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Dear John,

Access to the ECML - further performance and capacity questions

Further to your letter of 12 August 2015 and my response of 19 August 2015 I am writing to provide further information on the questions posed in your letter. I will address the questions in the order they have been raised. In order to address the wide range of questions comprehensively this letter is rather lengthy. In developing this response Network Rail has assumed the infrastructure enhancements detailed within the Enhancement Delivery Plan. It is important to note that this programme is currently subject to the review by Sir Peter Hendy announced by the Secretary of State, which is due to report later in the year.

Your point 4 - performance analysis

As described in my letter of 19 August 2015, an industry workshop was held with aspirant LDHS operators on 16 September 2015 and all parties agreed developing a forecast at a more granular level of robustness at this stage would be very challenging as key information is not yet available to inform any further analysis.

At present therefore, the assessment provided in previous correspondence is the best that can be developed at this time. We have also reviewed the VTEC proposal for further analysis, but did not feel that it would make a significant contribution to inform any decision making at this point.

To confirm Network Rail has provided an estimate of a possible 1.8% to 2% reduction in PPM MAA on the Virgin Trains East Coast franchise as a “proxy” for East Coast Main Line performance.

Network Rail has not been able to make an assessment of the impact on the two existing open access operators or those franchised operators that interact with the ECML (Northern Rail, First Transpennine Express, Cross Country or East Midlands Trains) and has therefore not made an assessment of the impact on national PPM. This is because of the absence of much of the information required to make that assessment, most notably an outline timetable and supporting resource plan.

The impact assessment that Network Rail has undertaken is based solely on an increase in the quantum of trains with the known capacity improvement schemes that are committed to support that demand on capacity. The assessment does not consider any controls or mitigations any of the parties might put in place, because at present none of these possible controls or mitigations are contractual commitments, resourced, funded or planned.

In the absence of detailed information other than quantum of trains at this stage in the process and drawing on the lessons from some of the more recent timetable changes, it is very difficult to provide an estimate 5 years away from a change that will include new infrastructure, a new method of signalling trains and new rolling stock.

The performance assessment has been based on the assumptions that all planned CP5 deliverables are achieved and expected franchise commitments delivered.

Your point 6 – What works will be required to (a) accommodate each of 7, 7.5 and 8 LDHS TPH and (b) deliver the rights sought in each of the specific access applications?

A number of studies have been undertaken which have identified the need for infrastructure enhancements. The majority of the schemes that have been assumed are those delivered through the ‘East Coast Connectivity Fund’ and it should be noted that the over-riding output required by DfT from the investment authorised for CP5 in East Coast Main Line (ECML) infrastructure is the achievement of a material reduction in journey times between London and the key ECML cities – namely Leeds, York, Newcastle and Edinburgh. It should also be noted that all of the IEP enhancements are assumed as a necessary base for each of the aspirations.

While the studies undertaken have used 7 and 8 LDHS off-peak services as a baseline, they have a number of limitations in determining whether the works are *required to accommodate LDHS services* as there is not yet a consolidated timetable delivering 8 LDHS services, and currently no consolidated timetable which successfully integrates Long Distance High Speed (LDHS) and Thameslink, Southern and Great Northern (TSGN) services. The studies have been undertaken to test possible LDHS timetable patterns, rather than a set, integrated timetable. It should also be noted that during peak hours there are currently more paths required by franchised operators' Service Level Commitments than are available.

Since the capacity gain given by these enhancements, and their journey time and performance implications, is to some degree dependent on the pattern and routing of services, it is not possible at this time to definitively confirm whether it is possible to run 8 LDHS services once the Connectivity outputs have been delivered.

In addition, particular nodal points at the northern end of the ECML, including Doncaster, York and Newcastle, are timed around LDHS services. The timetabling of local and regional services will therefore be required to change to accommodate any LDHS timetable recast – and in the absence of a firm timetable, the feasibility and impact of these changes has not been confirmed.

