:55) to London Heathrow Airport Tml 5	50th Percentile (Median)	

Train Punctuality Chart - 731T43MF - London Paddington (09:55) to London Heathrow Airport Tml 5 - Dec 2019

Legend: Allowance - Engineering | Allowance - Pathing | Allowance - Performance
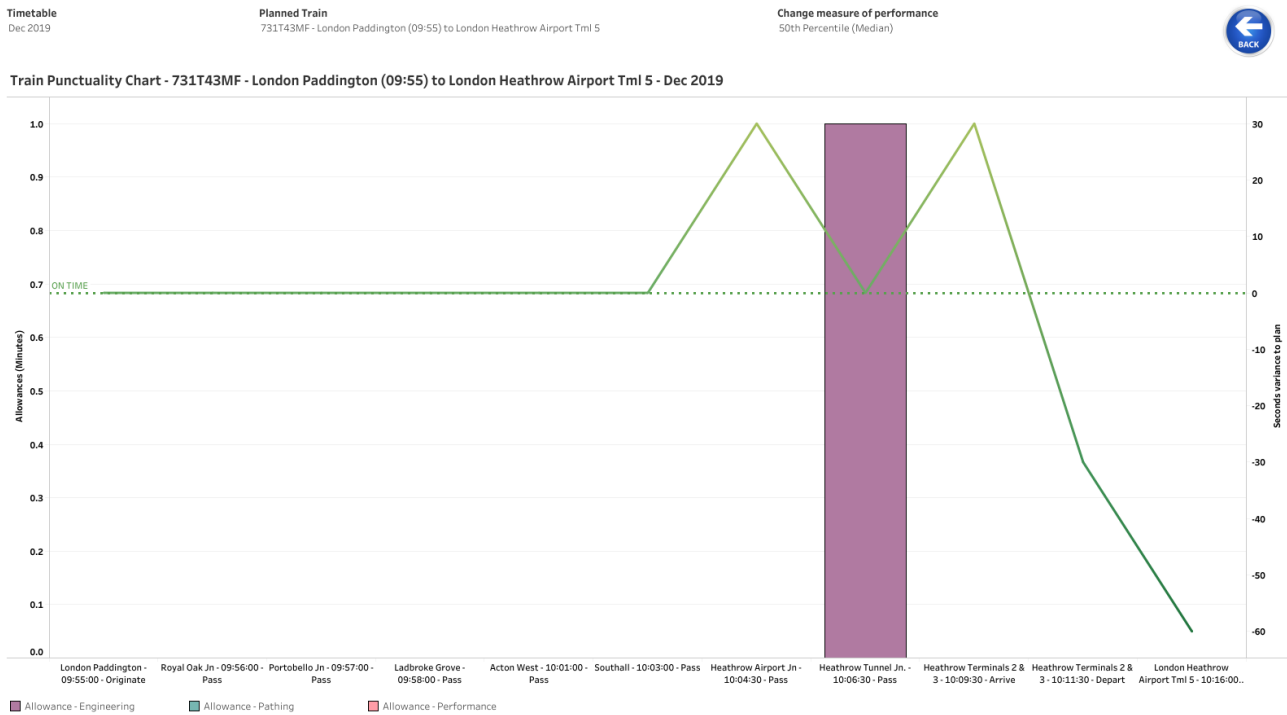
The service in front of 1B70 is 1T43 between London Paddington and Heathrow Terminal 5. There is a 3-minute headway between the two departures and the median punctuality of 1T43 is good therefore the risk to 1B70 of reactionary delay from this service is low.

2.8. 1B72 – 11:59 departure from London Paddington

Timetable	**Planned Train**	**Change measure of performance**	
Dec 2019	731T51MJ - London Paddington (11:55) to London Heathrow Airport Tml 5	50th Percentile (Median)	

Train Punctuality Chart - 731T51MJ - London Paddington (11:55) to London Heathrow Airport Tml 5 - Dec 2019

Legend: Allowance - Engineering | Allowance - Pathing | Allowance - Performance
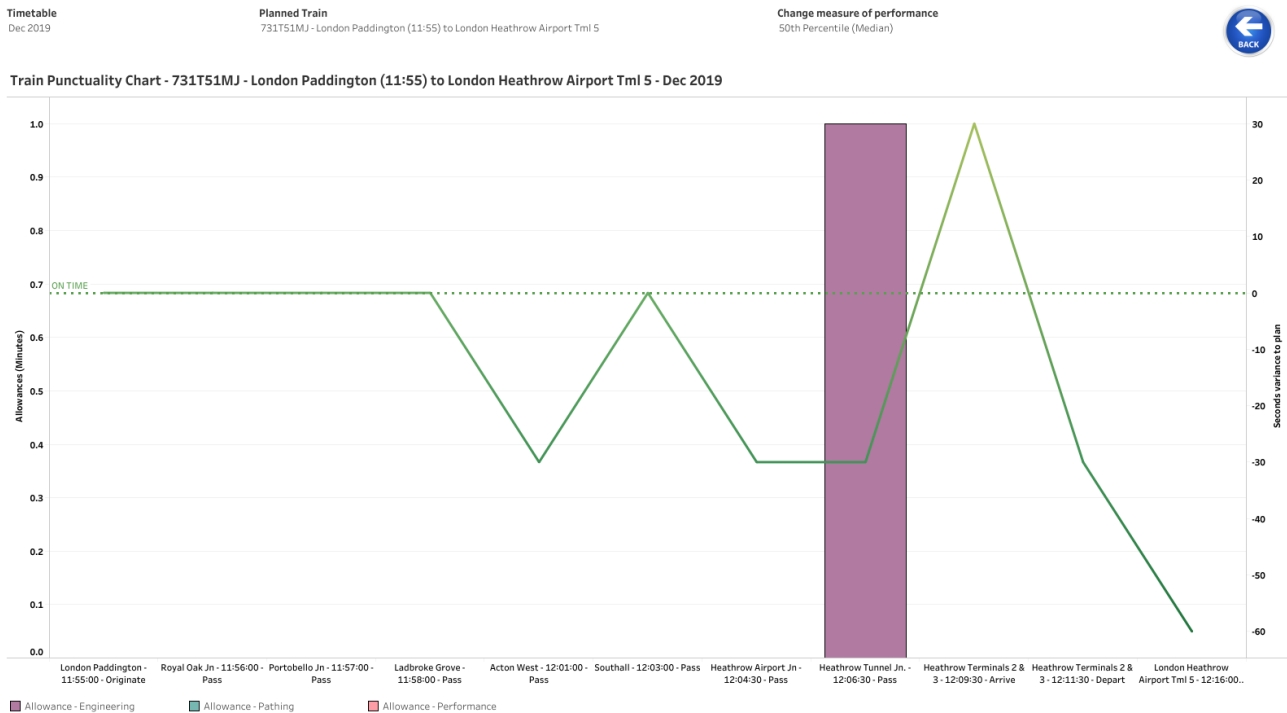
The service in front of 1B72 is 1T51 between London Paddington and Heathrow Terminal 5. There is a 4-minute headway between the two departures and the median punctuality of 1T51 is good therefore the risk to 1B72 of reactionary delay from this service is low.

2.9. 1B75 – 12:58 departure from London Paddington

Timetable	Planned Train	Change measure of performance	
Dec 2019	731T55ML - London Paddington (12:55) to London Heathrow Airport Tml 5	50th Percentile (Median)	BACK

Train Punctuality Chart - 731T55ML - London Paddington (12:55) to London Heathrow Airport Tml 5 - Dec 2019
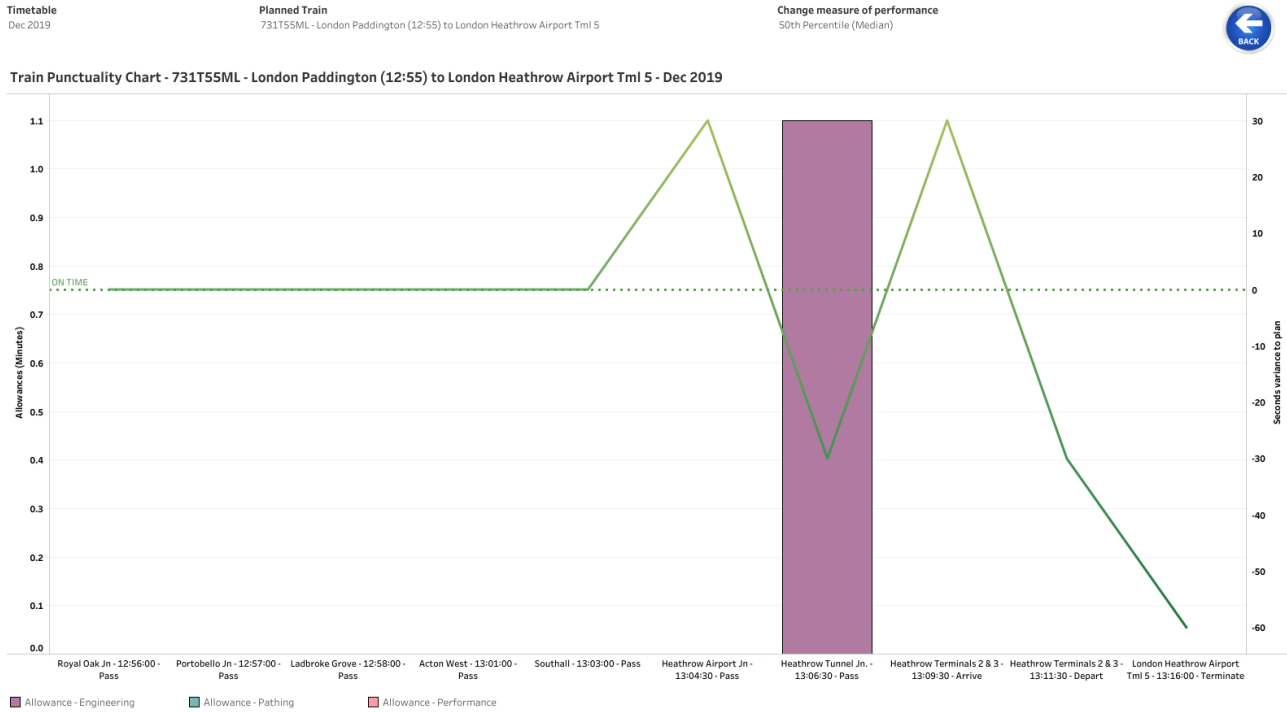
The service in front of 1B75 is 1T55 between London Paddington and Heathrow Terminal 5. There is a 4-minute headway between the two departures and the median punctuality of 1T55 is good therefore the risk to 1B75 of reactionary delay from this service is low.

2.10. 1B80 – 17:15 departure from London Paddington
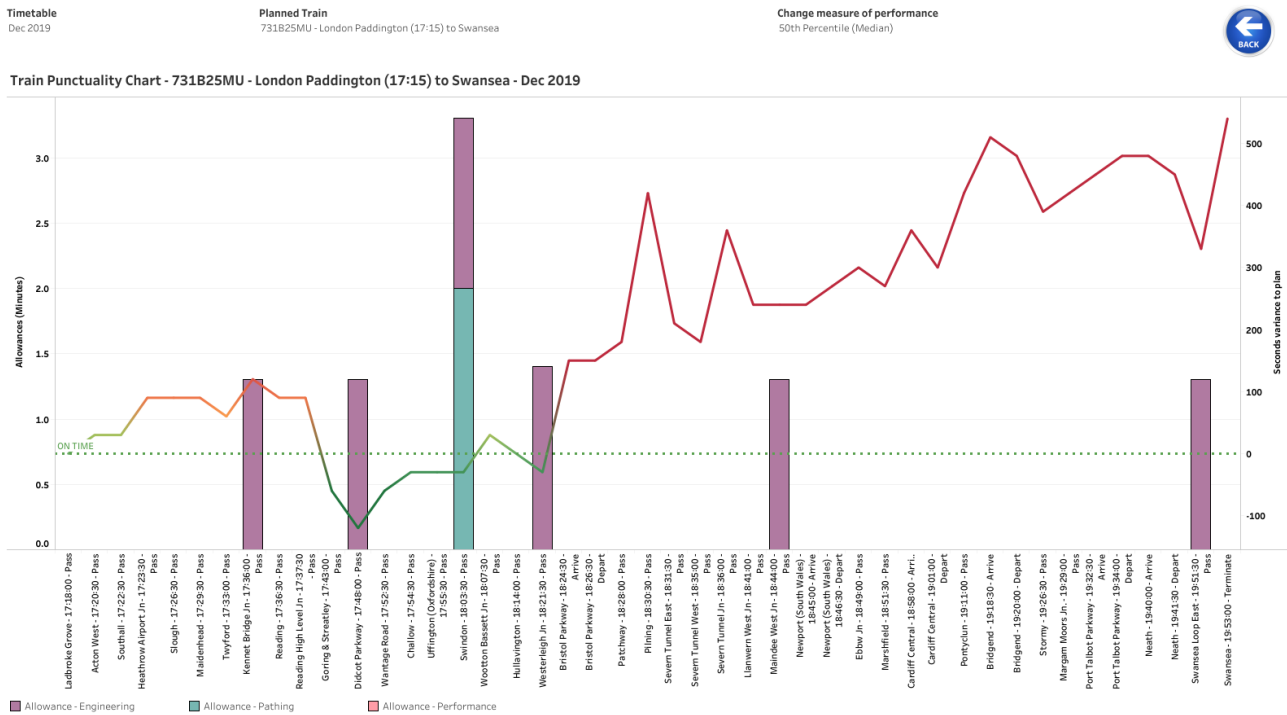
1B80 has taken the path of the existing 1B25 departure, which has accordingly been made two minutes earlier. This gives three trains to South Wales in a four-minute window from London Paddington, the first of which would be 1B25. Routine delivery of flights of trains on two minutes headway from Paddington is challenging as parts of the peak where this is currently done shows.

The diagram below shows a train graph for London Paddington – Reading during the evening peak period. The black lines show scheduled paths and the red lines show the median train times which are typically a train pathway later. This is indicative of capacity utilisation being too high to cater for typical, low levels of perturbation.

The pathway of 1B25 shows evidence of this, with the median punctuality being 1.5 minutes late between Airport Junction and Reading before recovering to the West of Reading. From Bristol Parkway to Cardiff Central median punctuality suffers considerably. 1B80 would be on minimum headways behind 1B25 as far as Bristol Parkway, likely experiencing reactionary delay over these sections.

1B26 will then catch up 1B80 when it stops at Severn Tunnel Junction and follow it on minimum headways along the SWML in to Cardiff Central. Given the median punctuality of 1B25, which is frequently impacting on 1B26 it is clear that the insertion of 1B80 (which itself is likely to be delayed) will result in further delay to 1B26.

The risk of reactionary delay to 1B26 is high.

