Network availability in control periods 5 and 6

24 January 2019

Contents

Glossary

Network availability: the term that describes when the network is open or closed to passenger and freight trains.

Access Disputes Committee or ADC: - the body responsible for the operation of the dispute resolution procedures that form part of all Access Agreements on the national network of Great Britain.

ALO (adjacent line open): a method of keeping lines open when engineering work is occurring on an adjacent line

Capacity Planning (System Operator): provides industry-wide coordination of those activities required to optimise the overall use of the network for the benefit of all users

Confirmed Period Possession Plan (CPPP): A plan produced 26 weeks before a possession, setting out the restrictions of use Network Rail will make

Devolution: The process of Network Rail devolving more responsibilities and accountabilities to its geographic routes.

Draft Period Possession Plan (DPPP): A plan produced 30 weeks before a possession, setting out the restrictions of use Network Rail wants to make

Engineering Access Statement (EAS): Sets out the plan for closing the network for the timetable year

Extended Journey Time: This measures how much longer train journeys are when there is planned disruption.

Governance of Railway Infrastructure Process or GRIP): Guide to railway investment projects. A Network Rail formal procedure through which every investment project on Network Rail's network must pass. It consists of a number of stages. At the end of these a review is carried out and if the project cannot meet the pass criteria it is stopped or held until it does.

Great Western Electrification Programme or GWEP: the programme installing overhead line electrification between London and Cardiff

Late notice notifications: possessions which are requested outside the deadlines set out in the Engineering Access Statement process

Network Change: the procedures which Network Rail and Train Operators must go through when certain types of change to the Network occur or are proposed.

Possession Disruption Index (passenger and freight) or PDI-P/F: measures intended to provide an indication of the level of disruption caused to end users of the railway as a direct result of possessions taken by Network Rail. A lower number in both cases indicates a lower level of disruption. Targets have been set with the aim of reducing the level of disruption experienced by passengers and freight operators

Possession planning: the process whereby Network Rail and its TOC/ FOC customers plan for restricting the use of the network to facilitate maintenance, renewal or enhancement

PR13 Final Determination: this determined the outputs ORR expected Network Rail to deliver, the income the company will receive and the incentives it will face, for the five years of control period 5 (CP5) which runs from 1 April 2014 to 31 March 2019.

Route Managing Director for England and Wales: Network Rail has a number of routes, all led by a Route Managing Director

TOCs and FOCs: Train Operating Companies and Freight Operating Companies who operate the vast majority of trains on the GB rail network.

Transport Focus: the independent transport user watchdog for road and rail users

Executive summary

Background

1. Network availability is the term that describes when the network is open to passenger and freight trains. Under normal circumstances, the network is closed to trains at night and, from time to time, it is closed to trains during normal operating hours, usually at weekends. These closures provide what is known as a "restriction of use" or "possession" for Network Rail so it can carry out maintenance, renewal and enhancement work.

2. The aim of measuring network availability is to promote the right balance between Network Rail's need to close the network and the needs of TOCs and FOCs to operate trains. Network Rail's licence and the Final Determination for CP5 include obligations on the company to make this balance work.

3. In this report we answer two questions:

   ■ How well was Network Availability delivered in CP5?

   ■ How will Network Availability be monitored in CP6?

How well was network availability delivered in CP5?

4. In CP5, the Possession Disruption Index was set as the regulated output to measure network availability for passenger (PDI-P) and freight (PDI-F) customers. For a number of reasons this measure has not offered the clarity and insight that other regulated outputs (such as on train performance) have provided. As a result, the PDI-P/F measure has not been effective in driving behaviour.

5. As PDI-P/F did not appear to offer reliable insight into this subject, ORR undertook an industry engagement exercise to assess Network Rail's delivery of network availability, gathering views from Network Rail, its Train Operating Company (TOC) and Freight Operating Company (FOC) customers and other important stakeholders. We found shortcomings in Network Rail's delivery, which pointed mainly towards issues relating to possession planning, an area of focus being monitored separately through our Informed Traveller activities.

6. The outputs from this engagement exercise are included in this report.

How will ORR monitor Network Rail's delivery of network availability be monitored in CP6?

7. We have been considering how to approach this subject in CP6 and have undertaken three elements of work.

■ We consulted the industry through ORR's outputs consultation as part of Periodic Review 2018 PR18. The responses to our consultation in 2017 (published in January 2018[1]) clearly demonstrated that availability of the network is important to end users and customers and respondents were clear that it should continue to be monitored during CP6. However, in the responses to ORR's consultation on the Draft Determination, only Network Rail commented on potential new measures.

■ We employed an independent consultant, SNC-Lavalin (SNCL), to advise on appropriate ways of measuring network availability in Control Period 6 (CP6). SNCLproposed using a measurement of 'Extended Journey Time' (EJT). Network Rail was opposed to this measure, on the grounds that whilst the national EJT figure could be easily extracted, it would take a lot of work to disaggregate to TOC / Service Group / Route level. It also said that EJT could create perverse incentives – for example in planning for possessions, where cancelling diverted trains and placing passengers on buses would lead to a lower EJT figure.

■ Instead Network Rail proposed:

  – having an annual survey of its delivery of Network Availability;

  – measuring late notice changes to possessions; and

  – measuring how many disputes over possession plans were registered with the Access Disputes Committee (ADC).