The services assumed to substantively interact with LDHS paths (excluding nodes) that have been considered as part of this work are as follows:

Area	LDHS	Regional	Freight
London-Peterborough	7/8 London	8 TSGN	1 Class 4 & 1 Class 6 via Hertford Loop
Peterborough-Doncaster	7/8 London	1 Regional Grantham-Peterborough 1 Local Peterborough-Werrington	1 Class 4 via ECML* 1 Class 4 & 1 Class 6 via GN/GE
Doncaster-York	Up to 4 London 1 Cross Country	1 Local at Doncaster	2 Class 4
York-Newcastle	Up to 4 London 2 Cross Country	2 TransPennine 1 Local York-Northallerton	3 freight, including at least 1 Class 4 & 1 Class 6

*Excluding services crossing at Newark

Using the service level assumptions in the above table the enhancements that are needed to deliver the required capacity south of Doncaster are outlined in the table below.

Enhancement	Required to unlock capacity for 7 tph?	Required to unlock capacity for 8 tph?	Required to limit journey time impact?	Required to operate a robust timetable?	Adds timetabling flexibility?
London King's Cross remodelling	No	Yes	No	Yes	Yes
Huntingdon-Woodwalton four-tracking	Yes	Yes	Yes	Yes	Yes
Fletton-Peterborough speed improvements	No	No	Yes	Yes	Yes
Werrington grade separation	Yes	Yes	No	Yes	Yes
Doncaster bay platform and signalling	No	No	No	Yes	Yes

North of Doncaster the schemes that have been assumed in the work undertaken so far and the benefits of these schemes are outlined below:

- **York North throat** is required to increase timetabling flexibility and improve performance robustness.
- **Northallerton to Newcastle Freight Loops** are required to run additional LDHS paths. Although technically the capacity does exist to run an additional train without the enhancement this would require up to 20 minutes of pathing time to be added to LDHS paths and so this is not considered a viable option.

Your point 7 - For all the works identified:

- **When is the work forecast to be complete and the capacity/infrastructure available for use?**
- **What is the forecast cost?**
- **What is the expected funding source e.g. a ring fenced fund, third party funder etc.?**
- **What is the status of your forecasts in terms of Grip stage?**
- **For any works not at Grip3, when do you expect to have a Grip3 forecast?**
- **What is the level of robustness/risk?**

A table has been provided overleaf to address each of these questions.

Project Name	Practical Completion (Infrastructure available for use)	AFC cash prices (£m)	Funding	GRIP Stage	GRIP 3 Forecast Date	RAG
IEP ECML Gauging (known) LNE	Aug-17	22.032	HLOS LNE002a - ECML IEP Capability	4	n/a	Green
IEP ECML Gauging (known) Scotland	Aug-17	10.561	HLOS LNE002a - ECML IEP Capability	4	n/a	
IEP ECML Gauging Placeholders	Aug-17	7.888	HLOS LNE002a - ECML IEP Capability	2	Sept 2016	Green
IEP ECML OLE Boosters	Aug-17	7.446	HLOS LNE002a - ECML IEP Capability	4&5	n/a	Green
ECML OLE Resilience	Aug-17	10.034	HLOS LNE002a - ECML IEP Capability	3	Feb 2016	Green (Note: this is a fixed funding contribution)
IEP LNE Platform Extns (Incl 145700 and 136803)	Aug-17	6.551	HLOS LNE002a - ECML IEP Capability	5-8	n/a	Green
IEP Stations Scotland	Dec-18	9.023	HLOS LNE002a - ECML IEP Capability	1-3	May 2016	Green
IEP Edinburgh	Aug-17	6.000	HLOS LNE002a - ECML IEP Capability	4	n/a	Green (Note: this is a fixed funding contribution)
IEP LNE Platforms Phase 2	Dec-18	6.600	HLOS LNE002a - ECML IEP	1-3	March 2017	Green