De-select Trains
All

De-select locations
Multiple values

Change measure of performance
50th Percentile (Median)

De-select Operators
Multiple values

Path Variance - Dec 2019

Seconds variance to plan
0.0   180.0
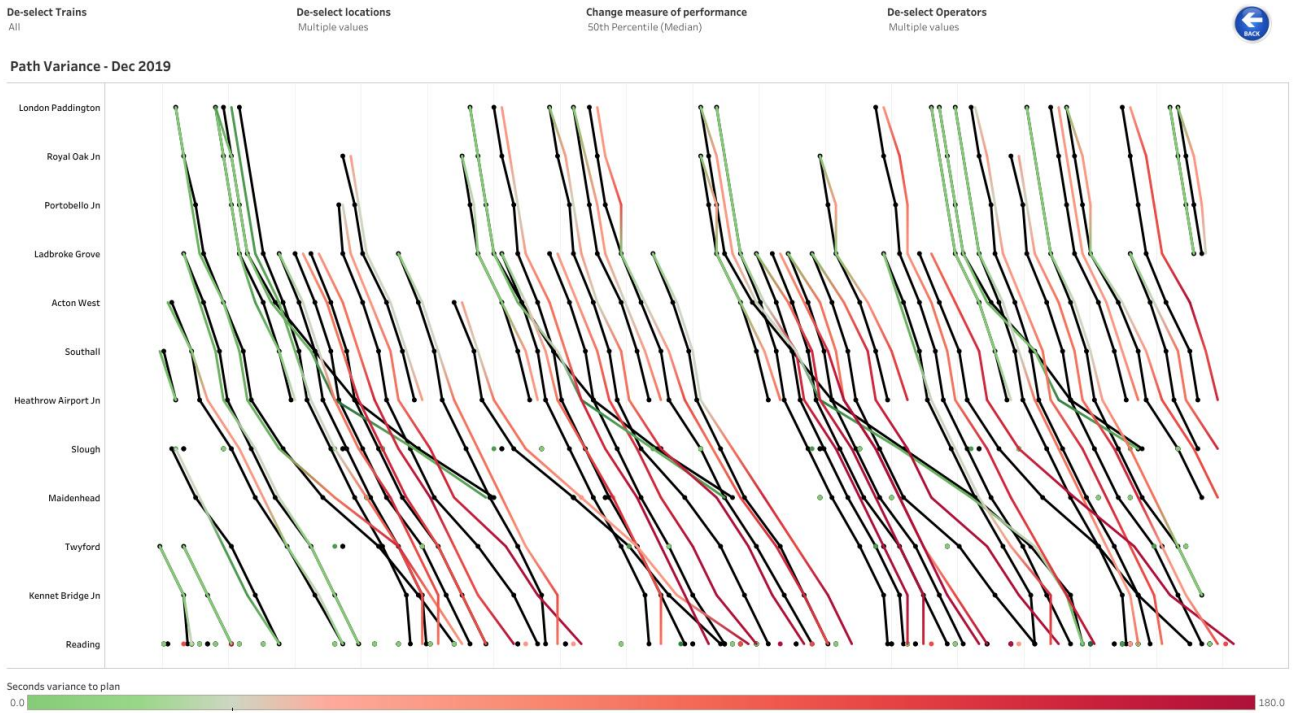
2.11. 1B82 – 18:15 departure from London Paddington

Timetable
Dec 2019

Planned Train
731B28MW - London Paddington (18:16) to Carmarthen

Change measure of performance
50th Percentile (Median)

Train Punctuality Chart - 731B28MW - London Paddington (18:16) to Carmarthen - Dec 2019

Allowance - Engineering   Allowance - Pathing   Allowance - Performance
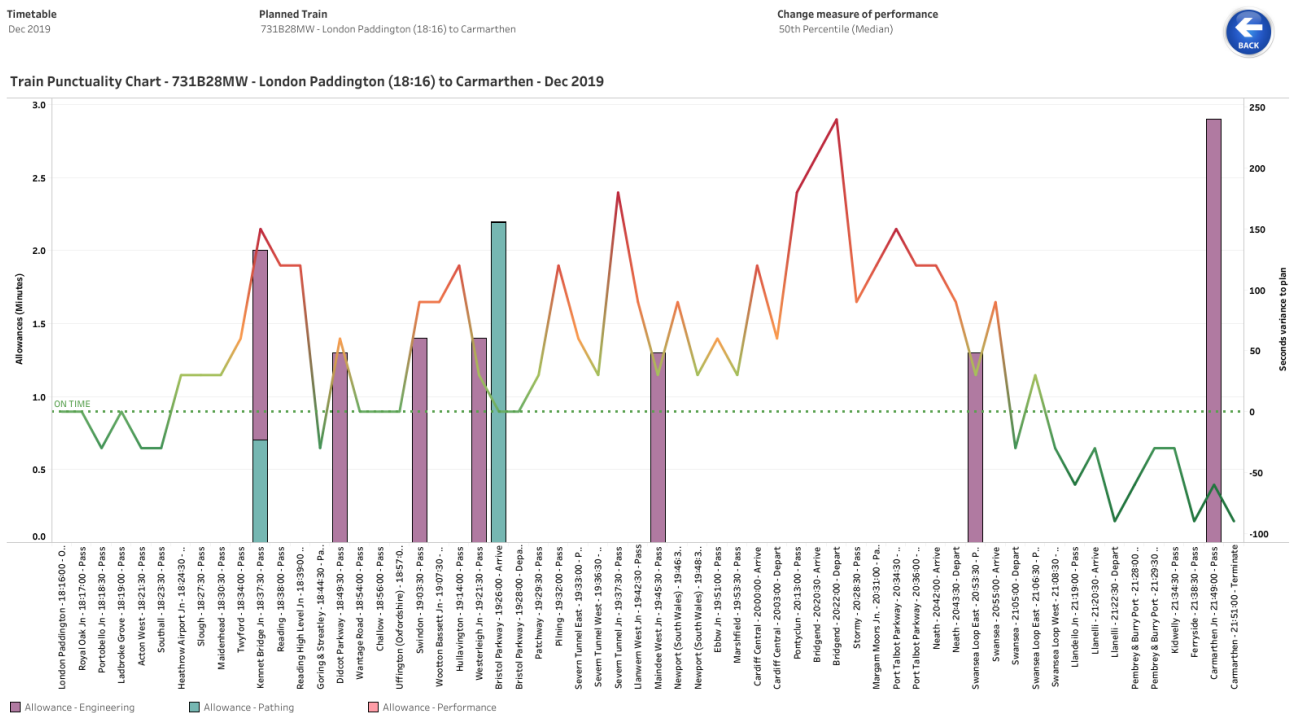
The service in front of 1B82 on departure from Paddington is 1B28 to Carmarthen. Like 1B82 this service runs non-stop to Bristol Parkway.

The punctuality profile of this service indicates significant median lateness on approach to Reading station, caused by congestion. On the approach to Swindon, lateness builds again due to queuing behind slower GWR services – a sequence that is sensitive to perturbation as at lower speeds during queuing the minimum headway increases and so does capacity

utilisation.

Much like 1B80 an hour before it, 1B82 is sandwiched between 1B28 and 1B29 on minimum headways with both at points.   This means that it is highly likely that the poor median punctuality of 1B28 will react on to 1B82 and consequently 1B29 and further services long the line of route.

2.12. 1B84 – 20:15 departure from London Paddington
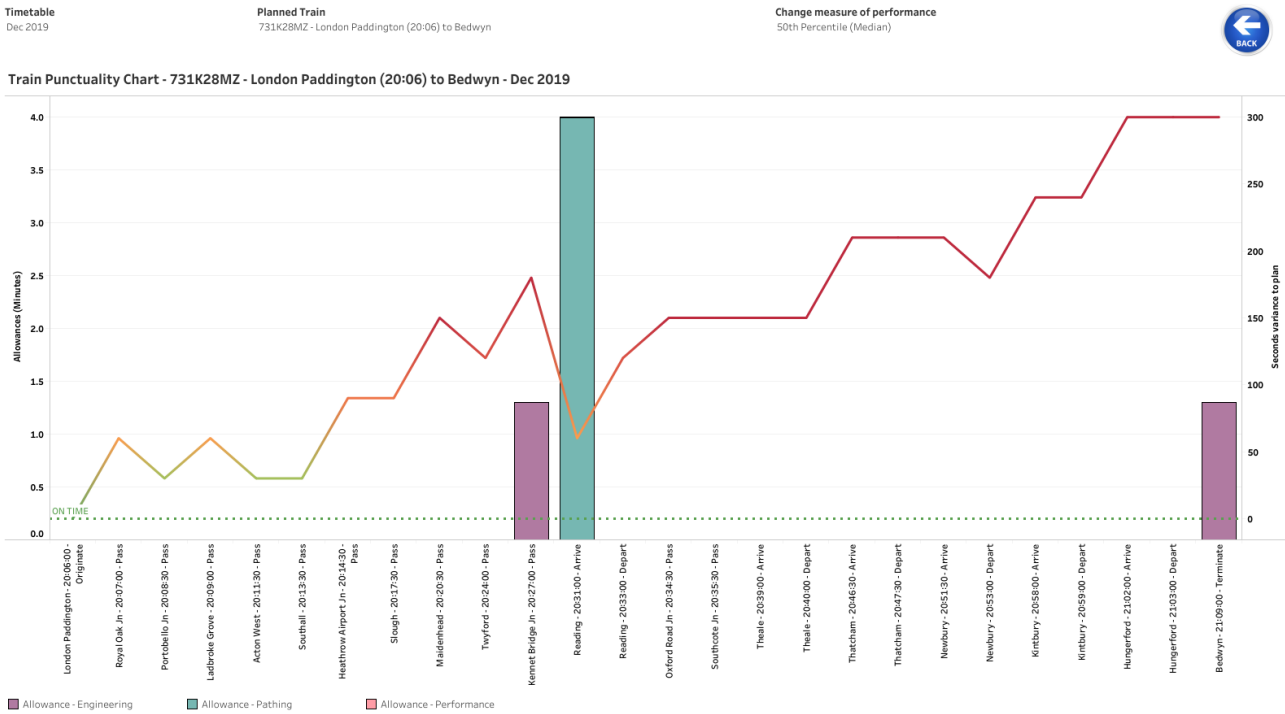
1K28 to Bedwyn is the service in front of 1B84. The median lateness of 1K28 is relatively poor approaching Reading however 1B84 is pathed 7 minutes behind 1K28 so the risk of reactionary delay is low.

3. Conclusions

For the purposes of summarising the findings in this report, the risk of reactionary delay from the service in front of each GUT path in the Thames Valley is given a level in the table **{** REF _Ref34656372 \p \h **}**.

Low risk indicates that either the median lateness is 1 minute or less or the services are sufficiently spaced that reactionary delay is not expected. Medium risk indicates that median lateness is over 1 minute but the impact is expected to be contained (such as if the lateness is immediately before termination point or before significant recovery).

High risk indicates that on a median day, based on signalling headway, the following service will incur reactionary delay and further than that is likely to pass that reactionary delay on to other services.

Pair	Up Service	Arrival at London Paddington	Reactionary Delay Risk from Path Variance	Down Service	Departure from London Paddington	Reactionary Delay Risk from Path Variance
1	1L73	09:36	High	1B70	09:58	Low
2	1L75	11:26	Low	1B72	11:59	Low
3	1L77	12:31	Low	1B75	12:58	Low
4	1L81	14:30	Medium	~~1B77~~	~~15:12~~	~~N/A~~
	~~1L83~~	~~16:31~~	~~N/A~~	1B80	17:15	High
5	1L85	17:31	High	1B82	18:15	High
6	1L89	19:27	High	1B84	20:15	Low

Table { SEQ Table * ARABIC } Risk level of reactionary delay

It is to be noted from the table above that of the six pairs of trains, four pairs contain at least one path that is high risk for receiving and passing on reactionary delay on a median day, thus increasing congestion and the overall levels of reactionary delay in the system.

It is probable that reactionary delay risk from paths outside of the Thames Valley will also be present, which has not been included within the scope of this technical note.

South Wales to Bristol Continuous Modular Strategic Plan final report

Version 1.0

Capacity Analysis – System Operator

28/07/2020

Author:

Jim Brock

Document owner:

Charlotte Harris

Overview

What we did?

This project assessed capacity for additional stopping and fast services between Bristol Temple Meads, Cardiff Central and Swansea in the morning peak and off-peak. It included analysis of platforming at all three stations to check for opportunities to turnround services. Other future aspirational services were assumed, including Cardiff-Ebbw Vale and Cardiff-Chester trains, MetroWest services and East-West Rail (EWR) trains from Cambridge to Bristol Temple Meads.

What we found?

It was not possible to create regular compliant peak and off-peak services between Cardiff and Bristol. This was mainly due to being unable to platform or turnround services at Cardiff Central – with fast services also unable to turnround at Bristol Temple Meads due to long dwell times.

By extending a combination of fast and slow services from Cardiff to Swansea, it was possible to establish a pattern of how hourly services between the two stations could be timetabled. It was not possible to create compliant peak and off-peak return services, though, primarily due to platforming issues at Cardiff Central. Where paths were available, having to use the Relief Lines in South Wales, adding pathing and additional dwells led to sub-optimal journey times. The difference between the quickest Cardiff-Bristol train in the December 2019 timetable and additional Up service created is 38½ minutes, with a 31½-minute gap in the other direction.
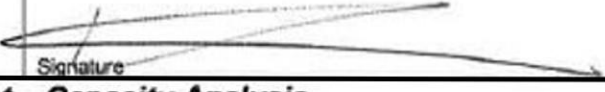
What were the assumptions?
- Geographic scope: Bristol Temple Meads to Swansea (boundaries inclusive)
- Timetable Planning Rules used: 2020 Western and Wales v4.1
- Rolling stock: Class 16Xs (timed as Class 158) for the Bristol-South Wales services; Class 185s operating on two engines for the EWR trains; 1400/C/66 for the Portbury freight services; Class 158s for the MetroWest trains
- Source timetable: December 2019 (extracted on 27 January 2020)
- The upgrade of the South Wales Relief Lines is not fully committed. This scheme is only committed to progress to outline business case and GRIP 3; as part of the Department for Transport Rail Network Enhancement Pipeline (RNEP) process

What are the risks?
- Infrastructure assumptions that are not delivered will change the outputs of this analysis
- Robustness assessments only give a high-level insight into the expected reliability of the concept train plan (CTP); they are not performance modelling. Some analysis relies on indicative running times (IRTs), not industry-approved sectional running times (SRTs)
- Additional services were only validated as far as the boundaries of this geographic study
- The proposed EWR services have been assumed to travel via Bath Spa. If they were to instead travel via Bristol Parkway this could invalidate the findings of this study
- The SX timetabling was done using Wednesday mornings. This means freight services which don't run that day haven't been incorporated into the timetabling analysis
- Some achievable paths are only made possible by using QJ paths (paths kept free as strategic freight paths)

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Abbreviations	
Acronym	Meaning
CMSP	Continuous Modular Strategic Plan
CTP	Concept Train Plan
DfT	Department for Transport
ECS	Empty Coaching Stock
GRIP	Governance for Railway Investment Projects
HSTs	High-Speed Trains
IRTs	Indicative Running Times
ITSS	Indicative Train Service Specification
OWP	Optioneering Work Programme
RNEP	Rail Network Enhancement Pipeline
SO	System Operator
SRTs	Sectional Running Times
TPRs	Timetable Planning Rules
TPS	Train Planning System

Contents

Part A: **Executive Summary**

The aim of this project was to assess capacity for two additional services per hour in each direction between Bristol Temple Meads and South Wales: one to Cardiff Central and one to Swansea. One of the new services would stop at seven stations between Bristol and Cardiff (Filton Abbey Wood, Severn Tunnel Junction, Magor & Undy, Llanwern, Newport, Cardiff Parkway and Rover Way) and one just at Newport. The overall geographic scope is shown in Figure 1:
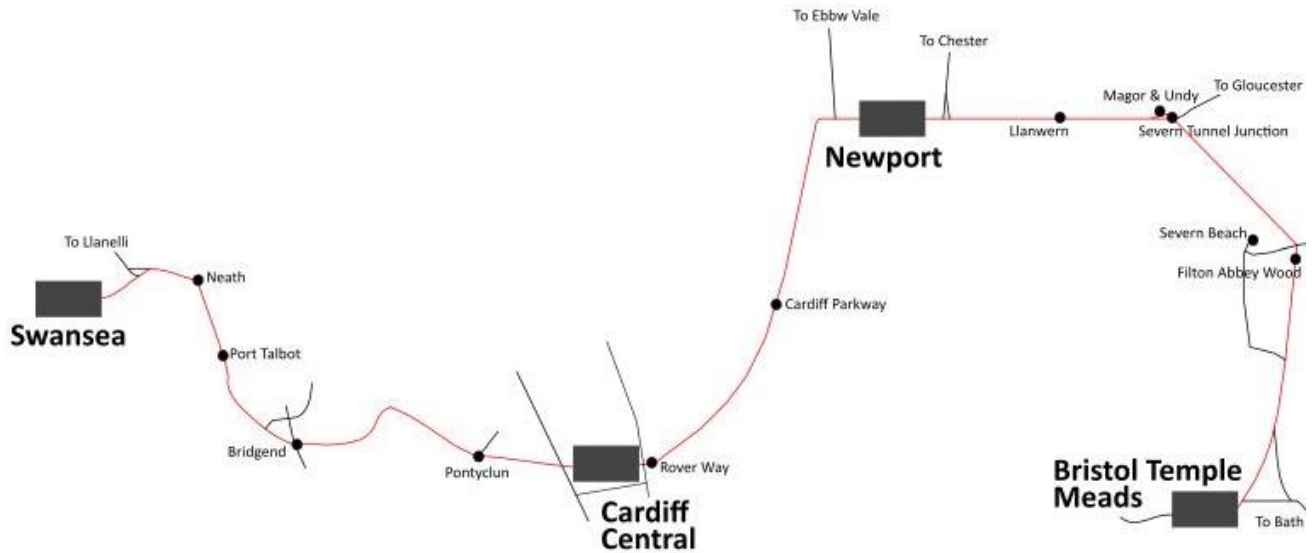
Figure 1: Geographic scope. The route in question is shown in red, with lines leading off it in black. Principal stations and the new stations at Rover Way, Cardiff Parkway, Llanwern and Magor & Undy are shown

An indicative SX morning peak and off-peak hour were assessed.