Our conclusions

8. We have concluded that:

■ as the measure had proved unreliable and has not directly driven industry action, we do not consider further focus on Network Rail's delivery in CP5 is

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[1] ORR Route requirements and scorecards summary p20 Link here

appropriate. Shortcomings in Network Rail's planning, uncovered in our survey, are being managed separately (i.e. through the T-12 workstream)

■ there will be a suite of improved measures to monitor network availability in CP6 in line with Network Rail's proposal in paragraph 7 above

Chapter 1: What is network availability and what is ORR's interest in it?
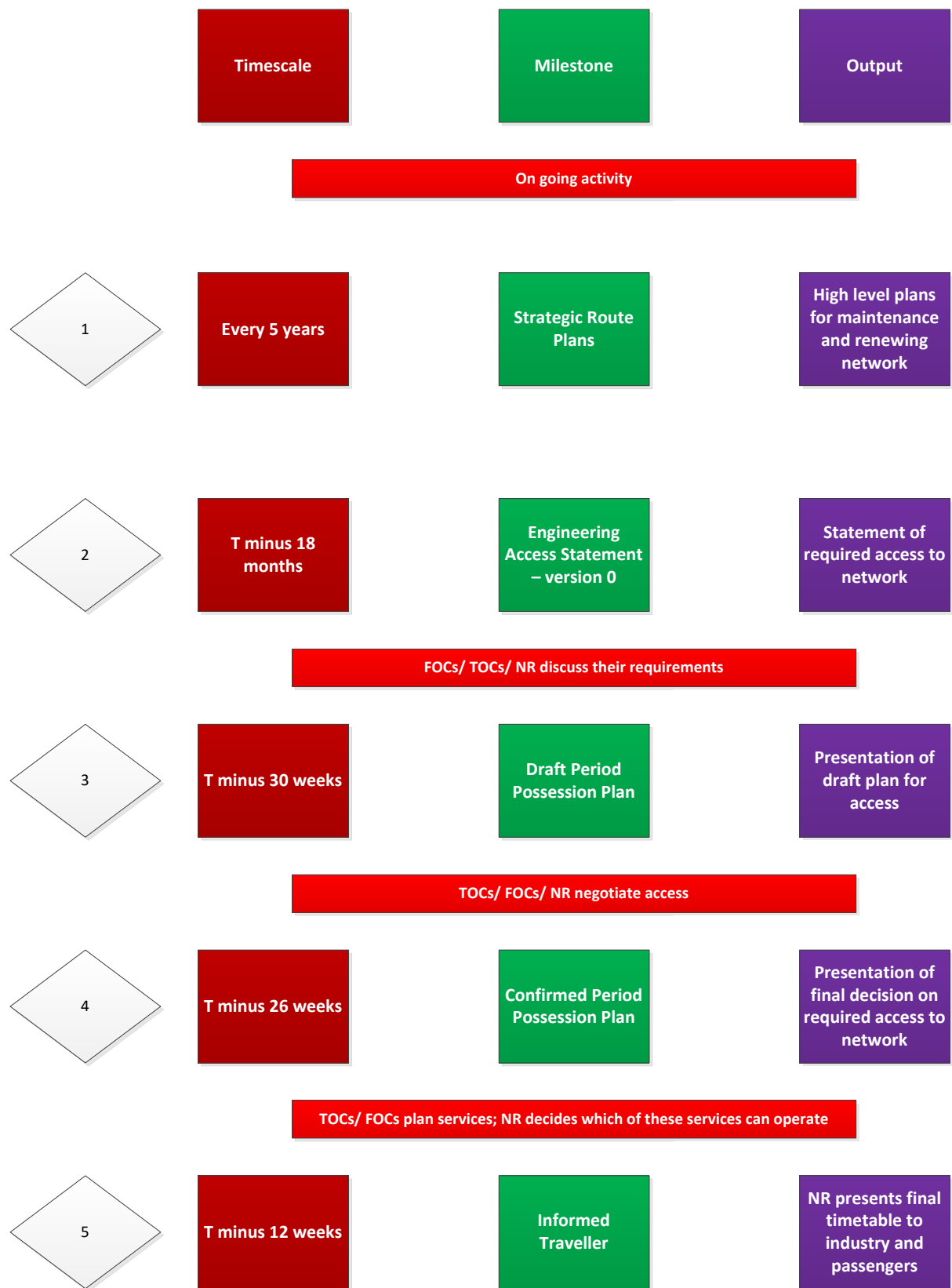
What is network availability?

9.   Network availability is the term that describes when the network is open or closed to passenger and freight trains. Under normal circumstances, the network is closed to trains at night and from time to time it is closed to trains during normal operating hours, usually at weekends. These closures provide what is known as a 'restriction of use' so Network Rail so it can have 'access' to the network to carry out maintenance, renewal and enhancement work.

10.   The aim of managing network availability is to promote the right balance between Network Rail's need to close the network and the needs of TOCs and FOCs to operate trains with the aim of meeting the needs of passengers and freight users. Network Rail's licence and the CP5 Final Determination include obligations on the company to make this balance work.

What is the planning process for possessions?

11.   A possession may be a complete closure, with all services stopped, or a partial closure when some services over adjacent lines can operate. The planning for this takes many years with initial planning requiring consideration of maintenance activities, renewal volumes, and enhancements projects. Planning enhancements can be particularly difficult as the project process the Governance of Railway Infrastructure Projects (GRIP) requires possessions to be agreed at a later stage than is allowed under normal planning timescales.

12.   There are several milestones in the planning process. The first is the Engineering Access Statement (EAS), which sets out the plan for closing the network for the timetable year. The first draft (version 0) is produced 18 months before the possession is due to be taken, and as time progresses a further three versions are produced. A Draft Period Possession Plan (DPPP) is produced 30 weeks before the closure and a Confirmed Period Possession Plan (CPPP) is produced 26 weeks before the closure. A final timetable is produced 12 weeks before the closure, which enables train times to be advertised and is known as the 'Informed Traveller' timescale.

13.   This process is summarised in the following diagram.

Figure 1: Major milestones in the access planning process

Timescale	Milestone	Output
	On going activity	
1 — Every 5 years	Strategic Route Plans	High level plans for maintenance and renewing network
2 — T minus 18 months	Engineering Access Statement – version 0	Statement of required access to network
	FOCs/ TOCs/ NR discuss their requirements	
3 — T minus 30 weeks	Draft Period Possession Plan	Presentation of draft plan for access
	TOCs/ FOCs/ NR negotiate access	
4 — T minus 26 weeks	Confirmed Period Possession Plan	Presentation of final decision on required access to network
	TOCs/ FOCs plan services; NR decides which of these services can operate	
5 — T minus 12 weeks	Informed Traveller	NR presents final timetable to industry and passengers

What is ORR's interest in network availability?

