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Submitted: 31 January 2018

Published online in ‘accepted manuscript’ format: 06 February 2020

Manuscript title: Railway Infrastructure Portfolio Management

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Abstract

Six months into its 2014 Railway Upgrade Plan, Anglia route was forecasting a shortfall in outputs. A review identified that the delivery plan had not been tested robustly enough for deliverability. The two key root causes were identified as (1) some inertia between publication of its Strategic Business Plan in January 2013 and the beginning of its Railway Upgrade Plan in April 2014 and (2) a lack of understanding of the key delivery levers and their interdependencies. The solution developed followed two key objectives: (1) a focus on maintaining and renewing the railway to deliver a safe, reliable and sustainable network to our end users without (2) unnecessarily reinventing the wheel. Between 2013/14 and 2016/17, Anglia Route increased its capital expenditure delivery from £250m to £624m with no negative impact on train delays. This approach has promoted better communication in the organisation and more control and oversight in delivery.
Introduction

The railway in Britain is one of the fastest growing in Europe and needs substantial improvements to continue its great success story. Beginning in April 2014 and continuing through to March 2019, the Railway Upgrade Plan is Network Rail’s response to this tremendous growth and challenge. It is a comprehensive programme of improvements to provide more capacity on the rail network and relieve crowding and congestion.

Anglia Route, one of the eight strategic geographical areas making up the rail network, began in mid-2014 a change programme to improve the timely and cost-effective delivery of its capital infrastructure programme. This paper describes the improvements developed and implemented over the last three years.

In the first section, the context and the strategy adopted by Anglia including the development and implementation in partnership with Project Leaders of an integrated planning process are described. In the second section the benefits of this strategy and key successes to date are reviewed.

Context and adopted strategy

Anglia Route comprises 1,426 track miles covering the whole of East Anglia and routes into and around London as described in Figure 1.

Six months into its Railway Upgrade Plan, Anglia Route was forecasting a shortfall in the first year of its five-year programme. A review identified that the initial delivery plan published in March 2014 had not been tested robustly enough for deliverability and its impact on
operational performance both in the short and long term. The disruptive track access required to deliver the published renewal programme had been seriously underestimated, framework contracts were not in place early enough, and the works had not been remitted in time to enable delivery to start in April 2014.

The two key root causes were identified as (1) some inertia between publication of its Strategic Business Plan in January 2013 and the beginning of its Railway Upgrade Plan in April 2014 and (2) a lack of understanding of the key delivery levers and their interdependencies with operational performance. Poor communications between the route asset managers and their infrastructure delivery agent, in part due to a poor understanding of the roles and responsibilities of all the key players, was also acknowledged as a driving factor. These issues were further compounded by the significant growth in passengers and freight traffic over the last ten years. The increased demand to run more trains, earlier and later trains during weekdays as well as at weekends meant train and freight operators were more inclined to object to late or significant disruptive access and challenge Network Rail to find creative solutions to deliver infrastructure programmes for the parts of the railway which have difficult access constraints.

These issues are not unique to Anglia Route’s Railway Upgrade Plan. In the paper titled “Operational Risk: the focus for major infrastructure” RJ Allport & S Ward report a “dangerous tendency to treat infrastructure development projects – whether new build, renewals or upgrades – as if they were activities completely separate from BAU operations. Yet such projects deliver beneficial outcomes that justify their investment only if they are subsequently
operated efficiently as part of a portfolio of assets.” The key issues identified across sectors by Allport and Ward are (1) a lack of clear understanding of the interdependencies, (2) poor definitions of the operational objectives and the associated performance criteria, (3) short-termism and a narrow viewpoint, (4) in some cases a dysfunctional project development process and (5) a lack of proactive asset management. The authors conclude that to improve performance these issues should be taken into consideration when developing an approach to analyse and manage operational risks. In “Operating risk: the Achilles’ heel of major infrastructure projects”, Allport furthers his case that in general transport projects tend to have a poor record in terms of “achieving operating success” and that a radical change in approach is therefore required to better manage operating risks in line with the encouraging improvements in capital-cost risk management. Allport identifies that more attention needs to be given to the planning and coordination functions, the project development process and the development of robust business cases based on robust forecasts as well as the role of the operator.

Atul Gawande (2014) in the BBC Reith lecture “The Century of the System” eloquently illustrates the way complex organisations are so interdependent, and how extraordinary achievements are possible when meticulous attention is given to every small part. This is also supported by Potts et al (2016) for the efficient delivery of strategic infrastructure.