			Capability			
IEP Stations Durham	Aug-17	3.076	HLOS LNE002a - ECML IEP Capability	4	n/a	Green
ECPSU: NG Connections	Aug-17	34.367	HLOS LNE002b - ECML IEP PSU	4-8	n/a	Green
ECPSU: Power supply system	Aug-17	201.907	HLOS LNE002b - ECML IEP PSU	5-8	n/a	Green
Ardsley Feeder Station	complete	6.098	HLOS LNE002b - ECML IEP PSU	7	n/a	n/a – scheme complete
Stevenage and Gordon Hill Turnbacks	Dec-18	28.50	HLOS LNE004 - Stevenage and Gordon Hill Turnbacks	3	Dec 2015	
Four Tracking Huntingdon to Woodwalton	Jan-21	86.52	East Coast Connectivity	3	August 2016	Amber
Upgrade Down Slow Fletton to Peterborough	Apr-18	13.62	East Coast Connectivity	3	July 2017	Green
GN/GE Southern Access (Werrington Grade separation)	Dec-20	96.20	East Coast Connectivity	3	August 2016	Amber
Doncaster Station Area Enhancements	Dec-16	21.17	East Coast Connectivity	4	n/a	Green

Shaftholme - contribution to enhance S&C renewal	complete	0.70	East Coast Connectivity	7	n/a	n/a – scheme complete
York Station North Throat	Dec-20	8.76	East Coast Connectivity	2	Dec 2017	Amber
Northallerton to Newcastle Freight Loops - Cowton to Eryhlome	Oct-19	29.83	East Coast Connectivity	3	Sept 2016	Amber
Northallerton to Newcastle Freight Loops - Bradbury Down	Mar-20	14.52	East Coast Connectivity	3	Sept 2016	Amber
Northallerton to Newcastle Freight Loops - Extend Up / Down Slow at Birtley Jn	Mar-19	20.85	East Coast Connectivity	3	Sept 2016	Amber

Your point 8 - In relation to works needed to facilitate tilting Pendolinos, please add details of the journey time benefit you believe this work will secure.

Network Rail has not undertaken any work to identify what is required to facilitate tilting Pendolinos operating on the ECML.

Network Rail has undertaken analysis to produce indicative run times for Pendolinos on the ECML using RailSys. This gave an indicative 216 minute run time northbound and 217 minute run time southbound (allowances excluded, assuming a 3 minute call at Newcastle). It should be noted that these are not confirmed Sectional Running Times.

Your point 9 - Please include works related to any key capacity constraints faced by proposed services off the core ECML.

There are a number of key capacity constraints facing the proposed LDHS services off the core ECML, particularly when proposed increases in services such as the Northern Hub development scheduled for 2017 become operational. It should also be noted that it is currently unclear what services will be required by Northern and Trans-Pennine franchises on this date and so there may be capacity constraints not yet understood. As far as we currently understand it the capacity constraints faced by the LDHS services proposed in the rights applications currently under review are as follows:

- Services to/from Mirfield – The Northern Hub 6th Transpennine path means that there is not enough capacity in the Mirfield area for both the LDHS service from Bradford Interchange and the Northern Hub services to run.
- Services to/from Harrogate – Most of the capacity on the Harrogate line is used and if the new Northern franchise bids for more paths on this line then there will not be capacity to extend LDHS services to Harrogate.
- Services to/from Hull (via Selby) – The Northern Hub 6th Transpennine path means that there is no spare capacity for a new LDHS service on this line. However, there is the possibility of running in the alternate hour to the existing LDHS service.
- Services to/from Middlesbrough – There is capacity between Northallerton and Middlesbrough to run an additional LDHS service, but terminating services at Middlesbrough is a substantial constraint for LDHS services, as there are limited areas to

turn around. The West Dock is not long enough for LDHS services so it would require a double shunt to move ECS into the Middlesbrough sidings. It is considered unlikely that there is capacity for this double shunt, due to the occupation of the Up Main for considerable amounts of time by existing services. It should be noted that this would also cause additional conflicting moves at Northallerton High Junction which could be challenging to timetable.