14. ORR holds Network Rail to account through the following regulatory mechanisms.

Network Rail licence.

15. Network availability is a function related to the overall purpose of Condition 1 of the Network Rail Licence which is to secure the network's operation, maintenance, renewal and replacement and its improvement, enhancement and development. It must do this "in accordance with best practice and in a timely, efficient and economical manner so as to satisfy the reasonable requirements of persons providing services relating to railways". It must achieve this "to the greatest extent reasonably practicable having regard to all relevant circumstances including the ability of the licence holder to finance its licensed activities".

16. For train operators, having access to the network (i.e. network availability) to operate trains is a 'reasonable requirement'. However Network Rail needs to balance this against its obligation to maintain, renew and enhance the network.

CP5 Final determination

17. The final determination for CP5 establishes a requirement for Network Rail to balance the amount of work required to maintain the network and the amount of disruption this work will cause to users of the railway. This takes the form of an exit target for the Possession Disruption Index (PDI) for passengers (PDI-P) and freight (PDI-F). The measures are intended to provide an indication of the level of disruption caused to end users of the railway as a direct result of possessions taken by Network Rail. A lower number in both cases indicates a lower level of disruption.

18. These targets were set with the aim of reducing the level of disruption experienced by passengers and freight operators.

19. The targets reflected an improvement compared to the end of the previous control period. The calculation used for PDI is complex and relies on a number of estimates of elements such as the number of passengers travelling and extended journey times. A full description of the calculation can be found in Annex D.

20. The final determination for CP5 acknowledged the complexity of PDI, but without suitable alternatives. ORR instructed Network Rail to use it until the industry defined

improved measures[2]. It also referenced the development of a working timetable measure that had the potential to replace PDI.

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[2] Para 3.123 (p98) of the final determination for CP5 states that 'until the industry defines new measures, we will continue to monitor PDI-P and PDI-F carefully with a number of supplementary indicators from the Possession Indicator Report'

Chapter 2: How was network availability delivered in CP5?

The targets for CP5

21. CP5 targets for PDI were set with the aim of reducing disruption to passengers. At Period 6 of 2018-19, PDI-P was 1.25, 0.67 adrift of CP5 exit target, and PDI-F was 1.02, 0.29 adrift of target.
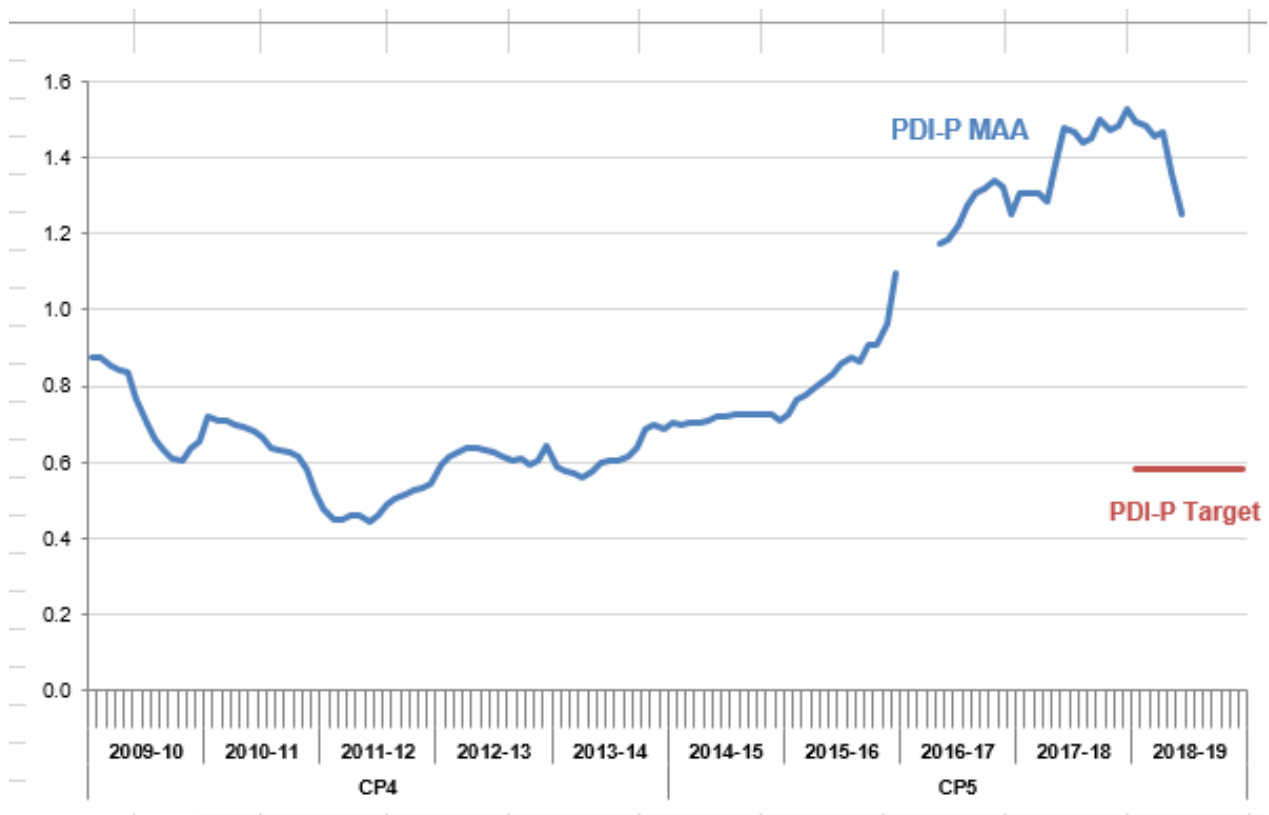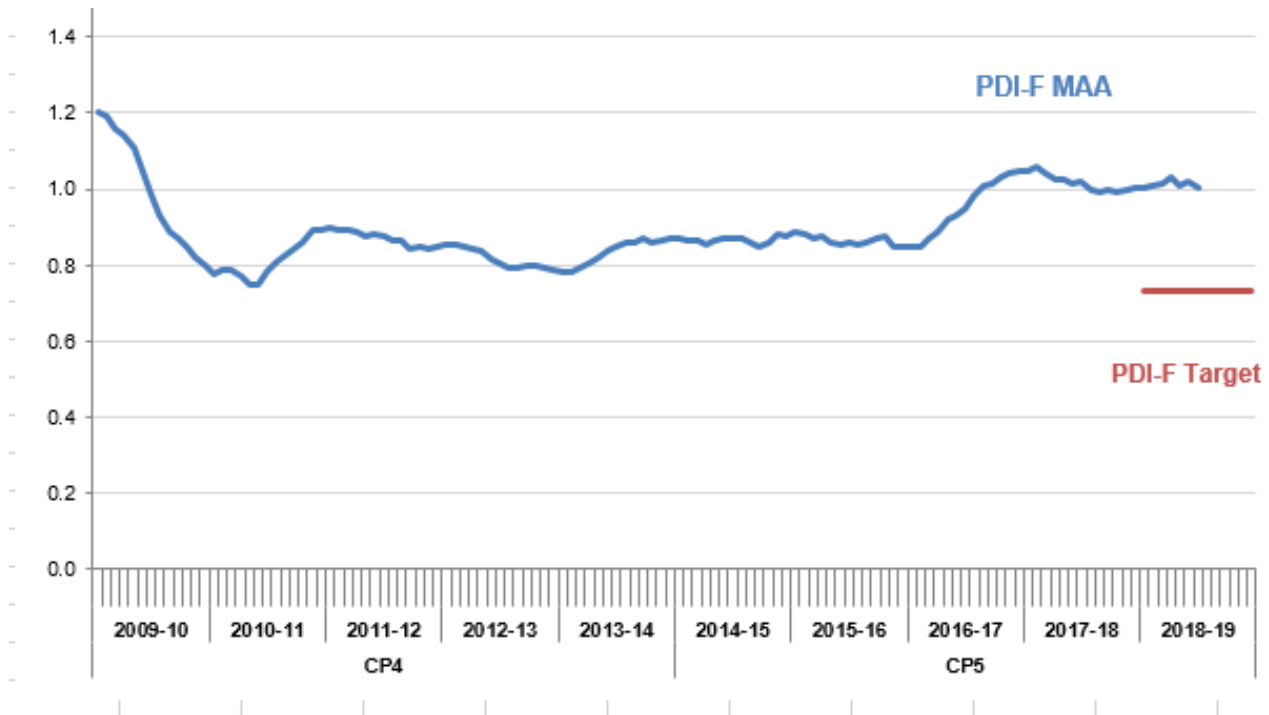
Figure 2: PDI-P in CP5

