

TTP 1068

1 DETAILS OF PARTIES

1.1 The names and addresses of the parties to the reference are as follows:-

- (a) Transport for London whose Registered Office is at Windsor House, 42-50 Victoria Street, London SW1H 0TL "TfL" ("the Claimant"); and
- (b) Network Rail Infrastructure Limited whose Registered Office is at 1 Eversholt Street, London NW1 2DN. "Network Rail" ("the Defendant").
- (c) Contact details for correspondence relating to this submission:

Paul Richardson
Service Delivery Manager, Crossrail
Rail for London
Crossrail CS29/G03/03
25 Canada Square, Canary Wharf
London E14 5LQ

~~020 3197 5811~~

~~0781 51003~~

1.2 The claimant believes that the following third parties may be concerned with this matter (and where shown have submitted separate references to the panel on related matters):

DB Cargo (UK) (TTP1065)
Great Western Railway (TTP1066)
GB Railfreight (TTP1069)
Cross Country Trains (TTP1073)
Freightliner Ltd
Chiltern Railways
MTR Corporation (Crossrail) Ltd.

2 THE CLAIMANT'S' RIGHT TO BRING THIS REFERENCE

2.1 This matter is referred to a Timetabling Panel ("the Panel") for determination in accordance with Conditions D2.2.8, D5 and D7.2.2 of the Network Code. The Claimant is the holder of an Access Option giving rights to capacity on Network Rail's network.

3 CONTENTS OF REFERENCE

This Sole Reference includes:-

- (a) The subject matter of the dispute in Section 4;
- (b) A detailed explanation of the issues in dispute in Section 5;
- (c) In Section 6, the decisions sought from the Panel in respect of
 - (i) legal entitlement, and
 - (ii) remedies;
- (d) Appendices and other supporting material.

4 SUBJECT MATTER OF DISPUTE

- 4.1 This is a dispute arising from the decision by Network Rail to make changes to the Timetable Planning Rules in respect of Headway Values applicable on the Relief Lines of the Great Western Route between London Paddington and Reading.
- 4.2 This dispute is raised in accordance with Conditions D 2.2.8, D5 and D7.2.2 of the Network Code.

The Option

- 4.3 A Crossrail Track Access Option ('The Option') was entered into by the Secretary of State for Transport and Network Rail on 22nd September 2008 to ensure the availability of train paths for the services to be delivered on the completion of the Crossrail project and to meet that project's Business Case.
- 4.4 In 2014 the Option was novated from the Department of Transport to TfL. A revised version of The Option was produced at that time, titled "1st Supplemental Agreement" with a sub title "Relating to amendments to the Track Access Option in connection with the Crossrail Project dated 22nd September 2008" and dated 2 September 2014. Accordingly, TfL is currently the Optionholder under the Option.

4.5 TfL and Network Rail have previously agreed that the Elizabeth line services (as Crossrail services will be known) will commence on the Principal Change Date occurring in December 2018 (the "Service Commencement Date, for the purposes of the Option). Rail for London Limited, a wholly-owned subsidiary of TfL, has appointed MTR Corporation (Crossrail) Limited ('MTR') as its concessionaire to operate the Elizabeth line services for an initial period. When the access rights set out in the Option are drawn down into a track access agreement (see 'Drawdown of Option rights' below), MTR will be the counterparty to that track access agreement.

Event and Event Steering Group

4.6 The December 2019 timetable change which introduces the full Elizabeth line service was identified as an 'event' in accordance with condition D7 of the Network Code. However, the timescales with which the Event Steering Group process is normally operating was found to be not compatible with the requirements of the Option.