The base timetable was the December 2019 timetable amended to also include an increased number of services both to and from Cardiff Central (twice hourly trains to Ebbw Vale Town, an hourly service to Chester and bi-hourly services to and from London Paddington) and Bristol Temple Meads (MetroWest trains, East-West Rail services to Oxford and additional freight).

Part 1 (Bristol Temple Meads to Cardiff Central stopper)

	Aim	Y/N	Notes
1.1	An additional service in the morning peak in each direction between Bristol Temple Meads and Cardiff Central	No	The main constraint was platform capacity at Cardiff Central for turnrounds.
1.2	An additional off-peak service in each direction between Bristol Temple Meads and Cardiff Central	No	The main constraint was platform capacity at Cardiff Central for turnrounds.

Part 2 (Bristol Temple Meads to Swansea service)

	Aim	Y/N	Notes
2.1	Two additional services in each direction per hour in the morning peak: one as per Part 1 and one Bristol Temple Meads to Swansea. In this scenario one of the two additional services should be a fast service between Bristol Temple Meads and Cardiff Central calling at Newport only	No	By extending a fast and then a slow Bristol Temple Meads-Cardiff Central service to Swansea, then turning round the next fast and slow arrivals at Cardiff, before extending the following ones, it was possible to establish pattern of how regular, hourly trains between Bristol-Swansea could work. However, it was not possible to find compliant paths for all services. Long turnround times at Bristol Temple Meads meant it was impossible to find spare capacity there. Similarly, it was not possible to turnround those services at Cardiff Central which did not continue to Swansea. It was possible to turnround services at Swansea, although departure times from there were restricted by the Up Main Line being used bi-directionally by arrivals from West Wales.
2.2	Two additional services in each direction per hour in the off-peak: one as per Part 1 and one Bristol Temple Meads to Swansea. In this scenario one of the two additional services should be a fast service between Bristol Temple Meads and Cardiff Central calling at Newport only	No	As with the morning peak, it was possible to establish a regular, hourly pattern of trains between Bristol and Swansea by extending some slow and fast services. However, it was not possible to find valid paths between Swansea and Bristol, and Cardiff and Bristol for those services not extended, due to platforming constraints at Cardiff Central and Bristol Temple Meads.

Part B: **Introduction**

B.01   Background

System Operator's (SO) strategic planning teams are responsible for undertaking Continuous Modular Strategic Plans (CMSPs).

During 2020, the Wales SO team is planning on commencing work to answer strategic questions about how the South Wales Main Line will accommodate future requirements to support more and faster services and improve connectivity that will support both regional and national economic growth.

In planning for this, work has been undertaken with key stakeholders in Wales and Borders to understand short, medium and longer-term aspirations, against which indicative train service specifications (ITSS) have been produced.

Recently, Welsh Government asked Network Rail to provide advice as to available capacity to support additional passenger services between Bristol Temple Meads and South Wales. This recognises one of their shorter-term priorities for delivering improved capacity and improved generalised journey times between these major UK centres. Essentially, the above request forms a significant part of assessing the shorter-term ITSS.

B.02   Aims and Objectives

The aim of this timetable analysis work was to explore what capacity exists between South Wales and Bristol for the following scenarios:

1. One additional service in each direction per hour between Bristol Temple Meads and Cardiff Central. This service should be assumed to call at Filton Abbey Wood, Severn Tunnel Junction, *Magor & Undy, Llanwern,* Newport, and *Cardiff Parkway and Rover Way*.[1]

    This analysis also looked at the ability to turnround services in the platform at both Bristol Temple Meads and Cardiff Central.

2. Two additional services in each direction per hour: one as per Scenario 1 and one Bristol Temple Meads to Swansea.

    In this scenario, one of the two additional services created was a fast train between Bristol Temple Meads and Cardiff Central calling at Newport only. Mandatory calling points between Cardiff Central and Swansea were Bridgend, Port Talbot and Neath, with some services stopping at other stations to optimise pathing.

    Again, this analysis looked at the ability to turnback services at each end of the journey to identify any capacity constraints at respective stations.

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[1] Stations in italic are proposed new stations.

The timetabling analysis was done after adding in additional Cardiff-Ebbw Vale and Cardiff-Chester trains and MetroWest and East-West Rail services serving Bristol Temple Meads to a December 2019 base timetable.

Both scenarios also looked at capacity for a potential bi-hourly open access service between Cardiff and London Paddington.

B.03   Geographic Scope

Bristol Temple Meads to Swansea inclusive, as shown below in Figure 2:
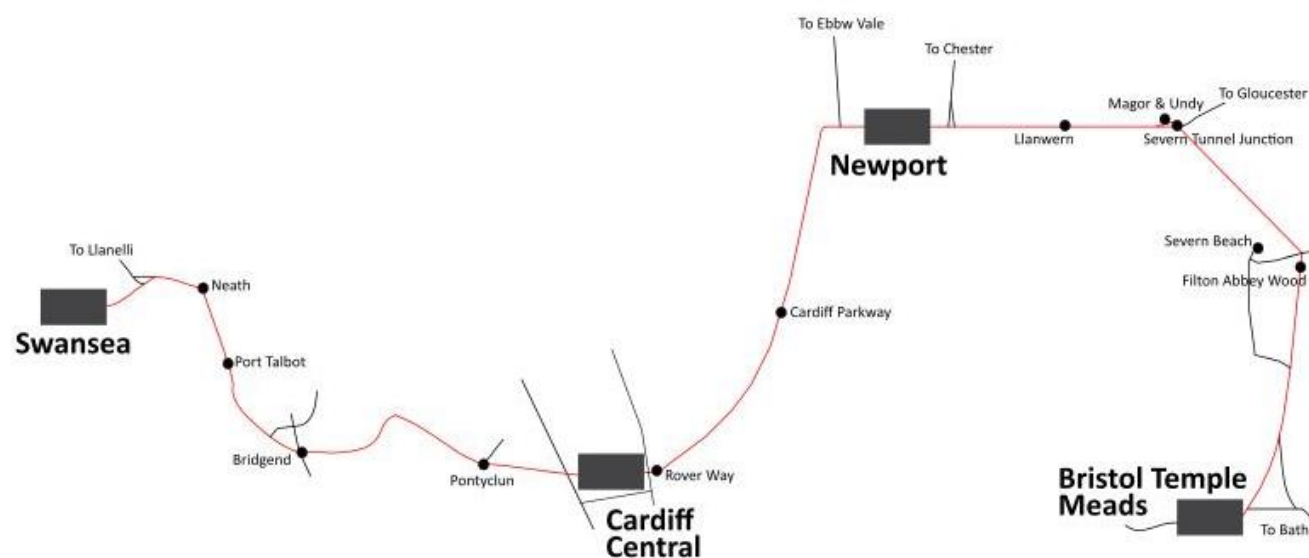
Figure 2: Geographic scope. The route in question is shown in red, with lines leading off it in black. Principal stations and the new stations at Rover Way, Cardiff Parkway, Llanwern and Magor & Undy are shown

Any additional services were only validated to the boundaries of this study. The trains and the points they were validated to are:

- Half hourly Cardiff Central-Ebbw Vale Town services: Ebbw Vale Junction
- Hourly Cardiff Central-Chester services: Maindee West Junction
- Bi-hourly open access services between Cardiff Central and London Paddington: Patchway
- Additional MetroWest services between
    - Bristol Temple Meads-Portishead: Bristol Temple Meads
    - Bristol Temple Meads-Yate: Filton Abbey Wood
    - Bristol Temple Meads-Henbury: Filton Abbey Wood
    - Avonmouth-Westbury: Narroway's Hill Junction and Bristol East Junction
- Additional freight from Portbury to the East: Bristol East Junction
- East-West Rail services from Oxford to Bristol Temple Meads via Bath Spa: Bristol East Junction

Part C: **General findings**

C.01.01   Aim

The aim of this project was to assess capacity for additional stopping and fast services between Bristol Temple Meads, Cardiff Central and Swansea. This was in both the morning peak and off-peak. It included analysis of platforming at Bristol Temple Meads, Cardiff Central and Swansea to check for opportunities to turnround services.

C.01.02   Flexing services

Before creating the additional trains between Bristol-Cardiff-Swansea, all of the extra services stipulated in the remit, were added at both Cardiff Central and Bristol Temple Meads:

- Making the hourly Cardiff Central to Ebbw Vale service half hourly
- An hourly service between Cardiff Central and Chester
- Bi-hourly open access trains between Cardiff Central and London Paddington
- MetroWest services between Bristol Temple Meads and Portishead, Yate and Henbury and an hourly Avonmouth-Westbury train
- Additional freight from Portbury to the East
- East-West Rail services from Oxford to Bristol Temple Meads via Bath Spa

This was done first, to give a true picture of what capacity was available for the additional services both on the lines and at stations.

A number of existing passenger and freight services in the December 2019 timetable needed to be flexed (have their timings altered), re-platformed or re-routed in order to open up capacity on the lines and across junctions for the additional trains.

This was only done as a last resort, and almost all trains which were flexed were brought back onto their timetabled pattern by the boundaries of the study. The exceptions were two services heading to Bath and Westbury, which were brought back onto pattern by these destinations; one departing Bristol Parkway a minute later than scheduled but which could regain this time by removing pathing soon afterwards; and two arrivals at Alexandra Dock Junction and Wentloog Freight Sidings.

Table 1 shows the quantum of trains which needed to be changed to accommodate all the additional services created across the morning (peak and off-peak) – a total of 84 amendments:

	Passenger trains amended			Freight trains amended		
Service	Flexed	Re-routed	Re-platformed	Flexed	Re-routed	Re-platformed
Bristol-Cardiff-Bristol	7		3	4	1	
Cardiff-Bristol-Cardiff	7	2	2	4		
Ebbw Vale Town	2			2		
Cardiff-Chester	1			1		
Open access	5		6	2		
Portishead				1		
Yate	3			3		
Henbury	5	1		3	1	
Avonmouth-Westbury	10	2	1	2		
Portbury freight	1			1		
East-West Rail	1					
Total	42	5	12	23	2	0

Table 1: Number of trains in the December 2019 timetable needed needing to be amended to accommodate additional services

C.01.03 Relief Line speed in South Wales

All of the stopping services created for the study had to travel on the Relief Lines in South Wales.

That is because two of the four new stations proposed between Cardiff Central and Severn Tunnel Junction – Magor & Undy and Rover Way – have platforms exclusively on the Relief Lines, while another, Llanwern, will either be built on the Relief Lines or on the loops off the Down Relief Line. Cardiff Parkway has platforms on all lines. The new stations are shown in Figure 3, Figure 4 and Figure 5:
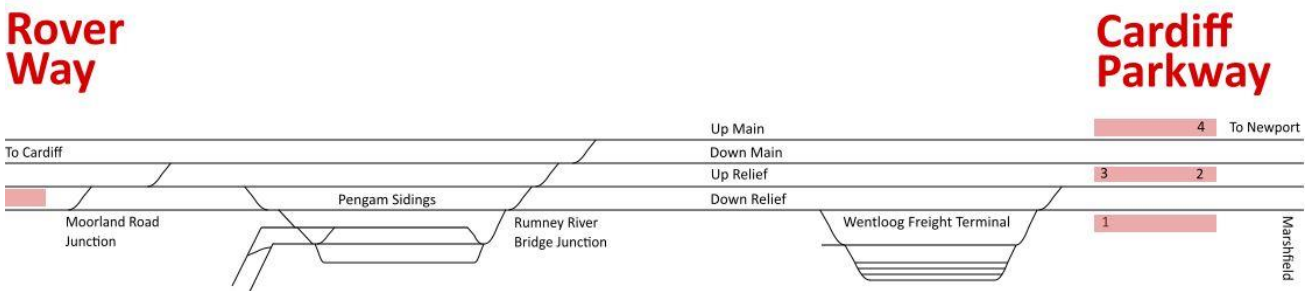
Figure 3: New stations at Cardiff Parkway and Rover Way
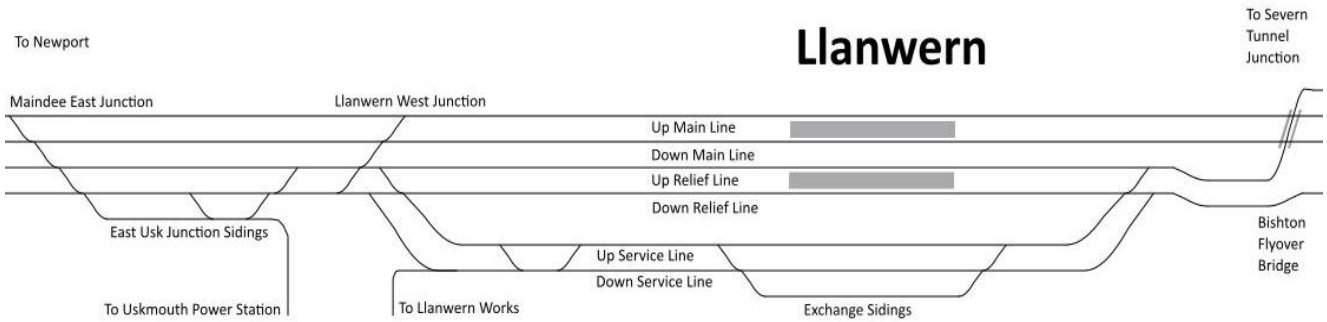
Figure 4: Existing infrastructure plus new Llanwern station. Note, this doesn't show the exact location of the station which could ultimately be built on the loops instead
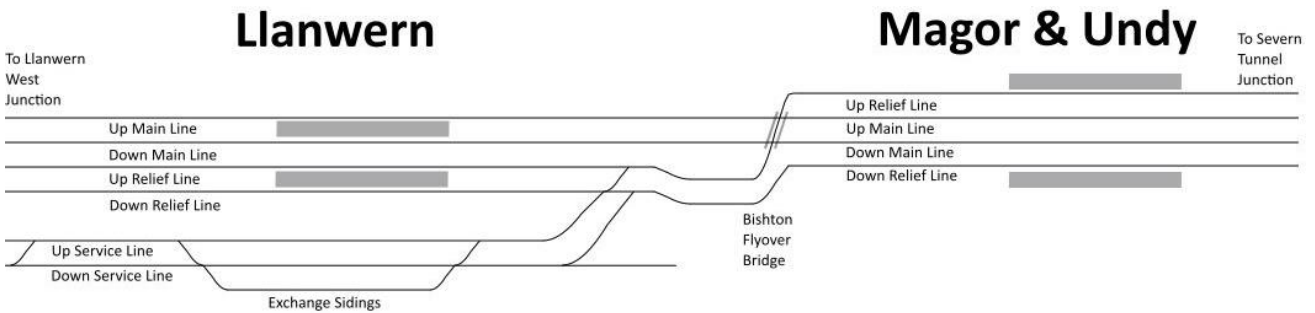
Figure 5: New station at Magor & Undy

This has an impact on services' journey times, as the Relief Lines are much slower.

Table 2 shows different sectional running times (SRTs) taken from BPlan (extracted on 21 February 2020) for a Class 158 travelling between Severn Tunnel Junction and Cardiff Central on the Relief Lines and Main Lines.

This timing load has been used by way of comparison as there are not currently any industry-approved SRTs for Class 16X trains operating on this route.

	Up (Cardiff-Severn Tunnel Junction)		Down (Severn Tunnel Junction-Cardiff)	
Section	Main Line	Relief Line	Main Line	Relief Line
Severn Tunnel Jn-Llanwern West Jn (S/P)*	6:30	11:30	6:30	11:00
Llanwern West Jn-Maindee West Jn (P/P)*	2:00	3:00	2:00	3:00
Maindee West Jn-Newport (P/S)*	1:00	2:00	1:00	1:30
Newport-Ebbw Jn (S/P)*	2:30	3:30	2:30	3:30
Ebbw Jn-Marshfield (P/P)*	2:30	3:30	2:30	4:00
Marshfield-Long Dyke Jn (P/P)*	5:30	7:30	4:30	8:00
Long Dyke Jn-Cardiff Central (P/S)*	1:30	1:30	1:30	1:30
Total	21:30	32:30	20:30	32:30

* S/P = stop/pass; P/P = pass/pass; P/S = pass/ stop. These are for the Down journey, so for the reverse, Cardiff Central-Long Dyke Junction would be S/P etc

Table 2: Sectional running times for a Class 158 travelling between Severn Tunnel Junction and Cardiff Central.