Figure 3: PDI-F in CP5

What are the shortcomings of PDI P/F?

22. In the PR13 Final Determination we observed that PDI was difficult to understand and the calculation process was difficult to articulate. However, given the lack of an industry consensus on alternative measures, it was decided that PDI-P and PDI-F would be retained as regulated outputs in CP5. However, in recognition of the issues around PDI, the Final Determination allowed for some flexibility and concluded that until the industry could define improved measures, we would continue to monitor PDI-P and PDI-F[3].

23. Aside from the complexity of the measure itself as set out above, Network Rail has identified a number of problems in the reporting of PDI. It argues that as a result PDI no longer reflects the activity on the network and is misleading.

24. The problems Network Rail highlighted to us are:

- **PDI-P was calculated incorrectly**: An error was found in the calculation, where the formula refers to the wrong number of periods. It is thought this error was introduced when the system was programmed for 2008-09 (Control Period 4). Network Rail were not able to quantify the impact of these inaccuracies, their

[3] Final determination (see page 97): http://orr.gov.uk/__data/assets/pdf_file/0011/452/pr13-final-determination.pdf

effect on the targets, and the effect on the actual results. It is likely that there have been similar issues with the PDI-F calculation.

- **PDI-P doesn't cope well with change**: Changes to service groups (which are groupings of train services within a TOC) for financial and operational purposes following franchise changes, particularly since the beginning of CP5, have altered the PDI-P value. Trains for each service group are allocated a passenger weighting, which enables each to be given a value reflecting the number of passengers carried and how far they travel. If trains change service group, they are arbitrarily assigned a different passenger weighting. As a result, similar possessions under different franchises can produce a radically different contribution to PDI-P, even though it is unlikely a different number of passengers have actually been affected. The introduction of additional train services has also affected the value of PDI-P. For example, the introduction of Sunday services would mean that a weekend possession would affect more services and therefore an increased number of passengers. It is likely that there have been similar issues with the PDI-F calculation.

- **It is historically inaccurate:** PDI-P is based on the track access agreements in place. If these are not in place PDI-P will be incorrect.

Despite this, how has Network Rail progressed against these targets?

25. As seen above, Network Rail notified us in 2017 that the CP5 exit target for PDI-P was not likely to be met, with the possibility of the PDI-F target also being missed. It said that this was largely as a result of problems with the PDI P/F measure.

Our assessment of Network Rail's delivery of network availability not using PDI P/F

26. We acknowledge the complexities and inaccuracies present within the calculation. However, we required that Network Rail continues to report PDI, with some modifications, until it is possible to present an appropriate and industry-agreed solution that reflects the experience of passengers and freight customers.