Over the last three years, Anglia Route has worked towards a better management of the operational risks associated with its capital delivery programme through a system approach to problem solving and better cooperation with its key stakeholders.
The objective was “to create an organisational context in which cooperation becomes the best choice for each individual” in line with the "six simple rules" promoted by Yves Morieux (Morieux and Tollman, 2014) and to ensure the correct balance between project performance and operational performance are achieved as discussed in Prabhakar (2008).

This improvement programme was founded on the key principles of: programme transparency, seamless process flow to fight “complicatedness” (Morieux and Tollman, 2014), behavioural changes, collaborative working, and continuous improvement. The methodology developed was also underpinned by the following two key objectives: (1) a focus on maintaining and renewing the railway to deliver a safe, reliable and sustainable network to our end users without (2) unnecessarily reinventing the wheel. The key changes developed and implemented over the last three years were:

- The reorganisation of Anglia Route asset management team and creation of the controlling mind team from a people perspective,
- The creation of a SharePoint site and a client programme office from a governance perspective,
- The development and implementation, in partnership with Project Leaders, of an integrated planning process from a process perspective, and
- The establishment of an assurance review panel from an assurance and stakeholder engagement perspective.

**People strategy**

Anglia’s route asset management team was reorganised in Summer 2014 around three core
roles: the route asset managers as client, the programme development managers as sponsor and the project managers and planners as the integrated planning team, also known as the controlling mind.

The role of the client, sponsor and client programme office is to ensure effective planning, integration, and delivery of its enhancement and renewal projects while operating a Railway. They need to balance the portfolio capital work with the Route wider objectives, access and resource constraints as well as the needs of its key stakeholders. This reorganisation aligns with the clienting guidelines developed by Network Rail and first published in July 2013 and the sponsoring operating model and project life cycle described in Network Rail’s Sponsors’ Handbook published internally in January 2016. The clienting guidelines were also embedded within Anglia Route via workshops involving the route asset managers, the sponsors and Anglia delivery partners. The key mindset shift was that by optimising and integrating the plan, key resources were considering the effects on operational performance during and after the planned asset interventions. This mindset drove the geographical packaging of capital works, and better consideration of the impact of standalone interventions on other asset disciplines. This led to better operational risk management.

Route client role

The route client is the directing mind during development and delivery, and is accountable for appointing a person to fulfil the sponsor role post transition, integrating, planning, and delivering enhancement and renewal projects in conjunction with their operations. This accountability exists throughout the life cycle of the project.
The route client also appoints a representative to discharge the CDM Regulations 2015 client duties in line with the Network Rail standard, ‘Application of the Construction (Design and Management) Regulations to Network Rail Construction Work NR/L2/INI/CP0047’.

The accountability of the Route client was refocused on promoting outcomes that at least protect current performance levels and adhere to long-term asset policy.

Sponsor role

The sponsor is the single focal point for day-to-day management on behalf of the client. He acts on behalf of the clients as the clients’ agent, carrying out all the essential management activities including funding control, management of stakeholder relationships and expectations, requirements gathering, work acceptance, and project close-out. He sets the business requirements which the project must deliver using the client and route requirements templates, he owns, and actively manages delivery of outputs against, the business case. This allows the delivery organisation to be accountable to the sponsor for delivery of work to meet the sponsor’s stated requirements to agreed scope, cost and schedule within the context of Network Rail’s Governance for Railway Investment Projects framework.

The restructuring supported the sponsors in encouraging geographically integrated multi-discipline asset interventions which minimise customer disruptions and are in line with good asset management principles.

Integrated planning team

An integrated planning team was also established to act as a ‘Controlling Mind’. Its role is to
take into consideration all the requirements of all the stakeholder groups across the Anglia Route and to maximise the delivery of both renewals volumes and enhancements works, by efficient and coordinated use of the available track access, and to manage the risks associated with the delivery of the planned work within the access time available. The Controlling Mind had a key objective to translate the strategic plan into an optimal tactical delivery plan (1) safeguarding passenger disruptions to planned minimum and (2) promoting operational performance.

The controlling mind team is involved in all the stages of the capital delivery process: strategic, tactical, delivery, and reporting, and is divided into three sub-units: long term, medium and short term. The framework and processes applied by the Controlling Mind across these three timelines are further described in section 2.3.

*Governance strategy*

In addition to the reorganisation described in section 2.1, Anglia Route reinforced its governance structure for the delivery of capital works. A SharePoint site and a client programme office were set up, and a robust and transparent change control process was implemented. This change control process is fully embedded into Network Rail’s corporate business planning and investment planning process.

The SharePoint site is used as the core information system for Asset Management. It contains various lists of data including the Workbank, renewals and enhancement project register for, change register, Project Requirement Specifications (PRS) register, possessions plan etc. It is also used as a repository for asset management documentation.
The Workbank forms the live Business Plan, it shows renewals expenditure by asset type across each financial year. Each discipline Route Asset Manager is accountable for specifying the asset interventions defined in the Workbank and the ongoing management of that Workbank.