4.7 Following discussion through late 2015 and early 2016 with various parts of Network Rail's organisation, a timeline was drawn up which was consistent with the indicative timescales in Schedule 13 of The Option. This would lead to submission of the First Crossrail Access Agreement to ORR allowing for approval before the Priority Date for the December 2018 timetable (see below). This timeline was included in a slide pack produced for the Crossrail Railway Systems and Operations Programme Board meeting on 18 February 2016 and subsequently also used to inform other meetings. (Copy attached as Appendix F)

Drawdown of Option rights

4.8 The rights set out in the Option must be drawn down into a track access agreement with Network Rail before they can be exercised. Each track access agreement is subject to the approval of the Office of Rail and Road (the 'ORR'). Schedule 13 of the Option sets out the indicative timescale for this submission. In order to allow the ORR sufficient time to approve the "First Crossrail Access Agreement" (as defined in the Option) in time for the Priority Date for the Principal Change Date occurring in December 2018, the First Crossrail Access Agreement must be submitted to the ORR on or before 3rd September 2017.

- 4.9** MTR has now commenced negotiation with Network Rail to draw down rights from the Option for inclusion in the First Crossrail Access Agreement.
- 4.10** Before submitting the First Crossrail Access Agreement to the ORR, the Option requires a number of tasks to be completed. TfL has been working with Network Rail to develop an integrated timetable in order to demonstrate, through the use of the "Railway Systems Model", the achievement of the "Objective Performance Measure" (each as defined in the Option). A key requirement of The Option is the demonstration of the "Objective Performance Measure" as set out in Schedule 12 of The Option. This requires that modelling be undertaken to demonstrate the achievement of 92% ppm (Public Performance Measure) for the specified services
- 4.11** The Model Report on the outcome of the Railway Systems Model is due to be submitted to the ORR at the same time as the First Crossrail Access Agreement (i.e. on or before 3rd September 2017).
- 4.12** Transport for London reviewed previous timetable work and, having identified a number of weaknesses in the service arrangements, proposed developed a new specification for the service to be delivered on completion of the Crossrail project. The proposed Elizabeth line timetable and remit for its incorporation into an integrated timetable with other operators' services was provided to Network Rail in July 2016.
- 4.13** TfL funded Network Rail to undertake this work which was completed in December 2016. This timetable, known as the Crossrail Concept Train Plan, has been based on the current Timetable Planning Rules (i.e. prior to the changes which are currently being proposed by Network Rail for the 2018 Timetable and which are the subject matter of this dispute).
- 4.14** The Timetable Planning Rules proposed by Network Rail for the 2018 Timetable would, if implemented, result in a significant reduction in the capacity of the Network. From past experience, TfL considers it is reasonable to expect that these Timetable Planning Rules would be carried forward into future timetables and therefore have a significant impact on the Elizabeth line services.

- 4.15 Significantly, the changes proposed by Network Rail would also result in a need to substantially revise the timetable work already completed and would invalidate the modelling which has already commenced. The Capacity Study (included as Appendix D) provided by Network Rail was not received until 31 January 2017, three days before the issue of Version 2 of the Rules and contains several serious flaws (see section 5.3 below).
- 4.16 It is also of concern to TfL that although the intention behind the changes to headway values has been to improve the performance of the route, something that TfL fully supports, the work done to date has failed to take into account some key determinants of performance on the route such as the impact of speed restrictions into and out of yards and sidings.
- 4.17 A comprehensive statement of TfL's concerns was sent to Network Rail in response to the issue of Version 1 of the 2018 Planning Rules on 25 November 2016. A response from Network Rail was received on 17 January 2017 which did not satisfactorily address the points raised. Subsequently a further message was received confirming that the changes proposed in version 1 would be carried forward into version 2 with no change. A copy of this correspondence is included as Appendix E
- 4.18 Extracts from the Crossrail Track Access Option are included as Appendices:
- Appendix A Defined terms in the Crossrail Track Access Option and clause 16.4
 - Appendix B Schedule 12 of the Crossrail Track Access Option
 - Appendix C Schedule 13 of the Crossrail Track Access Option

5 EXPLANATION OF EACH ISSUE IN DISPUTE AND THE CLAIMANT'S ARGUMENTS TO SUPPORT ITS CASE

5.1 Changes to the Timetable Planning Rules proposed by Network Rail for the 2018 timetable period fails to take into account the future changes arising from the introduction of the full Crossrail (Elizabeth line) services in December 2019

The response received from Network Rail makes the suggestion that "*the benefit for one timetable period was better than no benefit at all*". TfL robustly disputes this assertion.