27. We also committed to carrying out an industry-wide engagement exercise to gather further evidence of Network Rail's adherence to the spirit of PDI, obtaining views from passenger and freight operators.

28. Given Network Rail's obligations and the problems with PDI-P/F, ORR needed to find an alternative way of assessing Network Rail's performance in this area. We undertook a two-step process.

- In June 2017, we asked Network Rail to set out how it had adhered to the spirit of its obligations on Network Availability. We received Network Rail's response in September 2017.

- In December 2017, we undertook an industry-wide engagement exercise on network availability. We sent a copy of Network Rail's September response to industry stakeholders, and a number responded with their own views.

Network Rail's September 2017 letter

29. In its September 2017 letter, Network Rail set out how, in its view, it was meeting the spirit of its obligations as set out in the final determination for CP5. It described the key steps in its process and how this was consistent with the spirit of its obligations.

- Access frameworks: These set out how access is granted and the constraints placed on routes. They give clarity to Network Rail's customers on the types of possessions that can be taken, and an assessment of the level of disruption caused by them. Network Rail's view is that this approach enables the planning of possessions to be done in a customer-focused way. Possession planning is devolved to routes, with the System Operator controlling overall governance.

- De-confliction: This is the assurance that diversionary routes to a destination are not closed at the same time as the main route – for example closing both the West and East Coast mainlines. A series of meetings is held to assess where the closure of main and diversionary routes may occur simultaneously and to find optimum solutions to them. These meetings occur well in advance of Version 0 of the Engineering Access Statement, which is published 18 months before the possession is due to be taken. Four further versions of the EAS are then published before the possession.

- Access Disputes Committee: This is an independent organisation where operators can raise disputes in relation to possessions or changes to the timetable. This can be done at various stages and if Network Rail and the affected party cannot resolve the issue, a hearing can be arranged.

- Late notice changes: Each route reports late change volumes every period, and this is communicated upward.

30. Given the shortcomings identified in PDI-P/F, Network Rail proposed to cease reporting on this measure in CP5 and instead report publicly on two different factors.

- The disputes registered with the Access Disputes Committee at the Engineering Access Statement (18 months before a possession) and Confirmed Period Possession Plan (6 months before a possession) stages; and
- Late Notice Changes – indicating how many changes were made to the plan later they should have been.

31. ORR rejected the proposal to cease reporting PDI but accepted Network Rail's proposal to report ADC disputes and Late Notice Changes, which it has reported in its periodic Possession Indicator Report.

ORR's industry-wide engagement exercise

32. To understand what the industry thought about this subject, we sent a survey to all GB freight, passenger and open access operators, and to other major stakeholders, such as Transport Focus, and end users of rail freight services, such as Felixstowe Port (operated by Hutchison ports).

33. We received replies from a number of passenger operators, including the Arriva franchises of Northern, Cross Country, London Overground and Arriva Trains Wales, the Abellio franchise of Greater Anglia and the Trenitalia franchise of c2c. Taken together the responses covered 51.3% of GB passenger journeys and 38.3% of passenger kilometres travelled. The following chart gives a breakdown of the responses.

Table 1   TOCs that responded to our survey

TOC	Owning Group	% GB passenger miles	% GB passenger journeys
Arriva Trains Wales	Arriva	1.9	1.9
London Midland (now West Midlands Trains)	Govia (when LM)	4.2	4.2
London Overground (Arriva Rail London)	Arriva	10.9	2
c2c	Trenitalia	2.7	1.8
Cross Country	Arriva	2.2	5.4
GTR	Govia	18.5	13.2
Greater Anglia	Abellio	4.7	5.8
Northern	Arriva	6.2	4
	Total	51.3	38.3

34. We received replies from the larger freight operators, Freightliner, DB Cargo and GB Railfreight, as well as Colas. We also received responses from Transport Focus and Hutchison ports.

35. Our original approach was to assume that a lack of response meant satisfaction with Network Rail's approach. However, we no longer believe that this is tenable given that one of the consistent themes was problems associated with possessions for the Great Western Electrification programme, and that Great Western Railway (which did not respond to our survey) had expressed dissatisfaction with Network Rail's planning in other forums.

36. In this section, we summarise the responses to our questions. Because of the different nature of their business and their respective markets, we have separated out the passenger and freight operators. We also summarise Transport Focus's response separately.

What we asked the industry stakeholders and their responses

37. **Question 1:** In your opinion, is Network Rail mindful of the impact it has on passengers and the end users of the rail network?

38. There were mixed responses from TOCs to this question. ATW was positive, using phrases such as 'more responsive' and 'working closely' to describe the working relationship with Network Rail. At the other end of the spectrum, Greater Anglia was very disappointed with Network Rail, saying it was not kept informed or able to engage at the right stage. Greater Anglia said it was notified late of the work content of the Christmas 2017 blockade. It also said all lines to Liverpool Street were often blockaded.

39. FOCs were also disappointed with Network Rail. GBRF said Network Rail was "not truly aware" of the impact of availability of the network to freight users. DB Cargo put forward a similar view, citing problems on Western route as a particular concern.

40. **Question 2**: Do you think Network Rail has demonstrated its commitment to maximise the availability of the network to passengers and freight operators and minimise disruption during possessions?

41. There were some negative responses from TOCs to this question. ATW said 'there was no obvious change' in Network Rail's approach to maximising availability. Another TOC referred to Network Rail having 'scant regard to passenger disruption'. Greater Anglia described the approach as 'somewhat inflexible', particularly over year on year budgeting which meant two blockades were needed instead of one. Greater Anglia said Network Rail did not adhere to the spirit of its obligations. In contrast, another TOC said "there is a concerted effort by Network Rail to integrate and de-conflict the possession strategy".

42. On freight, GBRF said that "Network Rail's possession efficiency appears to have dropped" and said that "It is almost as if it is now acceptable to not plan possessions properly and have an expectation of an overrun".

43. **Question 3:** Is Network Rail working closely with you in the possession planning process?