- Services to/from Newcastle-Sunderland - With a substantial speed mix on this section between freight, metro and LDHS services it is likely that there would need to be pathing time added to any new LDHS services.
- Services to/from Bradford Forster Square- There is a capacity constraint between Leeds West Jn and Apperley Jn limiting the opportunities available to run additional services to Bradford without an impact on performance. It would also be hard to identify a through platform at Leeds long enough to accommodate the LDHS services intended to run via Hambleton to Leeds and then on to Bradford, especially in the peak hours.
- Services to/from Huddersfield- Running additional trains between Huddersfield and Leeds when there are 6 Transpennine paths is a large capacity constraint which would be faced by a Huddersfield-London service via Leeds for large portions of the day.
- Services via Micklefield – The layout at Micklefield Jn and the speed mix of services between Leeds and Micklefield is a severe capacity constraint limiting the availability of paths for services running via Hambleton to Leeds. It would be very difficult to accommodate extra services in this direction.
- Services to/from Cleethorpes - There is possible capacity to run to Cleethorpes via Doncaster but this would be timetable dependent and would have to run in the alternate hour to the Barton-on-Humber to Cleethorpes 2 hourly service. The journey times are also likely to be slow due to the line's infrastructure, and the substantial speed mix on this line.

It is also worth noting that many of these constraints are timetable dependent and without any consolidated timetable for the ECML and the routes off the ECML in 2020 we are unable to conclude definitively what the capacity constraints would be.

Your point 10 - Please include power supply works. Please also comment on how many Class 801 and Class 390 trains can operate per hour in each direction on the Newcastle – Edinburgh section with/without work.

Network Rail's long term strategy for the East Coast Main Line has identified the need to enhance power supply north of Bawtry, which is covered by LNE Traction Power Supply Upgrade (Delivery Plan reference LNE003). This project will conclude GRIP2 in December 2015, which will identify the constraints and potential solutions.

Work to date has focused on identification of those areas that are constrained either by OLE voltage or traction power supply point capacity limitations. The power supply between London and Bawtry is addressed by the Inter City Express Programme – Power Supply Upgrade (LNE002b).

In order to identify maximum capacity, Network Rail has undertaken Webanet traction power modelling of the proposed timetable based on 9 car IEP and Pendolino rolling stock: class 91 operation would require further modelling. The modelling has incorporated measured supply voltages, proposed timetable, and manufacturer rolling stock data and assumed that regenerative braking is in use in order to achieve TSI voltage compliance. No electric freight services or interurban services have been incorporated.

The modelling has not assumed any traction power upgrade associated with Trans Pennine Electrification. The modelling has considered failure of a single incoming feeder only, which is a lower level of resilience than on the ECML at present. The performance impact of this will be understood more closely in concluding GRIP2.

The initial results of the modelling have identified a constraint in the Doncaster area where no increase in the present load of electric services is possible. On the remainder of the route two electric trains per hour appear achievable based on the assumptions and resilience effects above and compatibility between train harmonic emissions and supply points. To support three or four electric services per hour will require a level of enhancement to the system. Network Rail will conclude GRIP 2 development of Bawtry to Edinburgh in December 2015 at which time detail on intervention options will be provided; we welcome discussion of work in progress in order to identify acceptable, minimum cost interventions to provide the desired capacity.

This will add risk to the performance assessment, but at present without a timetable to assess, it will not be possible to identify the performance impact.

Your point 11. To the extent not already included in your answers, please say how level crossing issues will affect your provision of 7, 7.5 or 8 LDHS tph capacity. Are there any other safety impacts which need to be considered?

The increase in the LDHS TPH is only one small measure of the risk profile for our level crossings and therefore has a limited impact on the ALCRM output (the tool to measure the risk at level crossings). On this basis we do not consider any increase in risk to be a deciding factor. We will continue to manage the risk at each level crossing as part of our ongoing assessment process and take appropriate risk reduction actions as appropriate.