Based on these SRTs, *Table 3* shows run times which have been produced for stopping services between Severn Tunnel Junction and Cardiff Central. They are based on the whole journey being on the Relief Lines. While the exact location of Llanwern has not been fixed, these high-level indicative running times (IRTs) have been calculated on it being at 154.5m and with a 50mph speed limit on the loops if situated there, to match the Relief Lines:

	Up (Cardiff-Severn TJ)		Down (Severn TJ-Cardiff)	
Section	Movement	IRT	Movement	IRT
Severn Tunnel Jn-Magor & Undy	S/S	3:00	S/S	3:00
Magor & Undy -Llanwern	S/S	8:00	S/S	7:30
Llanwern-Llanwern West Jn	P/S	4:00	S/P	3:30
Llanwern West Jn-Maindee West Jn	P/P	3:00	P/P	3:00
Maindee West Jn-Newport	S/P	2:00	P/S	1:30
Newport-Ebbw Jn	P/S	3:30	S/P	3:30
Ebbw Jn-Marshfield	P/P	3:30	P/P	4:00
Marshfield-Cardiff Parkway	S/P	3:00	P/S	3:00
Cardiff Parkway-Rover Way	S/S	5:30	S/S	5:30
Rover Way-Long Dyke Jn	P/S	1:30	S/P	1:30
Long Dyke Jn-Cardiff Central	S/P	1:30	P/S	1:30
Total		38:30		37:30

Table 3: Indicative running times (IRTs) calculated for stopping services between Severn Tunnel Junction and Cardiff Central. These are based on the whole journey being on the Relief Lines

Where fast services had to be routed onto the Relief Lines, this is one reason for sub-optimal journey times. Individual scenarios are explained in Part D.

C.01.04   Base timings between Bristol Temple Meads and Cardiff Central

Table 1Table 4 and Table 5 show journey times between Bristol-Cardiff services already in the December 2019 timetable:

Service	Fast/Semi-fast/Stopper	Departs Cardiff	Arrives Bristol	Journey time
1M25FX	Semi-fast	06:57:00	07:48:00	51:00
1F07DA	Semi-fast	07:28:00	08:15:30	47:30
2C67DA	Semi-fast	07:50:00	08:50:30	60:30
1F09DA	Semi-fast	08:27:00	09:18:00	51:00
2C69DA	Semi-fast	09:00:00	09:50:30	50:30
1F11DA	Semi-fast	09:27:00	10:14:00	47:00
2C71DA	Semi-fast	10:00:30	10:50:30	50:00
1F13DA	Fast	10:30:00	11:14:30	44:30
2C73DA	Semi-fast	11:00:00	11:50:30	50:30
1F15DA	Fast	11:30:00	12:14:30	44:30

Table 4: Services departing Cardiff Central to Bristol Temple Meads between 06:50:00 and 11:30:00. Fast trains have two stops or fewer; semi-fast have five stops or fewer and stoppers have more than five

Service	Fast/Semi-fast/Stopper	Departs Bristol	Arrives Cardiff	Journey time
1F02DA	Stopper	06:53:00	07:42:00	49:00
2U04DA	Stopper	07:27:00	08:22:00	55:00
1F04DA	Semi-fast	07:53:00	08:45:00	52:00
2U06DA	Semi-fast	08:22:30	09:23:00	60:30
1F06DA	Fast	08:56:00	09:45:00	49:00
2U08DA	Semi-fast	09:27:30	10:19:00	51:30
1F08DA	Fast	09:56:00	10:47:00	51:00
2U10DA	Semi-fast	10:27:00	11:22:00	55:00
1F10DA	Fast	10:57:00	10:46:00	49:00
2U12DA	Semi-fast	11:20:30	12:21:00	60:30

Table 5: Services departing Bristol Temple Meads to Cardiff Central between 06:50:00 and 11:30:00. Fast trains have two stops or fewer; semi-fast have five stops or fewer and stoppers have more than five

These times will be used in Part D to show the disparity between those services already in the base timetable and additional scenario services incurring sub-optimal journey times due to travelling on the Relief Lines and having to have long intermediate dwell times and/or pathing added in to make them compliant with other trains.

C.01.05   Bristol Temple Meads

Timetable Planning Rules

The Timetable Planning Rules (TPRs) state a minimum ten minutes' turnround allowance for diesel multiple units (DMUs) at Bristol Temple Meads.

With five minutes' platform re-occupation time also needed between services, that means a minimum of 20 minutes' turnround time for the proposed trains between Bristol Temple Meads and Cardiff.

Platform occupancy

Figure 6, using 07:30:00 to 08:30:00 by way of example, shows a one-hour period of platform occupancy at Bristol Temple Meads in the morning peak once the MetroWest services have been added:
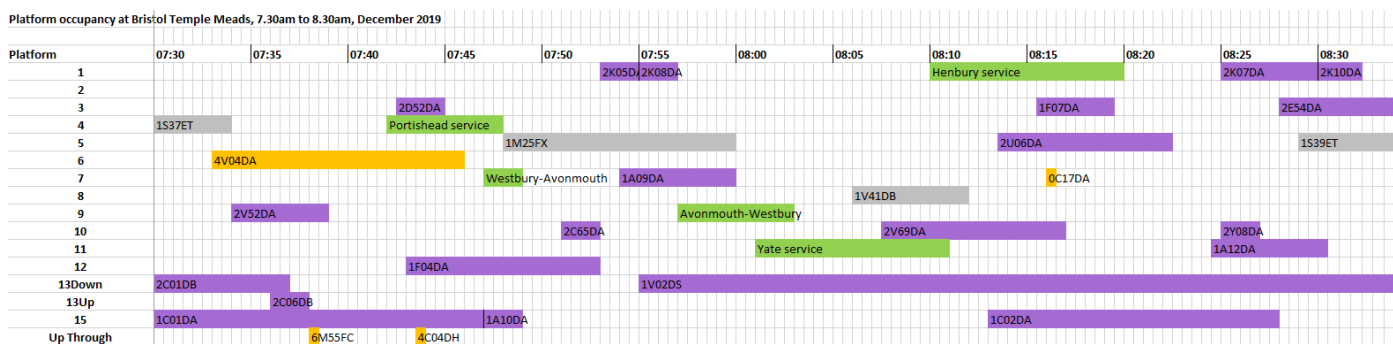
Figure 6: Bristol Temple Meads platform occupancy, 07:30:00 to 08:30:00, December 2019 timetable plus MetroWest services

The layout of Bristol Temple Meads and the re-configured Bristol East Junction including Filton four-tracking are shown in Figure 7:
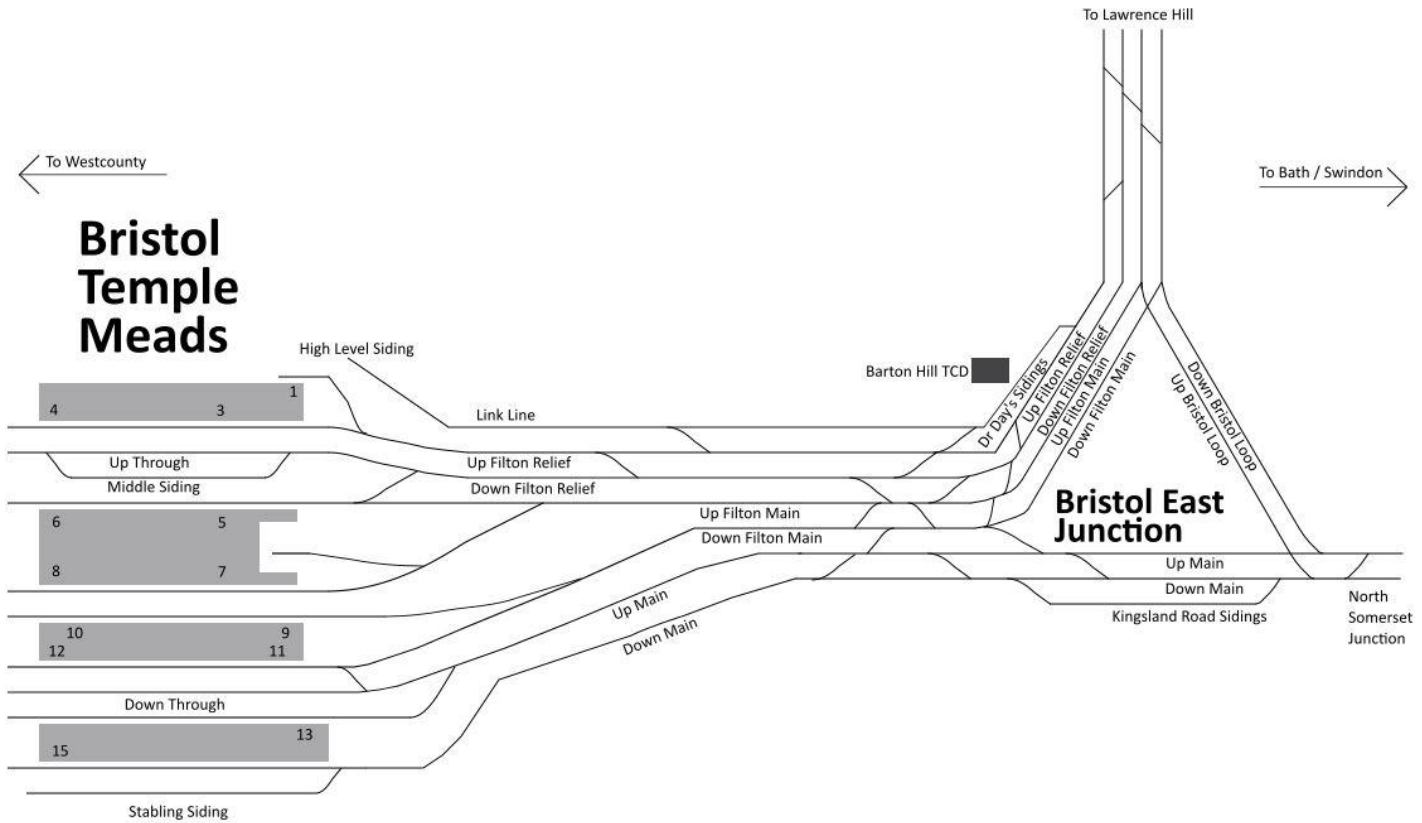
Figure 7: Layout at Bristol Temple Meads and re-configured Bristol East Junction

The layout indicates that one of the platforms at the East end of the station – 3, 5, 7, 9, 11 – would be best to turnround a service coming from Wales.

As the occupancy graph shows, there are minimum 20-minute gaps on Platforms 3 and 9.

However, any long dwell on Platform 9 would impact moves by trains in and out of Platform 10. Once this is taken into consideration, that means the only available platform is Platform 3.

C.01.06   MetroWest considerations

Any timetabling work in and around Bristol Temple Meads must consider additional new MetroWest services.

As mentioned in Part C.01.03, the proposed services will run hourly in each direction between the following locations:

Phase 1

- Avonmouth – Bristol Temple Meads – Bath Spa – Westbury (1A)
- Bristol Temple Meads to Portishead (1B)

Phase 2

- Bristol Temple Meads to Henbury
- Bristol Temple Meads to Yate

Figure 8 shows the different routes, as well as Severn Beach to Bristol Temple Meads which is mentioned below.

Figure 8: Proposed MetroWest services serving Bristol Temple Meads

Phase 1 timetabling considerations

The Portishead services do not directly impact the timings of any additional Bristol to Cardiff trains as they arrive and depart Temple Meads via Bristol West Junction and are platformed on even-numbered platforms at the West end of the station.

The Avonmouth to Bristol Temple Meads services do, though, as they join and depart the Down and Up Filton Relief Lines at Narroway's Hill Junction.

This means potential timetabling conflicts between there and Bristol Temple Meads, as well as additional pressure on platforming at the station – especially as these need a four-minute turnround time.

Phase 2 timetabling considerations

The Henbury and Yate services both arrive and depart Bristol Temple Meads via Bristol East Junction. The former needs to travel on the Relief Lines due to its stopping pattern, but the Yate

services can use the Main Lines if paths are available. If not, both could therefore potentially come into conflict with any additional Bristol-Cardiff services until North of Filton Abbey Wood.

The timings patterns for creating these additional trains are explained in Part G.01.01.

To create these trains across the morning (peak and off-peak) in the OWP before timetabling any additional services between Bristol Temple Meads and Cardiff Central, a total of 22 passenger trains and ten freight trains needed to be flexed, re-routed or re-platformed. All were brought back onto their timetabled pattern before they departed the boundaries of this study.

C.01.07 East-West Rail

East-West Rail services to Bristol are proposed to travel via Bath Spa.

This means they will not have limited impact on the additional trains between Bristol Temple Meads and Cardiff Central as they arrive and depart Bristol East Junction via the Down and Up Main Lines from North Somerset Junction.

According to the Timetable Planning Rules, services from Oxford and the Cotswolds require a 15-minute turnround time at Bristol Temple Meads.

It is possible to platform these services at Bristol Temple Meads, with the need to flex only one train during the morning peak. The timings and more details are contained in section G.01.04.

C.01.08 Portbury freight

Like the Portishead MetroWest trains, these do not directly impact the additional Bristol-Cardiff services as they pass through Bristol Temple Meads on the Down Through Line, arriving and departing Bristol East Junction via North Somerset Junction.

It is important to note that all of these additional services via Bristol Temple Meads have not been validated beyond the boundaries of this study.

C.01.09 Cardiff Central

Platforming

Services from Bristol would need to turnround in Platforms 1, 2, 3 or 4 at Cardiff Central, as Platform 0 is only long enough to stable a four-car service.

Minimum turnround time for a diesel multiple unit (DMU) at Cardiff is ten minutes. Platform re-occupation times are either three or four minutes, so assuming the latter then a gap of 18 minutes is needed.

There are opportunities to platform Bristol-Cardiff services during the morning peak. Figure 9 uses 07:30:00 to 08:30:00 as an example of a one-hour period, with potential gaps in Platforms 2 and 4:

Platform	07:30	07:35	07:40	07:45	07:50	07:55	08:00	08:05	08:10	08:15	08:20	08:25	08:30
0													
1Up		2N05DB	1M92EV	1W10DC				2F52DB	1W91JB			1F09DA	
1Down						2C67DA							
2Up					1L09DA				1L10DA				
2Down							1V02DA						
3Up													
3Down	2F02DB			1V31DB				1C00DA		1V89DH			
4Up							2F04JB						
4Down		6V49DB/C	1F02DA								2U04DA		
6Up	2R00DV	2A08DV		2D06DV	2C05DV	2M10DV	2D08DV		2A10DV	2R02DV	2C07DV	2M12DV	2D10DV
6Down													
7Up	2T04DV							2T06DV					
7Down	2P07DV			2P09DV		1V44DV							2F11DV
8Up													
8Down		2V03DV	2E08DV	1Y12DV		2Y13DV	2P11DV	2V05DV	2Y15DV	2P13DV	2F08DV	1Y17DV	
Down Main Line							6V13DQ						

Figure 9: Cardiff Central platform occupancy, 07:30:00 to 08:30:00, December 2019 timetable. This includes half-hourly services to and from Ebbw Vale Town and an hourly Cardiff to Chester train

However, platforming services arriving on the Down Relief Line into Cardiff Central is complicated by either having to wait for arrivals on the Down Main Line to Platforms 3 or 4 or having to cross all lines at Long Dyke Junction to reach Platforms 1 or 2. The layout of Cardiff Central and its approach is shown in Figure 10:
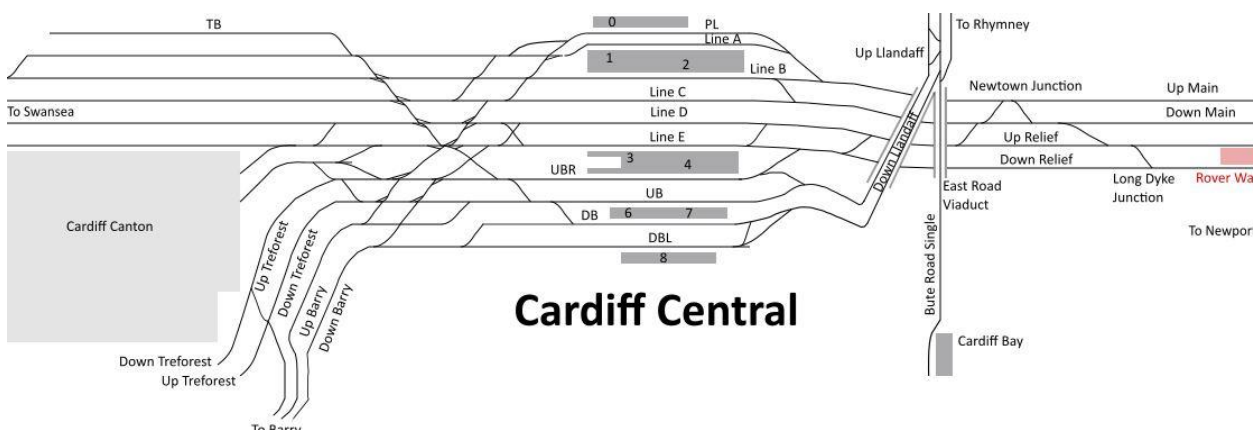
Figure 10: Layout of Cardiff Central and its approach, with Rover Way station included on the Relief Lines

C.01.10   Additional services at Cardiff Central

Any additional services between Bristol Temple Meads and Cardiff Central have to be accommodated around extra trains between Cardiff Central-Ebbw Vale Town and Cardiff Central-Chester, with the former becoming half-hourly and the latter hourly. These services use both the Main Lines and Relief Lines, departing the boundaries of this study at Ebbw Junction and Maindee West Junction respectively, shown below in Figure 11.