44. Again, there were a mix of answers to this question. Northern said that Network Rail was "inconsistent in seizing the opportunity of possession access to undertake multiple work banks concurrently". Northern also highlighted the mismatch between EAS and GRIP timescales, which hinders this (see Annex A which sets outs the respective timescales). Greater Anglia said that discussions on possession plans

were not held early enough, and that processes, while effective did not happen within appropriate timescales. GTR said that "they (i.e. Network Rail) work closely with us", however on larger projects "communication has been later and changes to the plans has created abortive work for the Planning Team".

45. DB Cargo said that it was "finding it increasingly difficult to get Network Rail's devolved Routes to understand that a possession on one Route may require amendment or curtailment of other possessions on other Routes to accommodate diverted services".

46. **Question 4:** Network Rail refers to meetings with Access Planning Managers designed to enable de-confliction. Are these meetings useful and productive? Do they deliver benefit in terms of increasing Availability?

47. One TOC said that these meetings did not increase availability although they did provide assurance on the amount of access being taken. GTR said it thought the meetings did increase availability. Greater Anglia said that the "meetings happen too late in the process to be very useful or productive." It also said the meetings did not help de-confliction and actually decreased availability, as more work was added at these meetings.

48. On freight, one FOC said that "de-confliction process is becoming less effective in a post devolution scenario and have noticed an increase in the number of conflicting possessions." It also said that it needs to check for de-confliction as it this was a frequent occurrence. In contrast, another said the meetings were mainly held in a positive way, de-conflicted possessions and increased availability.

49. **Question 5**: What is you view on the Access Disputes Committee?

50. TOCs were unanimous in their support for the ADC, describing it in positive terms. For example, Northern said ADC is "a useful process to stimulate discussion to assist Network Rail and Operators in arriving at the correct compromises on possession access."

51. FOCs were also supportive of the process, but DB Cargo did assert that the Clay Cross judgement (about the removal of a goods loop without Network Change) had been effectively ignored by Network Rail. GBRF said that Network Rail was becoming more belligerent and "in some cases, just ignoring ADC determinations and their appeal outcomes". GBRF also noted that "many disputed items ideally need very quick resolution, there may also be a need for a much faster process."

52. **Question 6:** Have you been impacted by late changes?

53. All respondents to the survey highlighted late changes as an issue. ATW said that many late changes occurred needlessly. Northern mentioned an absence of a cohesive strategy to plan possession or engineering access proactively and efficiently. Greater Anglia described a situation where, late notice requests happened frequently, randomly and often without any "heads-up" from the possession planning team.

54. DB Cargo mentioned GWEP as a source of excessive late changes, and said it was 'finding that more and more access for possessions is being 'demanded'". GBRF said it had recently been very badly impacted by late changes.

Consistent themes in the survey

55. In the responses, there were several consistent themes that were mentioned by a number of operators.

56. **Devolution**: There were mixed responses about devolution of some possession planning activities to the routes. ATW said that routes "are generally more responsive to ATW's needs than in the past." Other operators were less convinced by the change, particularly around planning skills.

57. **De-confliction** (i.e. ensuring that diversionary routes remain open during blockades) is a key issue for a number of operators. Freightliner said the process was becoming "less effective" post-devolution, and it had noticed a number of conflicting possessions. It would welcome a guide to assist each route on the rules for closing lines (Network Rail says there is one). DB Cargo said it was "finding it increasingly difficult" under devolution to get routes to understand that a possession on one route may impact diverted services. It cited the Gospel Oak to Barking blockade as evidence of this. GBRF was concerned that there was "a more individualistic view of possession planning and that more clashes will occur". However, it noted that these clashes even occurred within routes. This tends to suggests that the problem may be more to do with the upskilling issue mentioned above.

58. The **management of late changes** is another area that causes difficulty. One TOC suggested that since devolution the process to manage late change had become inconsistent route to route, a particular problem for a national operator. GTR's view was that late changes were an issue "with multiple new requests almost every week". It saw "a disconnect (following devolution) between access planning (routes) and Capacity Planning (System Operator) who do not present a joined up approach". GBRF had particular concerns, describing "Late notice notifications of taking very disruptive possessions are being more common and devolution seems to have been a cause of this"

59. **Enhancements.** The impact of major enhancement projects was a theme that ran through all the responses. One TOC said "we have worked closely with Network Rail to plan and progress alternative options for managing passenger flows during major disruptive possessions." It also highlighted the issue of co-ordination of commissioning dates between major projects which it said was lacking, leading to consequential problems.

60. The most frequently cited 'problem' project was the Great Western Electrification Programme (GWEP). DB Cargo said that "more and more access for possessions is being 'demanded' by Network Rail causing DBC UK significant problems in being able to plan its services with a reasonable degree of certainty." One TOC said that GWEP "has scant regard to passenger disruption", and there has been "little effort to maximise availability of the network to Operators and minimise disruption", with an approach focussed on facilitating delivery of the project seemingly at all costs. It cited one 52 hour possession (week 29 2017) which was enforced on operators at less than a weeks' notice.

61. Other major projects cited as problems were Gospel Oak to Barking, where Greater Anglia said that "Network Rail does not appear to push back at the work requesters hard enough". As a result of the Edinburgh Glasgow Electrification Project, a FOC said that key contracts (such as the Oxwellmains – Inverness cement service) "were considerably disrupted" taking up considerable resource to mitigate this, and affording their customer no security over the ability to deliver the product to a key growing market.

62. A consistent theme was **misalignment between project planning timescales** (i.e. GRIP) **and the Engineering Access Timescales**. The EAS works well with workbanks that are available many years in advance, and can be slotted into possessions 18 months in advance. With the GRIP process, as scope changes, and contractors are not commissioned until a relatively advanced stage, the EAS timescales do not work as effectively. Northern specifically highlighted this, saying "The GRIP stage planning framework utilised for enhancement schemes is also not conducive to the timescales required to propose and agree access via the EAS process." Greater Anglia said that Network Rail in general does not let contracts for the work in time to allow a robust delivery plan to be developed and put in place.