The main requirements document, to be completed by the route asset managers and sponsors in the early phase of an enhancement or renewal project, are the PRS or the Route Requirements Document (RRD) as described in Network Rail’s PRS process definition document.

Changes affecting the business plan are made using the asset management change control process. This change process is owned and monitored by the Client Programme Office (CPO) which is also responsible for the requirements development process and ensures all parties are fulfilling their commitments. Through this change control process, project overview is maintained in the project register by the Sponsors. Reviews led by the sponsors are held with delivery partners on a periodic basis and changes identified are fed into the change register which reconciles the current plan to the Business Plan, documenting the reason for the change and type of variance, be that scope or cost efficiency or another factor. The change register also provides updates for the rolling forecast process. Changes identified are usually assessed for impact on Anglia composite reliability index, a regulated output, and within the context of the integrated plan to confirm availability of resources and access. Figure 2 illustrates the change control process implemented.
Anglia route integrated planning process

Together with the reorganisation described in section 2.1 and the additional governance structure described in section 2.2, Anglia Route also developed, in partnership with Project Leaders, an integrated planning process facilitated by the Controlling Mind team. The detailed methodology of the controlling mind is depicted in Figure 3.

Principles supporting the Anglia Route integrated planning process

Capital projects in the rail industry are developed and delivered in accordance with the Guidance for Railway Investments Projects (GRIP) framework, an industry adaptation of the frameworks described in the APM Body of Knowledge (2012) and Managing Successful projects with PRINCE2 (2017).

Both these frameworks however do not adequately cover the delivery of a complex portfolio of projects in a live and dynamic environment with key interdependencies outside of the project control.

The high-level planning framework developed by Project Leaders and imbedded in the Anglia Route integrated planning process supports the identification at an early stage of all interdependencies including present and future BAU operational requirements.

This framework is called P4S4P4 - Planning for Safety for Performance and it ensures all delivery organisations working on the Anglia Route network have a common level of forward planning ensuring works are integrated and optimised.

The process implemented is complementary to the project management methodologies
described in the APM Body of Knowledge (2012) and Managing Successful Projects with PRINCE2 (2017) and it closes the gap between integrated and optimised planning and performance outcomes. The key elements of the framework are as follow:

- **Planning Four**
  1. Logic linked programme plans are created
  2. Volumes and spend are reflected within the programme
  3. Access and critical resources are reflected within the programme
  4. Integration & multi-disciplinary works with others are captured.

- **Safety Four**
  1. All readiness reviews (T-) & whiteboards are conducted to an appropriate level
  2. Isolation & access planning is correct and delivered in a timely manner
  3. Incorporating safety by design & build in the programme of works
  4. Safety review of all major works is undertaken.

- **Performance Four**
  1. Keeping to the baseline – slippage is identified early on and mitigated
  2. Keeping to the financial budget.
  3. Right-time hand back with full scope.
  4. Optimal use of the planned access to lessen disruption to our stakeholders.

The role of the integrated planning team is to act as a ‘controlling mind’ and in effect to implement the P4S4P4 framework described above, by following four simple steps: Plan, Organise, Lead and Control.
1. Create the plan in the delivery organisations to a level that is robust and is underpinned by key criteria of resources, access and integration with other delivery groups [long term]

2. Organise and integrate the various delivery plans by route, asset type and access, to provide the most efficient proposal with the appropriate amount of disruptive access [long term and medium term]

3. Lead the delivery organisations to satisfy the requirements of running a safe railway and ensuring maintenance, renewals and enhancements are delivered to meet the key objectives [short term]

4. Control, monitor and evaluate delivery and be the controlling mind of the Integrated Plan for the Anglia Route Directors [short term].

The above methodology allowed for planning at all timescales to be detailed, transparent to all parties and promoted collaboration between the supply chain to deliver collectively. This promotion of altruistic behaviour between the supply chain demanded compromises against the delivery partner’s key objectives for the overall programme and enshrined a system of works approach allowing for each delivery partner to transcend commercial arrangements on the delivery day to ensure overall operational performance and minimum customers’ disruption.

Long term controlling mind

Strategic planning encompasses all activities which result in the successful construction of a timetable of both renewals and enhancements within Anglia Route. To do this, liaison is required with key stakeholders both within Network Rail and externally i.e. TOCs, FOCs, etc.
The result of this co-operation is the annual Engineering Access Statement (EAS) which is an industry standard document describing the access required over a specific period.