They therefore impact on potential paths for extra Bristol-Cardiff trains.
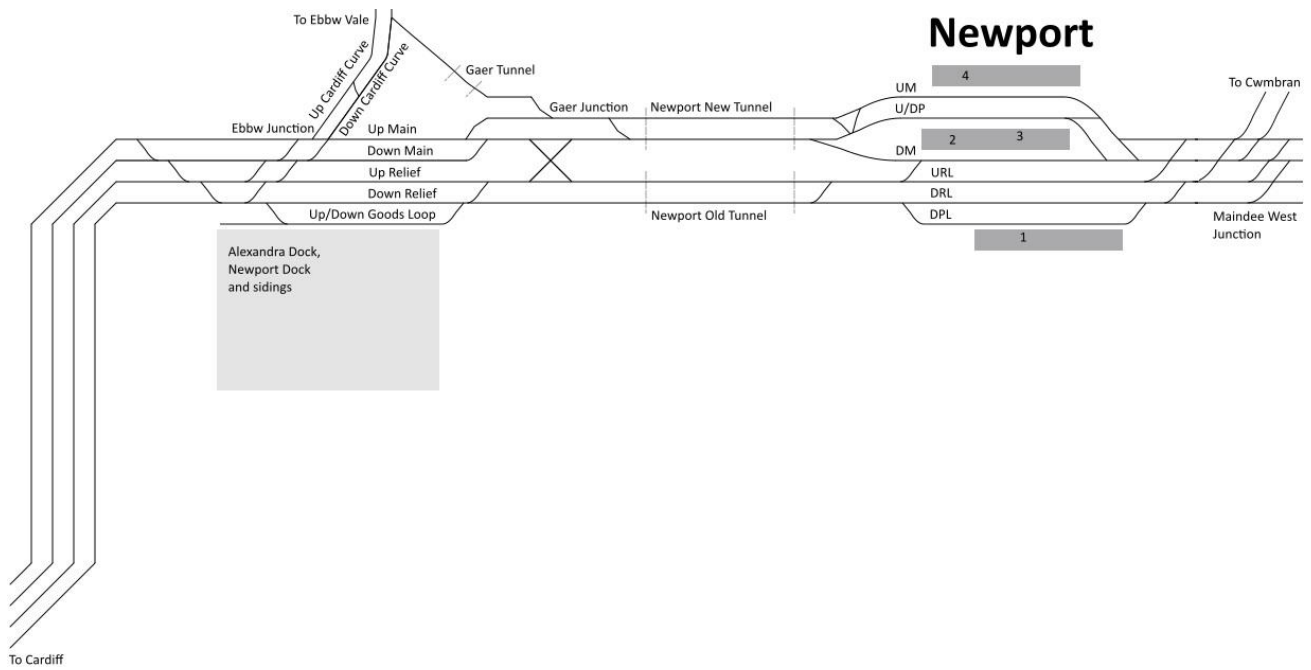
Figure 11: Services to Ebbw Vale depart the boundaries of this study at Ebbw Junction and trains to Chester at Maindee West Junction

C.01.11   Additional London Paddington services

This study explored whether there was capacity for additional bi-hourly services between Cardiff Central and London Paddington. These would have Class 91 locomotives, up to nine Mark 4 coaches and a Driving Van Trailer on each train;

These would have dwells at Newport and Severn Tunnel Junction before departing the boundaries of the study at Patchway.

These fast trains would travel on the Main Lines between Cardiff Central and Severn Tunnel Junction. Therefore, their main impact on other services would be by occupying potential paths through the already highly utilised Severn Tunnel and on the two-track line as far as Patchway.

Part D: **Scenario findings**

D.01 Additional hourly stopping service in each direction between Bristol Temple Meads and Cardiff Central in the morning peak

D.01.01 Aim

To accommodate an additional hourly service in each direction between Bristol Temple Meads and Cardiff Central in the morning peak. These stop at Filton Abbey Wood, Severn Tunnel Junction, Magor & Undy, Llanwern, Newport, Cardiff Parkway and Rover Way.

D.01.02 Findings

For each remitted scenario, return services were created. So, Bristol-Cardiff-Bristol and Cardiff-Bristol-Cardiff for scenario 1. Creating four trains (two Up and two Down) gave a better idea of whether services could be accommodated between the two end stations, constraints in key areas and how long turnround times would need to be at either end of the journey.

It was not possible to find paths for an additional stopping service in each direction between Bristol Temple Meads and Cardiff Central in the morning peak.

While there was capacity on the Relief Lines between the two stations to accommodate the additional services, it was not possible to turn them round at Cardiff Central before returning them to the West of England. This was because of a lack of free platform space for services requiring dwells of up to 20 minutes at Cardiff Central.

Were platform capacity available at Cardiff Central, it would have been possible to turnround the services in the platform at Bristol Temple Meads, despite requiring a dwell of up to 15 minutes.

D.01.03 Minimum margins

Were turnrounds possible if there were available platforms, to achieve capacity for the scenario services between the two stations then all incur minimum margins with other trains. In total there are 18; both headways and junction margins.

Three of the four services created have minimum margins crossing Bristol East Junction – and had the remodelled version not been used then it would not have been possible to fit in the additional services across the junction at all.

The other minimum junction margin moves are at Patchway, Long Dyke Junction, Ebbw Junction and Narroway's Hill Junction, with the five minimum headway values occurring right across the network between Marshfield and Newport, through the Severn Tunnel and between Filton Abbey Wood and Bristol East Junction.

It would be necessary to use a QJ path (a path kept free as a strategic freight path) for one of the additional services

D.01.04   Timings between Bristol Temple Meads and Cardiff Central

Using the base timings of services already in the December 2019 timetable (section C.01.04) by way of comparison, this shows the sub-optimal journey times which additional stopping services incur when trying to find available capacity on the lines between Bristol Temple Meads and Cardiff Central.

Table 6 and *Table 7* show a comparison between the fastest Bristol-Cardiff services already in the December 2019 timetable and two trains created for Part 1 of this study (*2U02XX* and *2D02XX*):

Service	Fast/Semi-fast/Stopper*	Departs Cardiff	Arrives Bristol	Journey time
2U02XX	*Stopper*	*07:32:00*	*08:55:00*	*83:00*
1F11DA	Semi-fast	09:27:00	10:14:00	47:00
1F13DA	Fast	10:30:00	11:14:30	44:30

*Fast trains have two stops or fewer; semi-fast have five stops or fewer and stoppers have more than five.

Table 6: A comparison between the times of the quickest fast and semi-fast services from Cardiff Central to Bristol Temple Meads in the December 2019 timetable and a stopping service created for this part of the study.

Service	Fast/Semi-fast/Stopper	Departs Bristol	Arrives Cardiff	Journey time
1F02DA	Stopper	06:53:00	07:42:00	49:00
2D01XX	*Stopper*	*08:05:00*	*09:25:30*	*80:30*
1F06DA	Fast	08:56:00	09:45:00	49:00
1F08DA	Fast	09:56:00	10:47:00	51:00

*Fast trains have two stops or fewer; semi-fast have five stops or fewer and stoppers have more than five.

Table 7: A comparison between the times of the quickest fast, semi-fast and stopping services from Bristol Temple Meads to Cardiff Central in the December 2019 timetable and a stopping service created for this part of the study.

The difference between the quickest Up train (to Bristol Temple Meads) and the additional service created is 38 and a half minutes (44:30 versus 83:00). And the biggest difference between Down (to Cardiff Central) trains is 31 and a half minutes (49:00 versus 80:30).

Due to more services operating in the peak, finding paths and optimal journey times for additional trains during these periods will potentially be more difficult.

These times for the additional services show the disparity between those services which can travel exclusively or almost exclusively on the Main Lines and those which have to travel exclusively or almost exclusively on the Relief Lines to fit in extra stops.

The additional services also include up to ten minutes' pathing and longer dwells at intermediate stations to allow faster trains to pass.

D.02   Additional hourly stopping service in each direction between Bristol Temple Meads and Cardiff Central in the morning off-peak

D.02.01   Aim

To accommodate an additional hourly service in each direction between Bristol Temple Meads and Cardiff Central in the off-peak. These stop at Filton Abbey Wood, Severn Tunnel Junction, Magor & Undy, Llanwern, Newport, Cardiff Parkway and Rover Way.

D.02.02   Findings

It was not possible to timetable compliant off-peak return services between Cardiff Central and Bristol Temple Meads in the morning off-peak.

This was due to a lack of platform space at both Cardiff Central and Bristol Temple Meads.

It was possible to find capacity on the Relief Lines for the additional services in each direction between Cardiff and Bristol.

However, capacity constraints at both Cardiff Central and Bristol Temple Meads either meant these services could not be turned round in the middle or at the end of their journeys, or there was no spare platform space to form them.

D.02.03   Timings

The additional off-peak services followed the same pattern as the peak trains, departing Bristol Temple Meads just before XX:10 and Cardiff Central just before XX:40, with the one-hour timetabling period between 10:30:00 and 11:30:00.

D.02.04   Minimum margins

For paths that could be achievable were turnrounds possible, they would incurred at least one minimum margin. To accommodate them on the Relief Lines between Cardiff and Bristol, the two had a total of 16 minimum headway or junction margins with other trains. Most, 14, were headways, with two minimum junction margins (departing Severn Tunnel Junction and at Long Dyke Junction).

Every effort was made to make services as robust as possible but inevitably, due to the weight of traffic on certain lines and across certain junctions, additional services had to be fitted in using minimum margins.

D.02.05   Flexing trains

While Table 1 shows the overall number of trains which needed to be flexed to fit in all additional services, specifically:

- Five passenger services and two freight trains needed to be flexed, re-routed or re-platformed to fit in the Bristol-Cardiff-Bristol service

- Eight passenger services and three freight trains had to be flexed, re-routed or re-platformed to fit in the Cardiff-Bristol-Cardiff service

In all instances of trains being flexed, apart from one freight service arriving at Wentloog Freight Terminal two minutes later, they were brought back onto timetabled pattern by the boundaries of the study.

D.02.06   Sub-optimal journey times

As with the morning peak, both additional services are considerably slower than the fast and semi-fast trains between Bristol Temple Meads and Cardiff Central already in the December 2019 timetable.

By way of comparison, the Cardiff-Bristol service takes 82:30, which is 30 seconds quicker than the one in the morning peak. The Bristol-Cardiff train takes 68:00, which is 12:30 faster than the morning peak service. This is explained by the latter having long dwells at Newport and Rover Way to allow other services to move ahead of it.

D.03   Additional hourly fast services in each direction between Bristol Temple Meads and Cardiff Central in the morning peak and off-peak

D.03.01   Aim

To accommodate two additional services in each direction per hour between Bristol Temple Meads and Cardiff Central into the December 2019 timetable in the morning peak.

In this scenario one of the two additional services should be a fast service between Bristol Temple Meads and Cardiff Central calling at Newport only.

D.03.02   Findings

It was not possible to find compliant paths for additional services between Bristol Temple Meads and Cardiff Central in each direction, departing both starting points between 07:30:00 and 08:30:00.

Although the new trains could be accommodated on the Relief Lines and Main Lines between the two stations, it was not possible to turnround any of these trains in the platform at either Cardiff Central or Bristol Temple Meads due to the long dwell times of up to 45 minutes.

To make these services compliant, they would therefore need to be shunted elsewhere if forming the next fast Cardiff-Bristol or Bristol-Cardiff service, or continue through to another station west of Cardiff Central and west of Bristol Temple Meads and turnround there. Further timetable analysis would be required to demonstrate whether this could be a feasible option.

D.03.03   Minimum margins

In order to accommodate these additional peak-time trains on the Main and Relief Lines between Bristol and Cardiff, they incur minimum margins with existing trains in the timetable, as well as services created for the first part of this study.

Both of the additional services through the Severn Tunnel separated by minimum four/five-minute headways with other trains.

In total the four trains incur seven minimum headways and four minimum junction margins with other services – a total of 11 minimum margins. Every effort has been made to accommodate these services in a robust way, but some minimum margins are unavoidable on existing infrastructure and having to work around other services.

D.03.04   Timetabling; Cardiff Central-Bristol Temple Meads

Table 8 shows the times of those trains between Cardiff Central and Bristol Temple Meads already in the December 2019 timetable, as well as those created during Part 1 of this study.

The timings of the additional trains are shown in italics, although due to platforming issues at both Cardiff Central and Bristol Temple Meads then not all are compliant. Those which aren't are in *red italics*:

Service	Fast/Semi-fast/Stopper	Departs Cardiff	Arrives Bristol	Journey time
1M25FX	Semi-fast	06:57:00	07:48:00	51:00
1F07DA	Semi-fast	07:28:00	08:15:30	47:30
2U02XX	*Stopper*	*07:32:00*	*08:55:00*	*83:00*
2C67DA	Semi-fast	07:50:00	08:50:30	60:30
1F09DA	Semi-fast	08:27:00	09:18:00	51:00
2C69DA	Semi-fast	09:00:00	09:50:30	50:30
1F11DA	Semi-fast	09:27:00	10:14:00	47:00
2U01XX	*Stopper*	*09:40:00*	*10:55:30*	*75:30*
2C71DA	Semi-fast	10:00:30	10:50:30	50:00
1F13DA	Fast	10:30:00	11:14:30	44:30
2U03XX	*Stopper*	*10:36:30*	*11:59:00*	*82:30*
2C73DA	Semi-fast	11:00:00	11:50:30	50:30
1F15DA	Fast	11:30:00	12:14:30	44:30

Fast trains have two stops or fewer; semi-fast have five stops or fewer and stoppers have more than five. Those services in italics have been created in Part 1 of this study, on top of trains already in the December 2019 timetable. Non-compliant services are shown in red italics

Table 8: Services departing Cardiff Central to Bristol Temple Meads between 06:50:00 and 11:30:00.

To create a regular departure pattern between Cardiff Central and Bristol Temple Meads, the above timings indicate that the ideal would be to depart another service around XX:15.

While this was not possible due to other movements and platform occupation, this study aimed to do close to that.

There was an opportunity for a peak-time service departing Cardiff Central at 08:06:00 and travelling on the Main Lines all the way through to Bristol. Including five minutes pathing time at Bristol East to allow it to cross the junction, it could arrive at Temple Meads at 08:53:30, a total journey time of 47:30.

However, because of the long dwell time it would then incur (46:30) before returning to Cardiff Central, this path was ruled non-compliant as there is no capacity at Bristol Temple Meads for the long turnround time.

Further work could take place to see if there are any opportunities to turnround services at stations west of Bristol Temple Meads or to shunt them elsewhere, in order to make them compliant.

D.03.05   Timetabling; Bristol Temple Meads-Cardiff Central

Table 9 shows the times of those trains between Bristol Temple Meads and Cardiff Central already in the December 2019 timetable, as well as those created during Part 1 of this study.