The significance of the impact arising from the introduction of Elizabeth line services has been known across the industry since before the establishment of the Option in 2008 and the subsequent Royal Assent to the Crossrail Bill. There has been more than adequate time since 2008 for Network Rail to undertake a comprehensive review of all aspects of the operation of the route and to establish, through dialogue with all parties, a thorough and robust set of Timetable Planning Rules.

TfL does not accept that it is a valid approach to make changes to particular items in the Timetable Planning Rules that materially impact on the available capacity of the route without considering their impact on all known and committed future service changes. This is particularly relevant given: (1) the Timetable Planning Rules are typically rolled forward into subsequent timetables; and (2) Network Rail has been paid by TfL to undertake work based on current assumptions and not those set out in the proposed Timetable Planning Rules.

5.2 The proposed Timetable Planning Rules do not accurately reflect the usage characteristics of the Relief Lines between Paddington and Reading

The principal use of the Relief Lines is by stopping passenger services and freight. A stopping passenger service between Paddington (Portobello Junction) and Airport Junction averages around 31mph, significantly less than the maximum permitted speed of a Class 7 freight train, let alone a Class 6 train.

It is therefore the case that on that section of line with up to 4 freight and 12 passenger services per hour, all trains will effectively operate at an average speed below that of the maximum permitted speed of a Class 7 freight service. To optimise the use of capacity on the route this characteristic needs to be built into the calculation of headways.

Network Rail has stated in its response that "*No stopping headways were included as part of the suite of TRIP recommendations for Western as the modelling which was completed suggested that no change was needed.*" While the headway behind a stopping service does not need altering, this statement fails to recognise that increasing the headway between a freight train and a stopping passenger service is unnecessary and results in a loss of capacity.

5.3 No justification has been provided for the increased headway values proposed

Network Rail stated that "*...the issue of impact is something that has been addressed with the recent Timetable Impact Study of TRIP proposals against the current WTT.*" The Impact Study referred to was not provided until shortly before the issue of Version 2 of the Rules, and on examination contains a number of flaws:

- As mentioned above the Impact Study fails to examine the consequences for the major timetable change that will occur in December 2019.
- The study contains a confusion as to the service pattern to be implemented in May 2018 when TfL Rail services commence operation between Paddington Main Line and Heathrow Airport, replacing Heathrow Connect and GWR's Paddington to Hayes & Harlington services and providing a 4tph service to the airport. The report shows both Crossrail and Heathrow Connect services and in addition a shuttle service from Heathrow T2/3 to T4.
- The study assumes that all suburban services (other than those to Heathrow) are operated by Class 387 rolling stock but continues to use existing Class 165 timings for these trains. This is expected to be the case in the short term but not in the longer term.

- The study also assumes that IEPs (Class 800s) and Crossrail Class 345s cannot use platform 12 at Paddington, but this platform has already been extended and will (before the timetable in question commences) have Overhead Line Equipment restored.
- The study does not in fact provide justification for the changes proposed but confines itself to concluding that it is possible to accommodate the required services in the Paddington area for the May 2018 timetable.

5.4 The Changes to Timetable Planning Rules and the associated Timetable Impact Study have been presented as evidence of a comprehensive review of Timetable Planning Rules on the lines concerned when this is not in fact the case.

TfL raised the question with Network Rail in its response to Version 1 of the Timetable Planning Rules as to why there had been no examination of the impact of speeds of entry and exit to and from yards and loops on the route if the object of the exercise is to improve the accuracy of the Timetable Planning Rules. Network Rail's response to this point was that *"...it rarely models anything within depots."* And *"Where there are movements modelled that involve a siding, loop or yard then this will typically start from the moment the protecting signal allows the movement onto the running line."* This indicates a serious lack of understanding of the range of issues affecting performance at the interface between Network Rail infrastructure and that operated by other parties and is particularly concerning given the forthcoming introduction of Elizabeth line services which will include a new railway operated by a different infrastructure manager (the Crossrail Central Operating Section, to be operated by Rail for London (Infrastructure) Limited, a wholly owned subsidiary of TfL)..