In terms of general safety issues, as we increase the quantum of services on an already busy route there will be ongoing requirement to work collaboratively with all stakeholders to adequately provide the right level of access to continue to maintain renew the condition of the assets.

There will be an increase in passenger numbers at stations which could have the potential to increase the risk to passengers and train interface. We would expect to work collaboratively with all stakeholders to manage and mitigate any such risks through our Joint Safety Improvement Plans.

Your point 12 – what freight choices will exist in each of the 7, 7.5 and 8 LDHS TPH capacity scenarios, be clear where those choices affect current freight service levels and where they affect planned growth freight service levels. In particular, please comment on the impact of freight services which are unable to operate via the Hertford Loop due to weight restrictions on other ECML services.

In the analysis below it has been assumed that all infrastructure enhancements referenced earlier in this letter are delivered.

Different freight choices will exist in each of the different LDHS scenarios, due to the limitations of the network's capacity. The table below shows the current level of freight, the freight growth that was assumed in the Network Rail ECML 2020 Capacity Timetable Assessment report (December 2014), and the levels of service that can be run alongside 7 and 8 LDHS per hour out of London King's Cross once the current Connectivity enhancement projects are completed. 7.5 paths are

assumed to be 7 in one hour, and 8 in the other, so are covered under these results.

Location	Current Timetable	Freight Growth Forecast*	Freight paths alongside 7 LDHS	Freight paths alongside 8 LDHS
London-Peterborough (via Welwyn viaduct)	1 TPH Class 6 2200t**	None	1 Class 4 or Class 6 path	None
London-Peterborough (via Hertford Loop)	1 TPH Class 6 1800t	1 TPH Class 4 1800t 1 TPH Class 6 2600t	2 Class 4 or Class 6 paths up to 2200t#	1 Class 4 or Class 6 path up to 2200t#
Peterborough-Doncaster (via Grantham)	2 TPH, varying weight and class	1 TP2H Class 6 1800t electric freight	Up to 1 Class 4 path#	None
Peterborough-Doncaster (via GN/GE Joint line)	1 TPH Class 4 1600t	1 TPH Class 4 1800t 1 TP2H Class 6 2600t	As forecast	As forecast
Doncaster-York	1 TPH Class 4 1000t 1 TPH Class 6 2200t	2 TPH Class 4 1800t	As forecast	As forecast
York-Newcastle	3 TPH Class 4 1000t	1 TPH Class 4 1800t 2 TPH Class 6 2600t	2 Class 4 or 6 paths alongside up to 3 London LDHS^	1 Class 4 or 6 path alongside up to 4 London LDHS^

*As assumed in the ORR 2020 Timetable Assessment

** This train does not run in every hour in the current timetable

#As detailed below

^With journey time impact on LDHS services, depending on speed and mix of freight traffic

There are specific limitations as follows.

London-Peterborough

Previous work has assumed that it will be necessary to route a Class 6 2600t freight service via the Hertford loop in order to free up capacity on the Welwyn route. However, this is not possible due to the weight restrictions on this route: RA9 with RA10 permissions, which limits trailing loads to a maximum of 2200t.

Consequently, any freight path heavier than 2200t will need to be routed over Welwyn viaduct. This is not possible alongside 8 LDHS services, and is likely to require additional pathing time to be added to LDHS and TSGN services alongside a 7 LDHS service pattern.

It should also be noted that the Huntingdon-Woodwalton four-tracking permits a maximum of one freight service per hour alongside 8 LDHS services. This can be either a Class 4 or, with some pathing time to LDHS services, a Class 6 train. It is likely that achieving a second freight path in any hour will require LDHS paths to be a maximum of 7.