The additional services are in *italics*, with non-compliant trains shown in *red italics*:

Service	Fast/Semi-fast/Stopper	Departs Bristol	Arrives Cardiff	Journey time
1F02DA	Stopper	06:53:00	07:42:00	49:00
2U04DA	Stopper	07:27:00	08:22:00	55:00
1F04DA	Semi-fast	07:53:00	08:45:00	52:00
2D01XX	*Stopper*	*08:05:00*	*09:25:30*	*80:30*
2U06DA	Semi-fast	08:22:30	09:23:00	60:30
1F06DA	Fast	08:56:00	09:45:00	49:00
2D02XX	*Stopper*	*09:05:00*	*10:15:00*	*70:00*
2U08DA	Semi-fast	09:27:30	10:19:00	51:30
1F08DA	Fast	09:56:00	10:47:00	51:00
2U10DA	Semi-fast	10:27:00	11:22:00	55:00
1F10DA	Fast	10:57:00	10:46:00	49:00
2D04XX	*Stopper*	*11:07:00*	*12:15:00*	*68:00*
2U12DA	Semi-fast	11:20:30	12:21:00	60:30

Fast trains have two stops or fewer; semi-fast have five stops or fewer and stoppers have more than five. Those services in italics have been created in Part 1 of this study, on top of trains already in the December 2019 timetable. Although not created, there is also capacity at Bristol Temple Meads to turnround a stopping service and depart it at 10:02:00

Table 9: Services departing Bristol Temple Meads to Cardiff Central between 06:50:00 and 11:30:00.

To create a regular departure pattern between Cardiff Central and Bristol Parkway, the above timings show the ideal would be to depart another service around XX:40. Again, while this is not possible due to other movements and platform occupation, this study aimed to do close to that.

The peak-time service departs Bristol Temple Meads at 07:44:00, travelling on the Main Line until its arrival into Cardiff Central at 08:27:30, a total journey time of 43:30.

Due to the long dwell time, it is not possible to turnround this service in the platform and it would need to dwell or turnround elsewhere before returning to Bristol Temple Meads around 45 minutes later. As previously discussed, more work would be needed to look at options of where services could continue and turn back if they were to carry on West of Cardiff Central.

Although both of these services could be fitted onto the Main Lines, having to fit these additional trains around existing services meant that at times they needed to be routed along Relief Lines, despite being through services.

An example of this is the Bristol-Cardiff leg of the Cardiff-Bristol-Cardiff service having to use the Up Filton Relief on departure from Bristol Temple Meads.

D.04   Two additional services in each direction between Bristol Temple Meads and Cardiff Central in the morning off-peak – one fast and one stopping

D.04.01   Aim

To accommodate two additional services in each direction per hour between Bristol Temple Meads and Cardiff Central into the December 2019 timetable in the off peak.

In this scenario one of the two additional services should be a fast service between Bristol Temple Meads and Cardiff Central calling at Newport only.

D.04.02   Findings

It was not possible to create compliant, fast services in the off peak. Although there were opportunities for additional trains starting from Bristol Temple Meads and Cardiff Central between 10:30:00 and 11:30:00, these paths were rendered non-compliant due to platforming issues at both ends of the journey.

It was possible to find capacity on the Main and Relief Lines for a service departing Cardiff Central at 10:36:30.

However, looking further into platforming at Cardiff, there would not be sufficient capacity for any service to form it – either starting there or from another train turning round at Cardiff Central.

There is also no capacity at Cardiff Central to turnround the additional Down service. And due to a 37-minute turnround time needed on its return to Bristol, it would need to be shunted or turnround elsewhere, as there wouldn't be the capacity at Temple Meads to stable it for that long.

D.04.03   Sub-optimal journey times

Where there was space on the lines between Bristol and Cardiff for these additional trains, due to other timetabled movements, it was not always possible to benefit from their limited stopping pattern to optimise journey times.

For instance, the Bristol-Cardiff leg of the additional Down service incurs nine and a half minutes of pathing to ensure that it is compliant as it has to fit around other trains. This includes minimum headways from Patchway through to Maindee East Junction. It also needs to travel on the Relief Line from Newport to Cardiff, adding more time to the journey.

D.04.04   Minimum margins

In total, the return services include four minimum junction margins and six minimum headways. While they are compliant with all Timetable Planning Rules (TPRs), as shown in the example above, even a small delay could have a significant impact.

D.05   Extending services to Swansea

D.05.01   Aim

To extend one of the two additional Bristol Temple Meads to Cardiff Central services to Swansea. Mandatory calling points are Bridgend, Port Talbot Parkway and Neath with additional stops elsewhere if required to optimise pathing. Consideration will be given to turning round services at Swansea.

D.05.02   Methodology

While the previous parts looked at the peak and off-peak in isolation, this part of the study looked at them as a whole to check if it was possible to establish a regular, hourly service to Swansea.

This was done by examining whether all additional Bristol Temple Meads to Cardiff Central services could continue to Swansea and the benefits of doing so; then creating others between those times to see if a regular pattern could be established.

D.05.03   Findings

It was possible to extend all but one of the additional peak and off-peak services to Swansea.

By extending a fast and then a slow arrival from Bristol Temple Meads from Cardiff Central to Swansea, then turning round the next fast and slow arrival, before extending the following ones, it was possible to establish a pattern of how a regular, hourly service could work.

Extending trains to Swansea helped to resolve some of the non-compliancy issues with trains not being able to turnround at Cardiff Central due to a lack of platform capacity.

However, for those services not continuing to Swansea, there is still the issue of not being able to turnround at Cardiff Central. These would therefore need to be shunted elsewhere or turnround at another station West of Cardiff.

With a mixture of freight, local stopping trains and high-speed services using the line, all trains extended to Swansea from Cardiff had to be timetabled using at least one minimum margin. The main reasons for this are explained below.

D.05.04   Timetabling considerations

Extending passenger services to Swansea is complicated by the fact that the line between Leckwith North Loop Junction (just West of Cardiff Central) and Swansea is essentially single track in each direction, as Figure 12 shows.
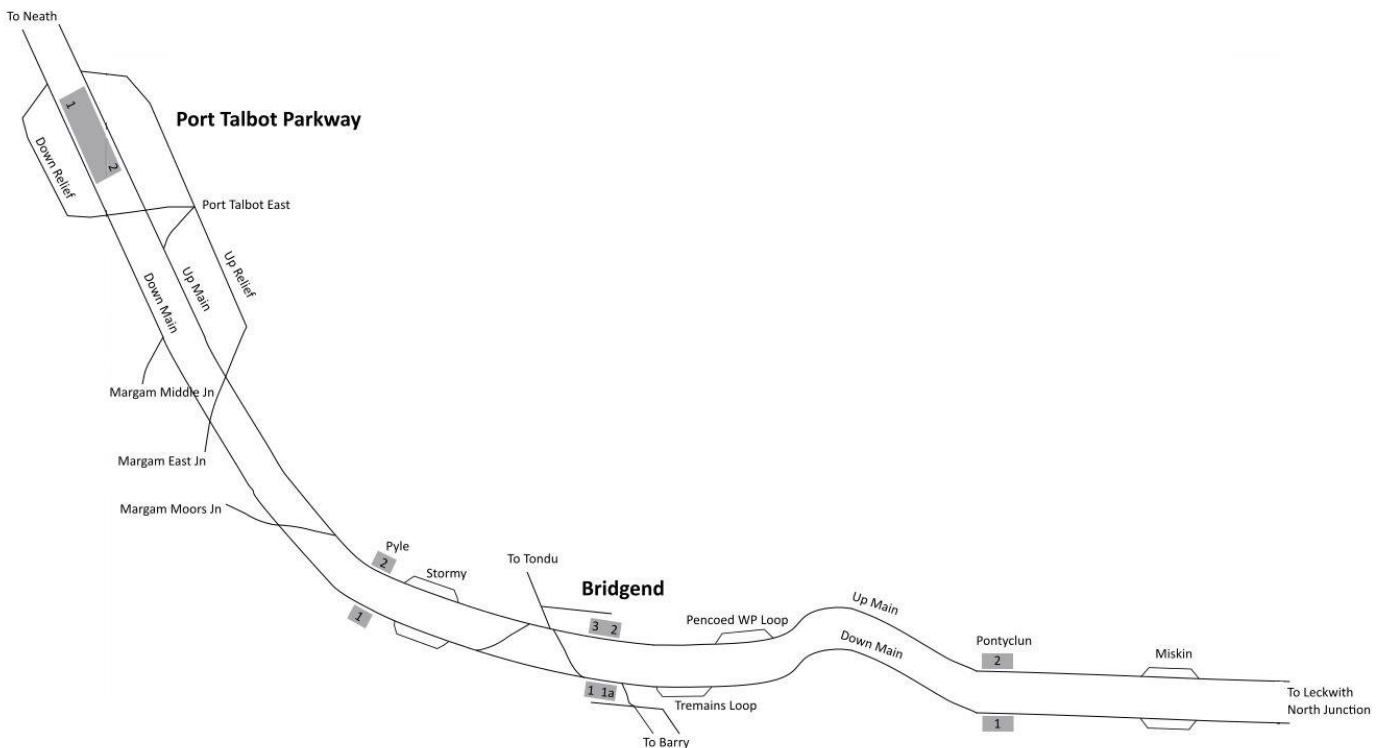
Figure 12: Leckwith North Loop Junction to Swansea

There are passing loops and sidings, but these are used for moving goods and non-passenger services off the Main Lines to allow other trains to pass.

Instead, services need to be compliantly spaced (four-minute headway until Court Sart Junction, between Bridgend and Neath when it extends to five minutes) by building in additional dwell times at stations and pathing.

Despite there only being four platforms at Swansea, as Figure 13 shows, and a minimum 20-minute turnround time for services from Bristol Temple Meads, platforming was not a constraint.

Instead, it is finding paths to depart trains back to Cardiff. That is because the bi-directional Up Main Line is used by both departures to Cardiff and West Wales and arrivals from West Wales,

which impacts movements in and out of the station. Services departing Swansea station can potentially come into conflict with trains arriving from West Wales via the Up Swansea Loop as both need to use the bi-directional Up Main Line. Up services (to Cardiff Central) also need to fit in around freight services moving onto the Main Line at Port Talbot, Margam Moors Junction and Bridgend
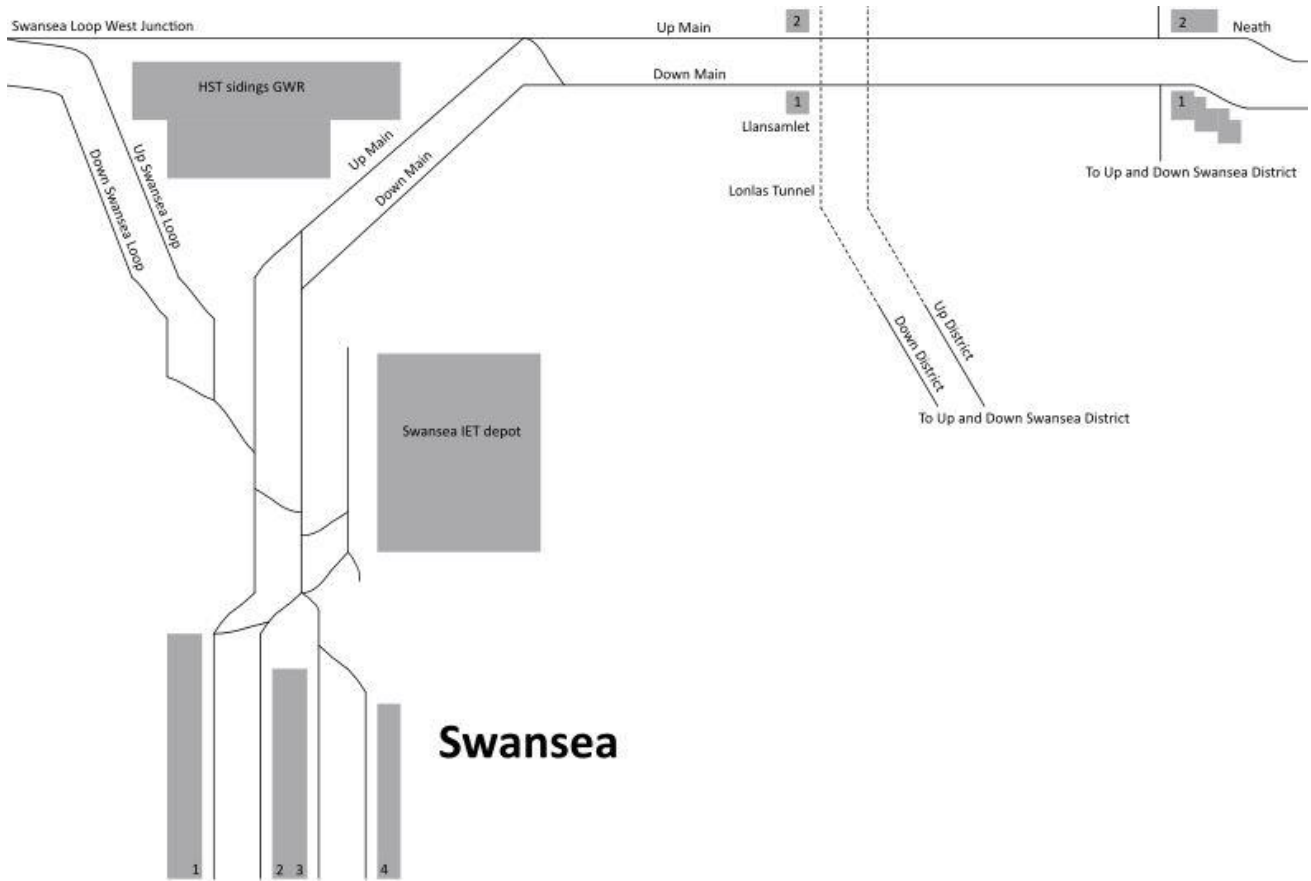
Figure 13: Swansea station and approach

D.05.05   Timing patterns

Table 10 shows all additional services created between Bristol Temple Meads and Cardiff Central created as part of this study, as well as highlighting potential departure slots for extra trains to create a regular pattern of departures:

F/S	Departs Bristol	Arrives Cardiff	Departs Cardiff	Arrives Swansea	Departs Swansea	Arrives Cardiff	Departs Cardiff	F/S
F	07:44:00	08:28:30	08:31:30	09:26:00				
S	08:05:00	09:25:30	09:31:00	10:26:00				
F	08:42:00	09:37:00					10:01:00*	F
S	09:05:00	10:15:00					10:36:30*	S
					09:49:00	11:05:30	11:09:00*	F

					10:46:00	11:36:30	11:40:00	S
F	09:40:00	10:28:30	10:31:30	11:24:30				
S	10:04:00	11:16:30	11:19:30	12:20:00				
F	10:42:30	11:36:30					12:06:00*	F
S	11:07:00	12:15:00					12:25:00*	S

*Non-compliant due to lack of platform capacity at Cardiff Central

Table 10: Arrivals from Bristol Temple Meads into Cardiff and whether they are extended to Swansea or turnround in/close to Cardiff Central

The above shows a definite pattern of first a fast and then a stopping service to Bristol Temple Meads being extended to Swansea from Cardiff Central; then the next two trains turning round in Cardiff before forming the equivalent return service; then the pattern repeating itself.

D.05.06   Platforming at Cardiff Central

Table 10 also shows that any service not extended through to Swansea would need to turnround elsewhere than Cardiff Central due to a lack of capacity there.

As mentioned previously in this report, further work would need to be done to identify where services could either be shunted or turnround West of Cardiff.

There is also the issue with one service from Swansea (09:49:00 departure) having to dwell outside Cardiff Central before forming a through train to Bristol Temple Meads as there is no space for it to wait in a platform.

D.05.07   Cardiff to Swansea journey times

Using the figures from *Table 10,* this shows that the average journey time between Cardiff Central and Swansea – considering both directions of travel – is 56:30. This calculation is based on the four journeys in each direction and using the times of when any services which need to be stabled outside Cardiff would arrive were they to continue directly through from Leckwith North Loop Junction.

The quickest is 53 minutes and the slowest 65 minutes. Disparities in timings are down to trains having to stop at additional stations such as Pyle or incurring pathing time to remain compliant with other freight and passenger services.

Timetabling work for this study did consider the results of the *Cardiff-Swansea Journey Time Improvement GRIP 1* study, although they had no direct impact on this project's analysis.

D.06   Infrastructure constraints and possible interventions

D.06.01   Severn Tunnel Headways

Severn Tunnel is used by all forms of trains, from high-speed passenger services to freight. It is only single track in each direction and, as a result, this impacts how many trains can use the tunnel in each direction.