63. The overall impact of this misalignment is that possessions can't be planned in line with the established process, leading to requests for late possessions. This was a problem for all of the operators, and we explore this in more detail in Annex A.

64. **Inflexibility:** Some operators saw inflexibility on Network Rail's part as a problem in a number of ways.

65. Inflexibility over spending **money** was mentioned. GTR cited the cut-off between CP5/CP6 settlements, and Greater Anglia mentioned this as a problem between years within control periods. The result is more possessions are needed as work is harder to co-ordinate into one blockade.

66. There were issues raised around **operational flexibility**. ATW said that "Network Rail makes no secret of the fact that it would rather take all line blocks and periodically puts pressure on ATW to do away with the established SLW access pattern." One TOC cited the inflexible nature of the possessions, with limited work being undertaken, meaning the same line needed to be closed more than once. Another said Network Rail's focus was on delivering its own objectives and on renewals with no regard to customer requirements.

67. **Measures:** Northern gave a detailed response on the use of the new measures proposed by Network Rail. It was supportive of both the ADC disputes and the NDF measures, but said these measures needed be supported by "the correct balance between delivering the Long Term Plan for customers and undertaking possession activity". Northern supported the development of more suitable metrics to measure Network Rail's success in this area and incentivise behavioural change.

68. **Views of Transport Focus:** TF's view was that ORR should not reduce its focus on availability just because so much CP5 renewal has been deferred. These are summarised below:

   ■ **Network Rail needs to do far more to understand the issues passengers will experience**. TF is not convinced Network Rail has moved to a "how will we do this with minimum impact on passengers" culture. Some parts of Network Rail don't appreciate the need whilst others do but cite budgetary constraints. TF quoted one example where Network Rail would not spend £50k on research to mitigate the passenger effects of a £13m renewal job in CP6. It said ORR should find some way to allow Network Rail to spend relatively small sums some years ahead to understand passengers' needs before it plans major work – including renewals.

   ■ **Passengers want engineering work to affect the timetable as little as possible,** and in particular they want trains not buses. TF's view was that ORR should be looking to Network Rail to deliver work with as little alteration to the timetable is possible – and as little use of replacement buses as possible.

   ■ **Network Rail must be incentivised to do something differently,** rather than just measure the consequences of what it decides to do. They mentioned the measuring of the difference between the base timetable and the 'plan of the day'.

69. Transport Focus did not propose particular measures, but said the following should be considered:

■ Network Rail must be incentivised to have fewer days when the timetable is "messed about with".

■ Network Rail must be incentivised to keep as many passengers as possible on trains rather than closing the line entirely and running buses.

■ Network Rail should not close, unless completely essential, two routes between the same place at the same time, such as London to Cambridge.

Conclusion

70. In CP5, the Possession Disruption Index was set as the regulated output to measure network availability for passenger (PDI-P) and freight (PDI-F) customers. We reported in our draft determination[4] that Network Rail was going to miss the regulated targets for this metric. This has been a problematic measure. It has not offered the clarity and insight that other regulated outputs (such as on train performance) have provided[5], and thus has not been effective in driving Network Rail's behaviour around network availability.

71. As a result of the weaknesses in PDI-P/F, ORR undertook an industry engagement exercise to assess Network Rail's delivery of network availability, gathering views from Network Rail, its TOC and FOC customers and other important stakeholders. This survey found shortcomings in Network Rail's delivery, mainly around late changes to possessions. This is an area of focus being considered separately by our informed traveller monitoring activities.

72. Therefore, as PDI-P/F was not reliable and as we are considering late changes to possessions separately, we propose to take no further on Network Rail's failure to meet its regulatory target for CP5 for network availability.

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[4] p99 PR18 draft determination supplementary document
[5] See Annex A for the detailed reasons

Chapter 3: Our approach for CP6

73. In the draft determination in March 2018 we said the following about network availability.

    ■ It is an important area for our monitoring in CP6 in terms of the impact on end users.

    ■ Schedule 4 largely provides the right incentives;

    ■ There will not be regulatory targets for network availability.

    ■ We were considering alternative leading indicators to measure this area; and

    ■ We were considering an alternative to PDI P/F namely the extended journey time measure (EJT). This aims to measure how much longer train journeys are when there is planned disruption. This was proposed by SNC-Lavalin through an ORR commissioned study.

74. We engaged closely with Network Rail to better understand the feasibility and usefulness of the EJT measure. Network Rail presented back to us in early August on its feasibility assessment of the EJT measure. It found that the national EJT figure could be easily extracted, but that it would take a lot of work to disaggregate to TOC / Service Group / Route level. It also said that EJT could create perverse incentives – for example in planning for possessions a lower EJT figure could be achieved by cancelling diverted trains and placing passengers on buses something passengers do not want.

75. Network Rail followed this up in its draft determination response in August 2018. It said the EJT measure "…is not a measure of Network Availability, it would not drive decisions, there is no evidence that there is any industry support for the measure, and we are not convinced that this measure is intuitive or informative for customers or end users. In addition, there would be cost implications to create and maintain a service group weighted metric"

76. Network Rail said there are two areas that would be useful to monitor and report on Network Availability. Firstly, late notice possession changes which captures Network Rail-driven changes that have an additional material impact that will be felt by the travelling public and freight customers. Network Rail says it is now actively tracking this as part of its informed traveller recovery plan. Secondly, the level of access disputes escalated to the Access Disputes Committee, a measure of the impact on

customers. Network Rail measures this through the Engineering Access Planning process using two leading indicators – Confirmed Period Possession Plan disputes and Engineering Access Statement disputes. These assess the effectiveness of the access planning processes.

77.   Network Rail also proposed an annual customer survey which would provide an assessment of what its TOC and FOC customers think of NR's delivery.