Peterborough-Doncaster

Currently the majority of freight services between Peterborough and Doncaster run via Grantham. The paths available are dictated by LDHS stopping patterns and destinations, but it is likely that there will be no more than one Class 4 path – and no Class 6 paths – alongside 7 LDHS. This freight path will be sub-optimal in terms of journey time, as it will need to be looped at multiple locations. It is unlikely that any freight paths will be available alongside 8 LDHS. Consequently, it has consistently been assumed that the majority of freight will need to be carried via the GN/GE line, driving the need for Werrington Junction grade separation.

York-Newcastle

The aspired freight and passenger services cannot be accommodated between York and Newcastle. The current timetable includes up to 3 low weight Class 4 freight trains; it has been assumed that up to 3, heavier paths will be required in the future. However, the freight loops delivered under the Connectivity scheme allow no more than 2 freight paths, alongside 3 LDHS to/from London, and existing or planned Cross Country and Trans Pennine services.

Delivering 4 LDHS paths to/from London, alongside existing or planned passenger services, would therefore reduce the number of freight paths to one. There is the option for freight to be

routed via the Stillington branch line; however this route itself currently has limited capacity, and is likely to adversely affect freight journey times. The impact of this alternative routeing on available capacity would require further assessment.

The main impact of the loops proposed under East Coast Connectivity is to limit the amount of pathing time that would be required were a 3rd London LDHS path to be added alongside current freight and passenger services. Without the flexibility afforded by the loops, additional pathing time on LDHS services would total around 20 minutes more than today; with the loops, this can be reduced to around 6 minutes.

We are not currently able to judge the consequences of ORR not making a decision on the sale of access rights at this time. We assume you will be considering this and will let us know if you need any more information to inform your decision making process. Please do let me know if you have any points of clarification.

Yours sincerely,

A handwritten signature in blue ink, appearing to read "Fiona Dolman". The signature is fluid and cursive, with a long horizontal stroke at the end.

Fiona Dolman

Appendices – ECML Enhancements Summary

ECML Enhancements		Infrastructure Available for Use		Funding	GRIP Stage		Cost Robustness/Risk	Schedule Robustness/Risk		Key Risks
OP Number	Project Name	Practical Completion (Infrastructure available for use)	AFC cash prices (£m)	Funding	GRIP Stage	GRIP 3 Forecast Date	Cost Confidence - qualitative (RAG)	Schedule Confidence - qualitative (RAG)	Schedule Risk - qualitative (%confidence)	Key Risks
Intercity Express Programme - Infrastructure Capability										
118937	IEP ECML Gauging (known) LNE	Aug-17	22.032	HLOS LNE002a - ECML IEP Capability	4	n/a	Green	Green	90% confidence in achieving Aug 2017	Additional implementation works may be identified during the design phase
146199	IEP ECML Gauging (known) Scotland	Aug-17	10.561	HLOS LNE002a - ECML IEP Capability	4	n/a				
144269	IEP ECML Gauging Placeholders	Aug-17	7.888	HLOS LNE002a - ECML IEP Capability	2	Sept 2016	Green	Green		
118938	IEP ECML OLE	Aug-17	7.446	HLOS LNE002a - ECML IEP Capability	4&5	n/a	Green	Green	90% confidence in achieving Aug 2017	

129199	ECML OLE Resilience	Aug-17	10.034	HLOS LNE002a - ECML IEP Capability	3	Feb 1016	Green (Note: this is a fixed funding contribution)	Green		
118939	IEP LNE Platform Extns (Incl 145700 and 136803)	Aug-17	6.551	HLOS LNE002a - ECML IEP Capability	5-8	n/a	Green	Green	>95% confidence in achieving Aug 2017 (Note: approx 60% project completion)	Further Possession access may be required at Stevenage for construction phase.
136803	IEP Stations Scotland	Dec-18	9.023	HLOS LNE002a - ECML IEP Capability	1-3	May 2016	Green	Green		
	IEP Edinburgh	Aug-17	6.000	HLOS LNE002a - ECML IEP Capability	4	n/a	Green (Note: this is a fixed funding contribution)	Green	90% confidence in achieving Aug 2017	
133277	IEP LNE Platforms Phase 2	Dec-18	6.600	HLOS LNE002a - ECML IEP Capability	1-3	March 2017	Green	Green		
145700	IEP Stations Durham	Aug-17	3.076	HLOS LNE002a - ECML IEP Capability	4	n/a	Green	Green	90% confidence in achieving Aug 2017	
121945	ECPSU: NG Connections	Aug-17	34.367	HLOS LNE002b - ECML IEP PSU	4-8	n/a	Green	Green	>95% in achieving IEP readiness (Note: approx 75% project completion)	