TfL has experienced the impact of a similar issue concerning the speed of movements to and from an 'off Network' location on the East side of the Crossrail route at Ilford Depot. In that particular case the modelling undertaken failed to take into account that the rear of a 12 car passenger empty stock train was traversing an area of handpoint operation limited to 5mph even though the permitted speed beyond the exit signal is 15mph. The modelling undertaken therefore gave an entirely false picture of the time taken for such movements to leave the depot. Similar considerations may apply in freight yards, both for movements entering and leaving the yards. In some case movements may have to stop part way into the yard or sidings to receive verbal instructions or pick up a shunter.

A similar issue to that at Ilford arises on the Western Route with regard to freight movements into and out of Southall Yard. In the development of the 2019 Concept Train Plan this has proved to be particularly difficult with the result that extensive changes have had to be made to both Crossrail (Relief Lines) and GWR (Main Lines) services in order to accommodate such moves. However the overall time taken by these moves is crucially dependant on how the trains are operated while all or part of the train is within the Yard complex. While the connections to the Network Rail infrastructure have a 15mph maximum speed, if the train speed is restricted below this level within the yard at the commencement or termination of the movement, it is not reflected in the margins in the Timetable Planning Rules and will result in delays to services on the running lines.

To suggest that because this is "off network" it should not be modelled and taken into account in developing the Timetable Planning Rules is untenable.

5.5 The review fails to take into account the impact that the implementation of ETCS signalling (as an overlay) will have on movements between Paddington and Airport Junction

Network Rail has committed to install ETCS level 2 signalling, as an overlay to the existing MAS signalling, in order to provide a Train Protection System fully compliant with the Railway Safety Regulations 1999 which requires continuous speed supervision. This is because the Crossrail service is replacing trains (Heathrow Class 360s equipped with GW ATP) that are currently fully compliant. While the ORR has given dispensation to allow train protection by an enhanced TPWS installation for the initial Crossrail service in May 2018, that derogation expires on 31st December 2019.

ETCS provides the driver with a Movement Authority indicated in-cab with a Limit of Authority and continuous speed supervision, with intervention if the driver exceeds the advised speed. As such it replaces the present concept of fixed signals and can be expected to alter present practices. The development of the ETCS installation on this section of route has been in the course of planning for around three years and changes to the Timetable Planning Rules should now be taking this into account. All Crossrail trains will operate under ETCS conditions between Paddington and Airport Junction from 2019 and subsequently through to Reading once that section of route is equipped.

5.6 Impact of the proposed revised headway values on Elizabeth line services

In order to accommodate Crossrail services along with freight and GWR services, a flighted pattern of service off peak is required to provide sufficient margins for freight services to access and egress to/from sidings and yards. This has in turn necessitated irregular stopping patterns for Crossrail trains in order to maximise the use of capacity on the route. With short distances between stations on the sections of route between Paddington and Maidenhead, the factor determining effective headways is the average speed of the trains.

All Crossrail trains are planned to call at Ealing Broadway, Southall and Hayes & Harlington, while many of the Heathrow services are scheduled to call at all stations along the Relief Lines. This results in a position where, if the revised headway for a preceding Class 7 freight train is enforced, an all stations Crossrail train suffers 1½ minutes additional pathing time approaching Acton West and by the time it leaves Ealing Broadway, the freight service has already passed Southall, which is seven signal sections ahead of signal SN209, itself around 250m west of Ealing Broadway station.

The Crossrail service will then continue 1½ minutes later throughout with attendant risk to services on the Heathrow branch and the single line to Heathrow Terminal 4. The impact will be more severe if the Class 7 freight is itself running closely behind a preceding Crossrail service, as the average speed of a Crossrail stopping passenger service is around 31mph.