78.   There were no other replies from stakeholders about network availability from the Draft Determination.

Conclusion

79.   We agree with the alternative measures that Network Rail proposed in its response to the draft determination. They provide an appropriate balance, are straight forward to produce and are forward looking. We recommend using these measures in CP6

80.   With regard to EJT, we accept that Network Rail's arguments have merit. We would not want to impose a measure that has significant drawbacks and we would anticipate strong representations from Network Rail should we choose to impose it as a measure in CP6. Therefore we will not use this measure in CP6

Annex A: GRIP Process and Engineering Access Statement timescales

Table 2   Timescales

GRIP Stage	Outcome	EAS timescale	EAS Outcome
1	Output definition.	T- 18 months: Version 0 EAS	Negotiation of access
2	Feasibility.	T-38 weeks Draft Period Possession Plan	Outline agreement of access
3	Option selection.	T-26 weeks Confirmed Period Possession Plan	Operators can plan resource
4	Single option development.	T-12 weeks Publication of timetable	Passengers can book tickets
5	Detailed design.	T-0 Date of Possession	Trains run
6	Construction test and commission.	Intentionally blank	
7	Scheme hand back.		
8	Project close out		

81. As some respondents noted, the GRIP and EAS processes are not aligned. The possession plan, via the EAS is put together a lot earlier than the GRIP process allows. There is normally little certainty as to the extent of a possession until GRIP 4, after single option development. Thus at T-18 months, at Version 0 of the EAS, Network Rail may bid for a worst case possession, which will mean services curtailed and a dispute to the ADC. If it underbids for access, additional possessions may be required, which will mean late changes. Even then, the possession may need to change as new information comes to light in GRIP 5. An example was the identification in March 2017 of additional access required for the August 2017 Waterloo blockade – i.e. after publication of the Confirmed Period Possession plan. This was only identified in GRIP 5. The result was a considerable amount of planning was required, outside the normal timeframes.

Annex B: Who we surveyed and who responded

Table 3   Responders to our survey

ARL	Hull Trains	DB Cargo
ATW	London midland	Colas
c2c	Northern	Other
Cross Country	West Coast Railway Charter services	Transport Focus
Greater Anglia	GBRF	Hutchinson Ports (Felixstowe)
GTR	Freightliner	HEx

Table 4   Non responders to our survey

EMT	ScotRail	TPE
Grand Central	Southeastern	VTEC
GWR	SWR	VTWC

Annex C: What we asked the industry stakeholders

<u>What we asked the industry stakeholders</u>

In your opinion, is Network Rail mindful of the impact it has on passengers and the end users of the rail network?

Do you think Network Rail has demonstrated its commitment to maximise the availability of the network to passengers and freight operators and minimise disruption during possessions?

- – What is your assessment of Network Rail's approach to Availability in CP5?
- – Have they been helpful?
- – Have they adhered to the spirit of their obligations?

Is Network Rail working closely with you in the possession planning process?

- - Are discussions on possession plans held early enough in the process?
- - Are there suitable and effective processes in place to allow you to address any concerns you have

Network Rail refer to meetings with **Access Planning Managers** designed to enable de-confliction

- - Are these meetings useful and productive?
- - Do they deliver benefit in terms of increasing Availability?

Access Disputes Committee

- - Have you taken anything to the ADC?
- - Do you consider it to be a workable process?
- - Do you think this is an appropriate way to handle disagreements?
- - Do you have confidence in it?

Late changes

- - Have you been impacted by late changes?
- - How well does Network Rail manage this process?
- - What could be done to manage this better?

Annex D: Possession Disruption Index for Passengers (PDI-P)

PDI-P measures the excess journey time experienced by passengers as a result of disruptive possessions, weighted by passenger volumes and the economic value of the additional journey time incurred.

$$\text{PDI-P (For each day summed by service)} = \left(\text{Additional Journey Time} \times \text{Value of time} \right) \div \text{Train Kilometres}$$

Possession Disruption Index for Freight (PDI-F)

PDI-F measures weighted possessions by the number of freight movements that would have taken place if there was no possession.

$$\text{PDI-F (For each day and strategic route section)} = \left(\text{Train km hrs unavailable due to possessions} \times \text{Volume of freight traffic} \right) \div \left(\text{Total track km hrs} \times \text{Amount of freight} \right)$$

PDI-P Calculation

Across service groups by location for the day possession is taken

$$EPJwVT = \frac{\sum_{SG}\left[\sum_d\left\{\left(NREJT_{SG,d} + WACM_{SG,d}\right) \times BF_{SG,d} \times PASS_{SG,d} \times ToDW\right\} \times VoT_{SG}\right]}{\sum_{SG} PT_{SG}}$$

Average Train km used
PT – the scheduled passenger train km for the service group (varies by

Constant value for each SG (same as actual)
PASS – the daily average number of passenger journeys per day for the relevant service groups

Same as in actual
VoT – reflects the ratios of business, commuter, and leisure traffic, and associated values of time or each passenger group

Constant value for each SG duration
NREJT – average extended journey time per train
WACM – weighted average of cancellation minutes per train
BF – busyness factor applicable to the relevant day

Calculated from possession start and end time
ToDW – a pre-determined fraction representing the percentage of passenger journeys for the relevant service group during the time of day (average values for each hour of the day) and day of the week

PDI-F Calculation

$$TwF = \left[\frac{\sum_{ELR}\left\{\sum_d\left(TU_{ELR,d} \times FTW_{ELR,d}\right)\right\}}{\sum_{ELR}\left\{\sum_d\left(TT_{ELR,d} \times FTW_{ELR,d}\right)\right\}}\right]$$

TTELR,d – the total track km hours for the relevant ELR for the relevant day

TU$_{ELR,d}$ – the track km hours unavailable due to possessions for the relevant ELR on the relevant day

FTW$_{ELR,d}$ – is freight traffic weighting