121948	ECPSU: Power supply system	Aug-17	201.907	HLOS LNE002b - ECML IEP PSU	5-8	n/a	Green	Green	>95% in achieving IEP readiness (Note: approx 30% project completion)	Additional work may be necessary to comply with DNO requirements.
120213	Ardsley Station Feeder	complete	6.098	HLOS LNE002b - ECML IEP PSU	7	n/a	n/a - scheme completed	n/a - scheme completed	complete	
	TOTALS		331.58							
HLOS Enhancement										
122009	Stevenage and Gordon Hill Turnbacks	Dec-18	28.50	HLOS LNE004 - Stevenage and Gordon Hill Turnbacks	3	Dec 2015				
	TOTALS									
East Coast Connectivity										
141734	Four Tracking Huntingdon to Woodwalton	Jan-21	86.52	East Coast Connectivity	3	August 2016	Amber	Amber		TWAO/DCO requirements not fully understood and dependent on option selection outputs.
140365	Upgrade Down Slow Fletton to Peterborough	Apr-18	13.62	East Coast Connectivity	3	July 2017	Green	Green		Successful integration with renewals works. Additional works may be required as part of the increased linespeed and identified during the design phase.

140365	GN/GE Southern Access (Werrington Grade separation)	Dec-20	96.20	East Coast Connectivity	3	August 2016	Amber	Amber		TWAO/DCO Consents required - delays to site works if TWAO rejected or delayed. Major Possession - current design development suggests a significant blockade of the ECML may be required.
139058	Doncaster Station Area Enhancements	Dec-16	21.17	East Coast Connectivity	4	n/a	Green	Green	95% confidence in achieving Dec 2017	Interfaces with other projects may adversely impact this project.
n/a	Shaftholme - contribution to enhance S&C renewal	complete	0.70	East Coast Connectivity	7	n/a	scheme complete	scheme complete	scheme complete	
141787	York Station North Throat	Dec-20	8.76	East Coast Connectivity	2	Dec 2017	Amber	Amber		Derogation required for permissive working to minimise additional signalling works.
140366	Northallerton to Newcastle Freight Loops - Cowton to Eryholme	Oct-19	29.83	East Coast Connectivity	3	Sept 2016	Amber	Green		TWAO - impact and requirements of TWAO not yet fully understood. Environmental Impact Assessment - requirements and impact on programme currently being evaluated.
140366	Northallerton to Newcastle Freight Loops - Bradbury Down	Mar-20	14.52	East Coast Connectivity	3	Sept 2016	Amber	Green		
140366	Northallerton to Newcastle Freight Loops - Extend Up / Down Slow at Birtley	Mar-19	20.85	East Coast Connectivity	3	Sept 2016	Amber	Green		

	Jn									
	TOTALS									
140366	Northallerton to Newcastle Freight Loops - Cowton to Eryhrome	Oct-19	29.83	East Coast Connectivity	3	Sept 2016	Amber	Green		<p>TWAO - impact and requirements of TWAO not yet fully understood. Environmental Impact Assessment - requirements and impact on programme currently being evaluated.</p>
140366	Northallerton to Newcastle Freight Loops - Bradbury Down	Mar-20	14.52	East Coast Connectivity	3	Sept 2016	Amber	Green		
140366	Northallerton to Newcastle Freight Loops - Extend Up / Down Slow at Birtley Jn	Mar-19	20.85	East Coast Connectivity	3	Sept 2016	Amber	Green		