The following tables illustrate the timetable impact of these revised Rules:

Up Direction

Planning Rules version	2017 v4.2		2018 v2.0	
	Class 7 Freight	Class 345	Class 7 Freight	Class 345
	45H59S42		45H59S42	
Reading	/11	.18	/11	.18
Kennet Bridge Jn	/12½	/19½	/12½	/19½
Twyford	/18	.23½	/18	.23½
Maidenhead	/27	a30½	/27	a31½
Slough	/35	39½*	/35	40½*
Heathrow Airport Jn	/45	/50	/45	/51
Hayes & Harlington		.51½		.52½
Southall	/49	.54	/49	.55
Hanwell				
<i>Allowance</i>				
West Ealing	/53	.56½	/53	.57½
Ealing Broadway		a59		a00
Acton West	/57	/00	/57	/01

*calls at Taplow, Burnham, Langley, Iver and West Drayton;

Table 1: Impact of proposed TPRs on a stopping Crossrail service

Under the proposed Timetable Planning Rules the Crossrail train is required to follow 4½ minutes behind a Class 7 freight train from Reading to Airport Junction and 3½ minutes behind from Airport Junction to Acton West. It will be seen that the Crossrail service is now operating 1 minute later than previously by the time it reaches Acton West. This represents 33% of the Headway requirement for the pathing of trains through the Crossrail Central Operating Section tunnels in the off peak period (20tph – 3 minute headway).

It also has the effect that the following service (a GWR Didcot/Reading to Paddington semi-fast EMU service) has to be retimed as it follows the stopping Crossrail service 2½ minutes later passing West Ealing. This therefore makes that train 1 minute later which results in it losing the path it requires to make the conflicting movement across the Down Relief line in the Ladbroke Grove area to access Paddington Main Line station.

Both trains also experience a 1 minute longer journey time with consequential impact on the attractiveness of these services and a direct financial impact to both TfL and the GWR franchise operator. This impact is repeated each time a Class 7 freight operates which in the Up direction is several times per day.

Down Direction

In the Down direction there are very few Class 7 trains operating but imposing a 5-minute headway behind a class 7 freight imposes a delay of 1½ minutes on a stopping Crossrail service and 2½ minutes on a Crossrail train that does not call at West Ealing or Hanwell.

This arises primarily from the increased headway from 2½ minutes to 5 minutes at Acton West. However this location is only two signal sections from Ealing Broadway station where all scheduled passenger services, Elizabeth line and GWR operating on the Relief Line in the 2019 timetable will be calling. The table below gives an indication of the differences in movement time between a Class 7 freight and passenger services over the sections between Acton and Reading:

Section	Class 7 freight	Stopping Crossrail	Semi-fast Crossrail
Acton West – Airport Jn	11	12½	10*
Acton West – Southall	7	9	6½*
Airport Jn – Maidenhead	16	20	18**
Maidenhead – Reading	16	12	-

*Not calling at West Ealing or Hanwell

**Not calling at Iver or Taplow

This indicates that there is no need for an increase in the headway following a Class 7 freight from that which has been applicable for many years despite the significantly improved acceleration achieved by modern electric trains compared to the current diesel fleet operating the majority of services on the route.

The 2019 Concept Timetable provides a sequence of trains passing Acton West / Ealing Broadway, commencing with a freight path, followed by a Crossrail Maidenhead service, a Crossrail Heathrow service, another Crossrail service and finally a GWR Reading/Didcot EMU service. This flighting of trains is necessary to accommodate freight paths but extending the margin behind the first (freight) path of the sequence tightens up the margins between the subsequent trains creating a performance risk where none existed previously.

5.7 Capacity Study

As noted in 5.3 above, the Capacity Study (included as Appendix D) provided by Network Rail was not received until 31 January 2017, three days before the issue of Version 2 of the Rules and contains several serious flaws. This is in serious breach of the timescales under which Network Rail undertook to provide this.

5.8 Financial Impact on TfL

The immediate financial impact on TfL should the amended Timetable Planning Rules be adopted would be the cost arising from the need to review and further amend the 2019 Concept Train Plan (the timetable proposed for 2019) and to rerun the Railway Systems Model (TRAIL) as all work to date has adopted the existing Timetable Planning Rules.