That is because there are different headway values in the Timetable Planning Rules for different stretches, as *Figure 14* shows:

GW900 PILNING TO FISHGUARD HARBOUR			
TIMING POINT	DOWN	UP	NOTES
Pilning to Severn Tunnel East	4	4	
Severn Tunnel East to Severn Tunnel West	5 6a 7b	5 6a 7b	a) following a preceding freight b) following a preceding freight that has left or will enter Pilning loop or has left Severn Tunnel Up Goods loop
Severn Tunnel West to Severn Tunnel Jn	4	4	

Figure 14: Headway values between Pilning and Severn Tunnel Junction (values extracted on 7 April 2020)

As the four-mile tunnel is under the Bristol Channel then many physical changes to infrastructure are not realistic.

Currently the whole tunnel is controlled by a single signal. Adding a second signal midway through the tunnel could help to regulate services and potentially reduce headway values. Further investigation into the feasibility of this option would be needed.

If it was not possible then any timetabling of additional trains needs to ensure they are suitably flighted with existing services (eg passenger / passenger / passenger / freight / freight) to make best use of capacity in the tunnel.

D.06.02   Relief Line speeds in South Wales

As explained in *section C.01.04*, the slower speed of the Relief Lines between Severn Tunnel Junction and Cardiff Central have a significant impact on journey times of services using these rather the Main Lines.

There is an increase in journey times of 11-12 minutes for trains routed exclusively on the Relief Lines, and few crossovers between the Main and Relief Lines between the two points.

This has a major impact on the overall journey times of any additional trains which have to use mainly the Up and Down Relief Lines due to the Main Lines being at capacity, plus new stations being primarily on the Relief Lines.

Increasing the speed of the Relief Lines to match the Main Lines would potentially negate the need for adding pathing to services or extending dwells at stations to ensure a free flow of trains.

However, more timetabling work would need to be done to see if that was possible, as it would potentially open up new paths and reduce the need for services to cross over different lines.

If that is not possible then adding in additional crossovers would allow services to move between the Main and Relief Lines more easily, rather than having to add pathing if a faster train is following a slower one.

Figure 15 shows additional crossovers (in red) both sides of Cardiff Parkway station. This would mean services could move between all lines earlier than Rumney River Bridge Junction, rather than having to add pathing into a following service if it was catching up a slower one by, for example, Marshfield:
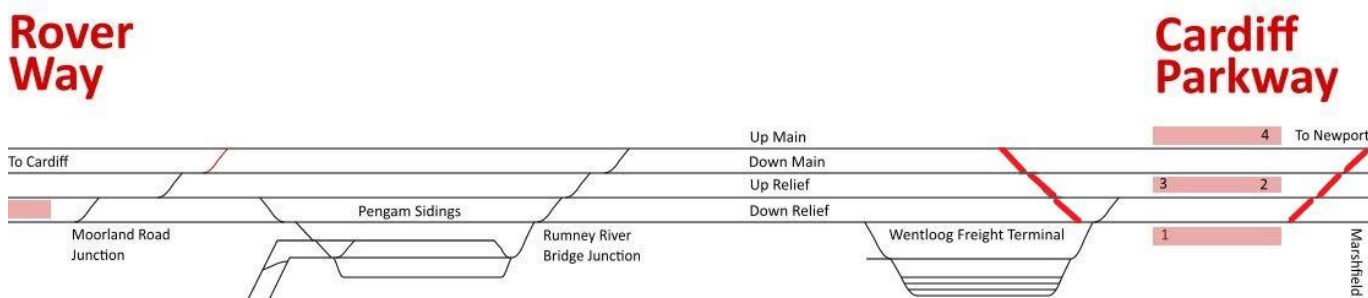
Figure 15: Additional crossovers (in red) between all lines either side of Cardiff Parkway station

This study has highlighted the need to turnround or stable services away from Cardiff Central. Opening up Cardiff Parkway by adding the extra crossovers would offer the potential to stable or turnround trains there. More work would be required to assess if this was feasible from both an engineering and timetabling point of view, though.

D.06.03   Amending key junctions

Many of the key junctions between Cardiff Central and Severn Tunnel Junction lead off the Up Main Line. This is shown below in Figure 16, which highlights Ebbw Junction and Maindee West Junction:
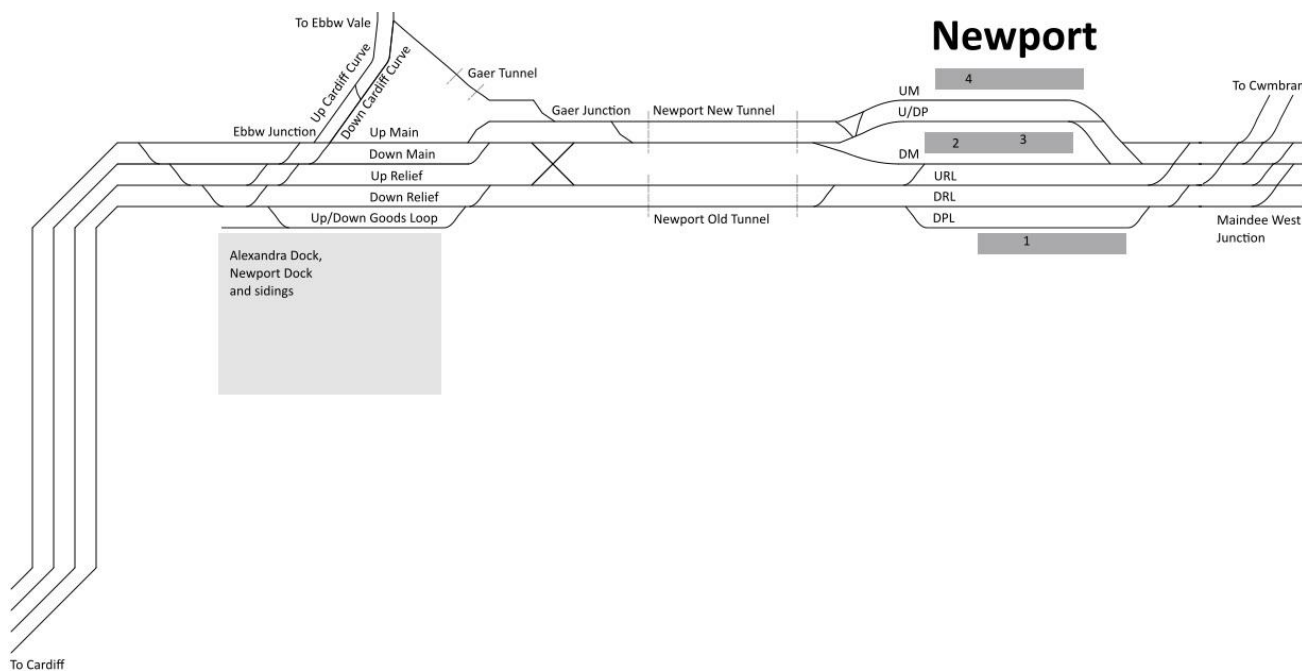
Figure 16: A section of the line between Cardiff Central and Severn Tunnel Junction, showing how key junctions lead off the Up Main Line

This means that services moving onto or departing the South Wales Mainline have to cross both Main Lines if they are joining or departing from the Relief Lines. That has an impact on the amount of trains which can be pathed on the lines.

Increasing the line speeds so that the Main Lines and Relief Lines were comparable could negate the need for any interventions at junctions. That is because those services which needed to move on or off at the junctions could be routed via the Main Lines and through services travel on the Relief Lines, with no adverse impact on journey times.

If not then further investigation would be needed into capacity and utilisation at key junctions, which services had to cross all or most lines on the flat and whether some element of grade separation – if feasible – could improve overall performance.

D.06.04   Cardiff Central

Creating another crossover closer to Cardiff Central allowing trains to move from Line C to Platforms 1 or 2 would potentially reduce the junction margins in the vicinity of the station. This is explained in *Figure 17:*

Rather than an arrival having to travel Down the Up Main Line (*yellow*), it could instead continue towards Cardiff Central via the Down Main Line / Line C (*blue*) before using the new crossover (*red*) to reach Platforms 1. The existing crossover (*green*) could then be deleted to save having to maintain two crossovers

Although there would still be a conflict (*circled in grey*) with any service (*orange*) departing Cardiff Central via the Up Main Line, this would be much closer to the station, thereby reducing potential wait times for departing or arriving services by more than a minute.
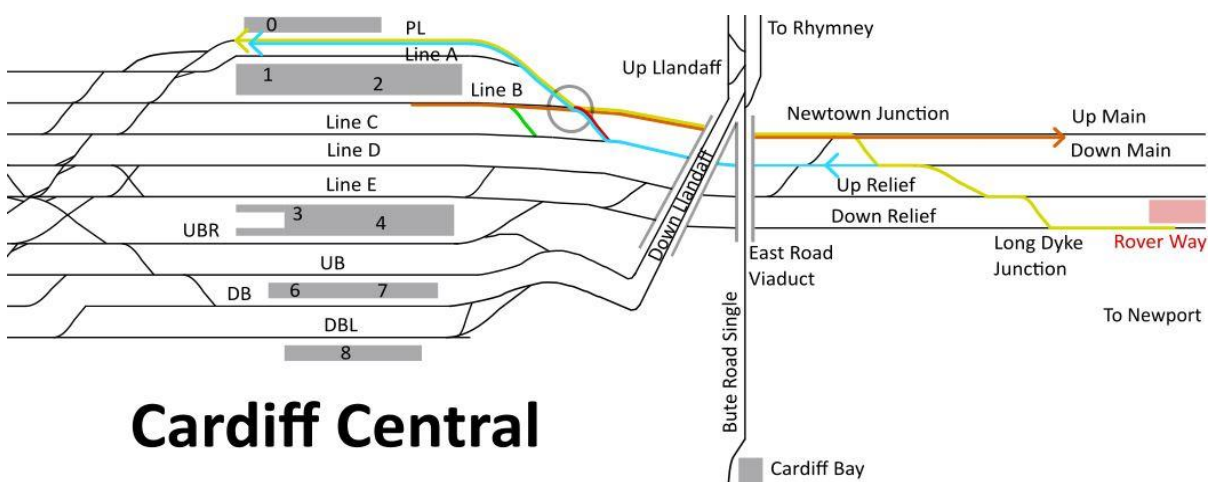
Figure 17: Potential infrastructure and subsequent routing options at Cardiff Central

D.06.05   Cardiff Central to Swansea

As explained in *section C.04.04*, the section between Cardiff Central and Swansea is essentially just one track in each direction. Where there are passing loops, these are just for freight and non-passenger services. This means the only opportunity for one passenger service to move in front of

another is at Port Talbot Parkway – but only if one is a through service using the Relief Line (*green*) and the other train stopping (*red*), as *Figure 18* shows:
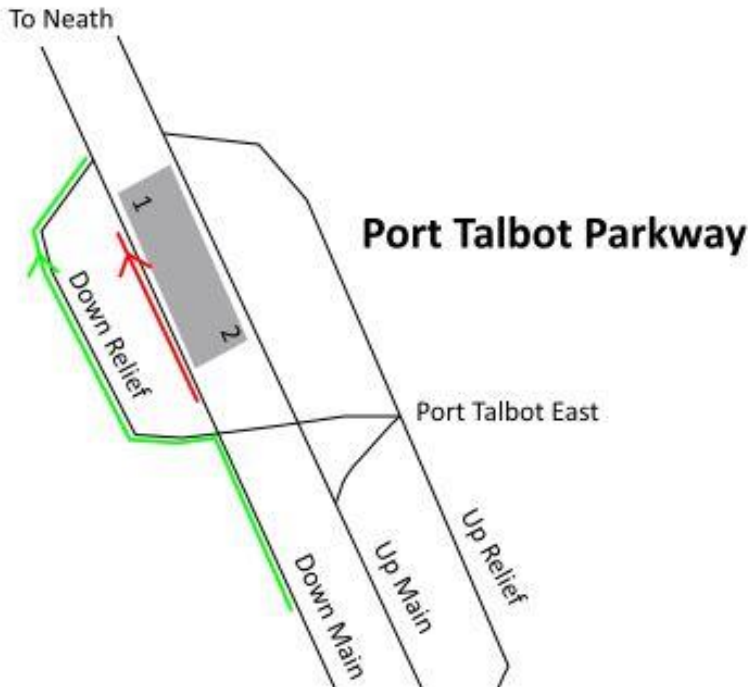

Figure 18: Passing opportunity for passenger services at Port Talbot Parkway

Therefore, additional loops at stations, for example by extending the bay platforms at Bridgend or adding loops at Pontyclun (both shown in *red* in *Figure 19*) would allow a faster following service to pass a slower or stopping one ahead of it.
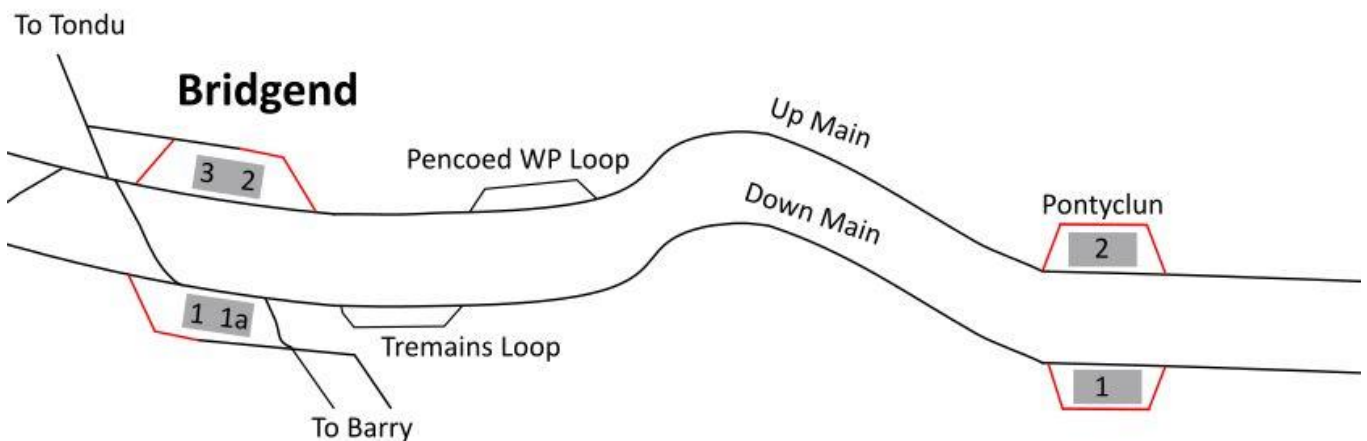

Figure 19: Additional passing loops at Bridgend and Pontyclun (shown in red)

More work would be needed to show if these options were feasible, though.

Increasing the line speed between Bridgend and Cardiff Central would also allow High-Speed Trains (HSTs) to operate closer to their capability.

As with the loops, more work would be needed to see if this was possible, though.

D.06.06 Swansea station

The restrictions on services arriving and departing Swansea station simultaneously were also explained in *section C.04.04*.

With the bi-directional Up Main Line is used by both departures to Cardiff and West Wales and arrivals from West Wales, this impacts movements in and out of the station.