Clause 16.4 of the Option requires TfL to reimburse Network Rail for all costs, fees and expenses Network Rail properly incurs in performing its obligations under the Option. TfL has issued Purchase Orders to Network Rail for £215k in respect of the development of the Crossrail Concept Train Plan (the timetable used for modelling to demonstrate achievement of the Objective Performance Measure) and £103k for the costs incurred in running the Railway Systems Model (TRAIL) to produce the Performance Measure output. If the panel is minded to find in favour of Network Rail, TfL would request that these abortive costs, introduced only as a consequence of Network Rail's own actions, be refunded and Network Rail be responsible for any further costs incurred in undertaking the modelling with the revised Timetable Planning Rules.

A more significant impact could arise if, following a detailed review of the impact of the Timetable Planning Rules change, the loss of capacity on the Relief Lines either prevents the operation of one or more of the hourly sequence of train paths or adversely impacts the journey time, calling pattern or performance of any of the planned train paths. Until a detailed analysis of the impacts of the change has been undertaken it is not possible to quantify the extent of that financial impact but it could be substantial. Where Network Rail is in breach of its duties, TfL reserves the right to seek compensation.

6 DECISION SOUGHT FROM THE PANEL

6.1 TfL seeks the following decisions from the Panel:

As matters of principle:

(a) That the development of revised headway values in the Timetable Planning Rules shall take into account the nature of the traffic using the lines affected to avoid artificially constraining route capacity.

(b) That, where applicable, the development of Timetable Planning Rules shall take into account the potential impacts of operational practices and restrictions 'off the network' such as speed restrictions while traversing into and out of yards, sidings, depots and stabling facilities and any other constraints including requirements to stop to receive verbal instructions etc.

(c) That proposals to amend Timetable Planning Rules shall take into account the potential impacts on committed enhancement schemes affecting some or all of infrastructure changes, rolling stock changes, and train service alterations.

(d) That Network Rail has not acted in accordance with the requirements of Condition D7.2.2a of the Network Code in that the changes to the Timetable Planning Rules on the Great Western Relief Lines have been proposed outside of the timescales previously agreed in order to achieve a smooth transition for the necessary timetable changes compliant with the requirements of the Crossrail track Access Option

Arising from the consideration of the lack of application of the above principles;

(e) That the proposed changes to Planning Headways on the Great Western Relief Lines between Paddington and Reading included in Version 2 of the 2018 Timetable Planning Rules should be withdrawn

6.2 Specific remedy sought

As referenced in paragraph 5.8 above, should the panel find in Network Rail's favour, the failure to: (1) propose the changes to the Timetable Planning Rules in a timely manner; and (2) act consistently with the planning assumptions adopted for the extensive development and modelling work already undertaken (and funded by TfL) will expose TfL to additional costs to review the timetable and then to rerun the modelling. TfL contends that in view of that failure Network Rail should: (1) refund to TfL the abortive cost of undertaking the existing modelling work (as specified above); and (2) bear the costs of undertaking the further modelling work required as a result of the revised Timetable Planning Rules.

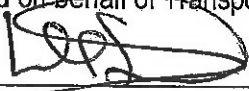
7 APPENDICES

The following Appendices are provided:

- Appendix A Defined terms in the Crossrail Track Access Option and clause 16.4
- Appendix B Schedule 12 of the Crossrail Track Access Option
- Appendix C Schedule 13 of the Crossrail Track Access Option
- Appendix D Paddington – Southall Capacity Assessment – Network Rail report No 70027265-02 dated January 2017
- Appendix E Text of email exchange between Paul Richardson (TfL) and Laura Freeman (Network Rail) following issue of Version 1 of the Timetable Planning Rules for the 2018 Principal Timetable
- Appendix F Powerpoint presentation showing timeline for development of the First Crossrail Access Agreement prepared by Network Rail
- Appendix G Extract from Timetable Planning Rules 2018 version 2

8 SIGNATURE

For and on behalf of Transport for London



Signed

HOWARD SMITH.

Print Name

OPERATIONS DIRECTOR,

Position

CROSSRILL, TFL.