Adding an extra running line, shown *in red* in ***Error! Reference source not found.***, would allow a service from West Wales to arrive into Platform 1 at the same time as a departure from one of the other platforms:
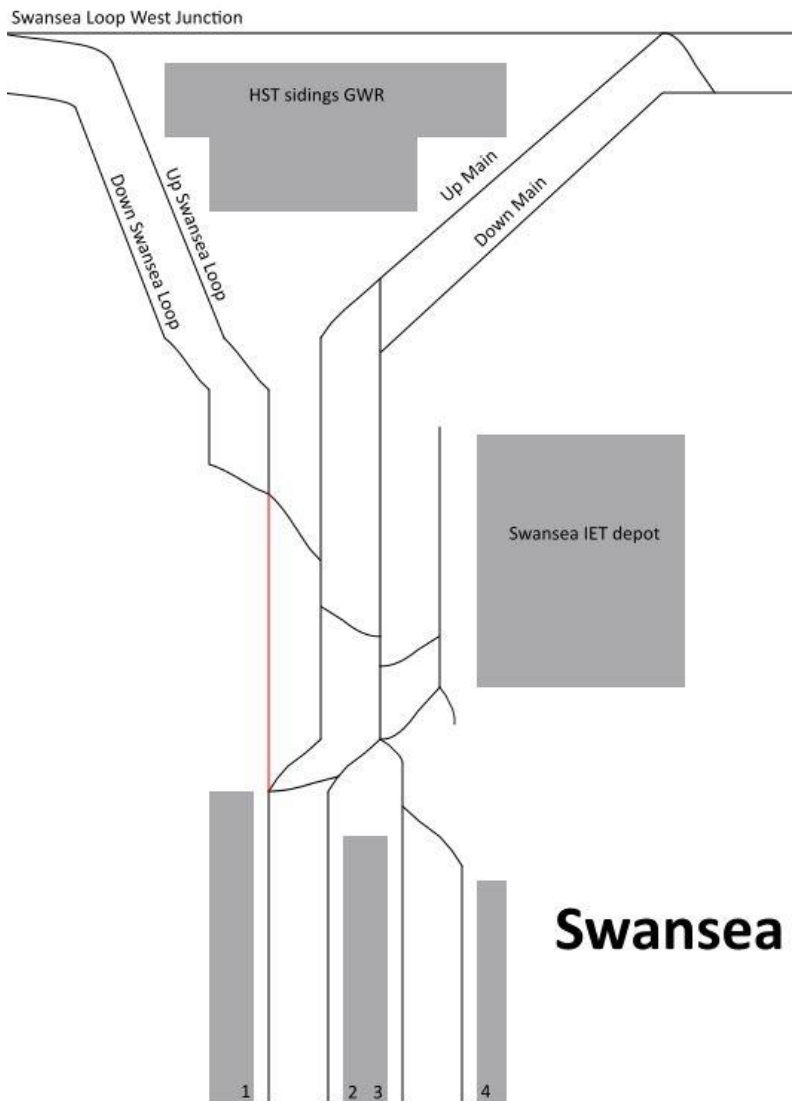
Figure 20: Potential infrastructure intervention at Swansea

The Timetable Planning Rules (TPRs) currently stipulate a minimum six-minute margin between a Cardiff-bound departure from Swansea station and an arrival from West Wales. Being able to do these moves in parallel would open up opportunities for additional trains at Swansea, as well as retiming services which may have incurred longer-than-necessary dwells at the station waiting for another movement.

More work would be needed to examine the feasibility of adding an extra running line; if so then additional analysis would be required to show the associated benefits.

Part E: **Conclusion**

The results of this study show that it is not possible to find compliant paths for additional return services between Bristol Temple Meads and Cardiff Central.

While technically there is capacity on the Main Lines and Relief Lines for additional fast and slow services between the two stations, these are constrained by the paths being non-compliant due to a lack of capacity at Cardiff Central for turning round both slow and fast services, and insufficient capacity at Bristol Temple Meads for turning round fast services which incur long dwell times.

Extending services to Swansea opens up valid paths from Bristol to South Wales for trains previously rendered non-compliant due to a lack of platforming at Cardiff Central.

By extending first a fast and then a stopping Bristol Temple Meads-Cardiff Central service to Swansea, then the next fast and stopping Bristol-Cardiff services turning round in Cardiff Central, before the pattern repeats itself, it is possible to create a regular hourly service between Cardiff and Swansea using the additional trains created as part of this study.

This suggests there is scope for a Bristol-Swansea return service – if platforming issues can be sorted out elsewhere. Those trains not continuing to Swansea would need to be shunted or turn round elsewhere due to a lack of available platform space at Cardiff Central.

As previously explained, while all valid additional trains and identified paths are compliant with the Timetable Planning Rules, all of them incur at least one minimum margin with existing services in the December 2019 timetable.

This may be minimum headways due to mixed traffic (freight, local stopping trains and high-speed services) using sections of the route where there is only a single track in each direction, slower line speeds or increased headway values – such as in the Seven Tunnel. Or minimum margins at busy junctions such as Long Dyke Junction and Ebbw Junction.

It means that if one of the additional trains is delayed then that will potentially impact on one or more proceeding services or trains with which they interact. As a result, the timetable would be less robust and recovery during perturbation would take longer.

While the new layout for Bristol East Junction and Filton four-tracking have been used for this analysis and an amended crossover suggested at Cardiff Central station, other infrastructure layouts and existing line speeds impact on the optimal performance of many of the additional services created for this study. These include:

- Severn Tunnel headways

- Relief Line speeds between Severn Tunnel Junction and Cardiff Central

- Key junctions between Cardiff Central and Severn Tunnel Junction, such as Ebbw Junction and Maindee West, leading off the Up Main Line, meaning that services have to cross both Main Lines if accessing or departing the Relief Lines

- The two-line section West of Cardiff Central to Swansea

- Swansea station

Infrastructure interventions could help to boost new and existing trains' performance, make them more robust by reducing the number of minimum margins they incur – and, also, potentially open up capacity for more services on sections of the network currently operating close to or at maximum capacity.

Part F: **Appendix A – Assumptions**

F.01   Timetable Scope

This study assessed indicative SX peak (07:30:00 to 08:30:00) and off-peak (10:30:00 to 11:30:00) hours.

F.02   Timetable Planning Rules

2020 Western and Wales v4.1.

F.03   Timing Load Assumptions

Sectional running times for services in the base timetable were taken from BPlan. Otherwise, high-level assumptions were made based on the following timing loads:

- Class 16Xs (timed as Class 158) for the Bristol-South Wales services.
- Class 91 locomotives, up to nine Mark 4 coaches and a Driving Van Trailer on each train for the additional London Paddington services
- Class 185s operating on two engines for the East-West Rail trains
- Class 1400/C/66 for the Portbury freight services
- Class 158s for the MetroWest trains

F.04   Source Timetable

December 2019 (extracted on 27 January 2020).

F.05   Infrastructure

The assumed infrastructure for the analysis was as per December 2020 combined with the following enhancements:

- Bristol East Junction
- Ebbw Vale
- Filton four tracking
- New stations
    - Magor & Undy (150.5m on SWM2) – platforms on Relief Lines only
    - Llanwern (between 153m and 156m on SWM2) – platforms on the loop only
    - Cardiff Parkway (approximately 164m74 on SWM2) – platforms on all lines
    - Rover Way (169m on SWM2) – platforms on Relief Lines only

Part G: Appendix B – Methodology

Set up new TPS OWP (Optioneering Work Programme) using the December 2019 timetable and the Great Western and Wales and Marches planning contexts

Create all additional trains arriving and departing Cardiff Central and Bristol Temple Meads (Half-hourly Ebbw Vale and hourly Chester services; open access trains; Metro West services; additional freight from Portbury; East-West services). Peak and off-peak

Build new infrastructure in TPS, including network links between the new stations and the next mandatory timing point

Create additional peak and off-peak services between Bristol Temple Meads and Cardiff Central, establishing platforming opportunities at both stations to turnround trains

Create additional peak and off-peak services between Bristol Temple Meads and Swansea, establishing platforming opportunities at both stations to turnround trains

Quality assurance to establish that the additional services created are compliant with all Timetable Planning Rules, that high-level running times created are realistic and that there are no conflicts with other trains in the OWP

Draft interim report, then seek and respond to feedback before issuing final report

Figure 21: Methodology for study adding additional services between Bristol Temple Meads and Cardiff Central or Swansea to the December 2019 timetable

Part H: **Timetabling additional services**

H.01.01   MetroWest considerations

Any timetabling work in and around Bristol Temple Meads has to consider additional new MetroWest services.

As mentioned in *Part C.01.03*, the proposed services will run hourly in each direction between the following locations:

Phase 1

- Avonmouth – Bristol Temple Meads – Bath Spa – Westbury (1A)
- Bristol Temple Meads to Portishead (1B)

Phase 2

- Bristol Temple Meads to Henbury
- Bristol Temple Meads to Yate

Figure 22 shows the different routes, as well as Severn Beach to Bristol Temple Meads which is mentioned below.

Figure 22: Proposed MetroWest services serving Bristol Temple Meads

Phase 1 timetabling considerations

The Portishead services will not directly impact the timings of any additional Bristol to Cardiff trains as they will arrive and depart Temple Meads via Bristol West Junction and will be platformed on even-numbered platforms at the West end of the station.

The Avonmouth to Bristol Temple Meads services do, though, as they join and depart the Down and Up Filton Relief Lines at Narroway's Hill Junction.

This means potential timetabling conflicts between there and Bristol Temple Meads, as well as additional pressure on platforming at the station.

Train times

1A) Journey times between Avonmouth and Westbury, including intermediate dwells, have been assumed at around 75 minutes. These are based on Class 158 timing loads.

According to the Timetable Planning Rules (TPRs), minimum turnround times at Avonmouth and Westbury are three and ten minutes respectively.

Using the December 2019 timetable, there is a ten-minute opportunity at Westbury each hour between XX:50 and XX:00, as Table 11 shows:

Station	Arrive/depart	Time
Avonmouth	Depart	07:28:00
Bristol Temple Meads	Arrive	07:57:00
	Depart	08:03:00
Westbury	Arrive	08:50:00
	Depart	09:00:00
Bristol Temple Meads	Arrive	09:50:00
	Depart	09:52:00
Avonmouth	Arrive	10:20:00
	Depart	10:28:00

Table 11: Journey times between Avonmouth and Westbury, with 07:28:00 shown as an example departure time from the former

Departure times from Bristol Temple Meads need to be fixed to fit in around the Great Western service to Bath Spa and then London Paddington, which usually leaves Bristol on the hour.

1B) A regular, hourly pattern has been assumed for the Portishead services, as Table 11 shows:

These will arrive into Bristol Temple Meads at XX:12 and depart six minutes later at XX:18. Journey time in each direction has been assumed at 24 minutes (based on Class 158 timing loads), with six minutes' turnround time at Portishead, as Table 12 shows.

This is based on the minimum required turnround time of three minutes on the Severn Beach line and has then been doubled.

Location	Arrive/depart/pass	Time
Bristol Temple Meads	Arrive	07:12:00
	Depart	07:18:00
Bristol West Junction	Pass	07:19:00
Bedminster	Arrive	07:20:30
	Depart	07:21:00
Parson Street	Arrive	07:23:00
	Depart	07:23:30
Parson Street Junction	Pass	07:24:00
Ashton Junction	Pass	07:25:30
Pill	Arrive	07:36:00
	Depart	07:37:00
Portishead	Arrive	07:42:00
	Depart	07:48:00
Pill	Arrive	07:52:30
	Depart	07:53:00
Ashton Junction	Pass	08:04:00
Parson Street Junction	Pass	08:05:30
Parson Street	Arrive	08:06:00
	Depart	08:06:30
Bedminster	Arrive	08:08:30
	Depart	08:09:00
Bristol West Junction	Pass	08:11:00
Bristol Temple Meads	Arrive	08:12:00
	Depart	08:18:00

Table 12: Journey times between Bristol Temple Meads and Portishead, with 07:18:00 shown as an example departure time from the former

With token working on the single line between Ashton Junction and additional, hourly freight services from Portbury using this route, infrastructure enhancements will be needed to accommodate these extra trains. However, that is beyond the remit of this study.

Phase 2 timetabling considerations

The Henbury and Yate services will both arrive and depart Bristol Temple Meads via Bristol East Junction. They could therefore potentially come into conflict with any additional Bristol-Cardiff services until North of Filton Abbey Wood.

Train times

Henbury services

These include new stations and Henbury, Filton North and Ashley Down. High-level assumptions around running times, based on Class 158 timing loads and a minute-dwell at intermediate stations, show a journey time of 20 minutes between Henbury and Bristol Temple Meads, plus ten-minute turnrounds at each end of the journey. This is broken down in Table 13:

Location	Arrive/depart/pass	Time
Henbury	Depart	07:50:00
Filton North	Arrive	07:53:00
	Depart	07:54:00
Filton West Junction	Pass	07:55:30
Filton Abbey Wood	Arrive	07:57:30
	Depart	07:58:30
Horfield Junction	Pass	07:59:30
Ashley Down	Arrive	08:00:30
	Depart	08:01:30
Narroway's Hill Junction	Pass	08:02:30
Stapleton Road	Arrive	08:03:30
	Depart	08:04:30
Lawrence Hill	Arrive	08:06:00
	Depart	08:07:00
Dr Day's Junction	Pass	08:08:00
Bristol East Junction	Pass	08:09:00
Bristol Temple Meads	Arrive	08:10:00
	Depart	08:20:00

Table 13: High-level running times for Henbury-Bristol Temple Meads services with 07:50:00 as an example departure time

Yate services

Timetabling for these services has been based on Class 158 timing loads extracted from BPlan (on 7 February 2020). The total journey time of just over 20 minutes includes intermediate dwells, as Table 14 shows:

Location	Arrive/depart/pass	Time
Yate	Depart	07:37:00
Westerleigh Junction	Pass	07:40:00

Bristol Parkway	Arrive	07:45:00
	Depart	07:47:00
Filton Abbey Wood	Arrive	07.49.30
	Depart	07:53:00
Horfield Junction	Pass	07:54:30
Narroway's Hill Junction	Pass	07:56:00
Dr Day's Junction	Pass	07:59:00
Bristol East Junction	Pass	08:00:00
Bristol Temple Meads	Arrive	08:01:00
	Depart	08:11:00
Bristol East Junction	Pass	08:12:30
Dr Day's Junction	Pass	08:14:30
Narroway's Hill Junction	Pass	08:16:00
Horfield Junction	Pass	08:17:30
Filton Abbey Wood	Arrive	08.19.00
	Depart	08:20:30
Bristol Parkway	Arrive	08:24:00
	Depart	08:25:00
Westerleigh Junction	Pass	08:31:00
Yate	Arrive	08:34:00

Table 14: High-level running times between Yate and Bristol Temple Meads for additional services, using 07:37:00 as an example departure time from Yate

These use the Down Filton Main on departure from Bristol Parkway. That is feasible with the above timings as in some hours they will take the place of an empty coaching stock (ECS) movement. The only issue is a freight movement (6A30DA) at 07:49:30, but as this has almost an hour's dwell at Pilning then it can easily be retimed.

A minimum three minutes' turnround time, based on the Timetable Planning Rules, is required at Yate.

It is important to note that timings for all of these services have not been validated beyond the boundaries of this study.

H.01.02   Portbury freight timings

With token working on the single line between Ashton Junction and MetroWest services to Portishead using this route, infrastructure enhancements will be needed to accommodate these extra trains. However, that is beyond the remit of this study.

The additional freight services have been created using pass/pass timings, with trains only validated as far as the boundaries of this study. Their timings are shown in Table 15:

		66/2000/60/H		66/600/75	
Network link	Up	Down	Up	Down	
Parson Street-Bristol West Junction (ML)	2.00	4.00	2.00	3.30	
Parson Street-Bristol West Junction (RL)	2.30	-	2.30	-	
Bristol West Junction-Bristol Temple Meads	1.00	1.00	1.00	1.00	
Bristol Temple Meads-Bristol East Junction	1.00	1.00	1.00	1.00	
Bristol East Junction-North Somerset Junction	1.00	1.00	1.00	1.00	

Table 15: Running times for additional Portbury freight services

H.01.03   East-West Rail timings

East-West Rail services to Bristol are proposed to travel via Bath Spa.

This means they will need to arrive and depart Bristol East Junction via the Down and Up Main Lines from North Somerset Junction.

According to the Timetable Planning Rules, services from Oxford and the Cotswolds require a 15-minute turnround time at Bristol Temple Meads.

This is possible by flexing the time of one service: amending the arrival of 1C02DA at Bristol East Junction until 08:13:00 (therefore arriving into Bristol Temple Meads at 08:14:30)

Table 16 shows the times of the trains created in TPS. These are based on Class 185 Diesel Multiple Units (DMUs) operating on two engines:

Location	Arrive/depart/ pass	Time	Time	Time	Time
North Somerset	Pass	07:52:00	08:52:00	09:53:00	10:41:30
Bristol East Junction	Pass	07:53:00	08:53:00	09:54:00	10:42:30
Bristol Temple	Arrive	07:54:00	08:54:00	09:56:00	10:44:00
Location	**Arrive/depart/ pass**	**Time**	**Time**	**Time**	**Time**
Bristol Temple	Depart	08:09:00	09:14:00	10:11:00	11:02:00
Bristol East Junction	Pass	08:10:00	09:15:00	10:13:00	11:05:00
North Somerset	Pass	08:11:00	09:16:00	10:14:00	11:06:00

Table 16: Timings of East-West Rail trains created as part of this study

As with other services, these have only been validated as far as the boundaries of this study.