At this stage, the controlling mind source access and resource requirements from all deliverers and stakeholders, integrate and optimise through workshops, highlight issues to stakeholders and confirm the prepared plan to all and pull together the formal annual access proposal presented to operators via the EAS. This stage saw the beginning of optimisation of engineering access and from the outset a collaborative approach to geographic delivery was achieved.

The controlling mind team built the long-term Plan using a geographical based modelling tool, developed by Project Leaders. This tool allows categorisation by delivery date, location and deliverer. This then allows the continual cycle of optimisation to occur that eventually supports an agreed annual access statement, and enables a set of weekly access maps to be built.

The final step in the long-term planning phase is ensuring that the use of critical resources is captured. This gives confidence in deliverability and allows deconfliction and balancing of workload as identified by the critical resource requirements.

Key to the success of the long-term plan is the ability to distil complex information to all our stakeholders in a simple but effective way through the maps previously described.

Medium term controlling mind

Following the creation of the EAS, the Controlling Mind team coordinates and validates plans from delivery agents to resolve conflicts in access, manpower, haulage and plant requirements.
It is at this stage that priorities are applied, which results in some work being advanced, with other lower priority work being delayed. The objective being a baselined, change-controlled plan against which variations can be tracked and risks documented as explained in section 2.2.

The medium term controlling mind team leads the T-47 weeks out reviews. The purpose of these reviews is to identify potential possession or works sites integration issues. Engineering train paths and haulage requirements are also checked during this meeting. Recent changes in asset and system performance are reviewed, and associated additional interventions requirements are assessed to balance project and operational performance.

If conflicts are identified, these are resolved or escalated for prioritisation. This may be due to mutually exclusive deliverability issues or compatibility of works with other routes that border on Anglia. This is particularly relevant when considering the heavy freight traffic on Anglia Route, where running a diversion cross country for freight may not work if a East or West Coast blockade is happening simultaneously, which does not allow freight to progress beyond the borders of Anglia.

Short-term controlling mind

The short-term team controlling mind team leads the T-12 weeks out reviews. At this stage, the worksites are prioritised based on complexity, route knowledge and the experience of the team. The deliverers are held to account for their proposed work, and assurance deficiencies are highlighted to the Anglia executive team.

The short-term controlling mind team also undertakes an integrated safety review both from a logistics and construction methodology point of view, liaises between all the deliverers.
for final integration, generates a weekly assurance report with a recommendation on go/no-go status and also informs decisions on implementation of any contingency plans. The key approach was that there was a single controlling mind who could act as the performance regulator to ensure no single event would have a detrimental impact to the short-and-long-term objectives, reputationally keeping the infrastructure owner on the right side of regulators and stakeholders. On occasions, the short-term controlling mind team will attend site to ensure a right-time handback along with a recommendation of which work may need to be cancelled or curtailed to avoid late handback.

*Delivery assurance and stakeholder engagement*

To provide an additional level of confidence that capital works activities are delivered within the planned possession times, an Assurance Review Panel (ARP) was also set up.

The ARP considers work activities that are planned for delivery during specific blockades, bank holiday weekends, and during the Christmas and New Year holiday period. The ARP is undertaken at defined stages prior to the date of possessions: 12 weeks before (known as T-12), 8 weeks before (T-8), 4 weeks before (T-4), and 2 weeks before (T-2). The ARP consists of representatives from Network Rail, train operators, freight operators, contractors and other delivery organisations, and other involved third parties. The ARP is chaired by an independent chairperson.

This process provides the opportunity to demonstrate and test the robustness of the work planning activities. It also provides key stakeholders the opportunity to gain a level of confidence that there will be a right-time hand back at the end of the possession, and that there
will not be any unplanned disruption as a result of the works.

The ARP identifies issues that need to be resolved before the next stage of the process, provides a quantified level of confidence that the work is being delivered to a robust plan, that all the necessary resources have been identified and are available, and that risks which could cause further operational disruption have been identified and are being managed to an acceptable level.

The ARP also ensures external stakeholders and other relevant third parties have had adequate opportunity to plan for the period of disruption and that they have contingency plans in place as well as clear communication strategies and processes in place to deal with any issues as a result of the disruption.

During these key periods, the controlling mind team also acts as a dedicated 24/7 progress reporting team. This enables improved reporting between Anglia Route and its deliverers and therefore more informed management decisions. The dedicated 24/7 progress reporting team will also provide completion reports detailing the requirements and schedules for any follow up work or any lessons learned which need to be embedded in future works.

Benefits and key successes to date

The reorganisation of the route asset management team, including the creation of the controlling mind team, the Anglia asset management SharePoint site and a client programme office, and the development and implementation of a novel integrated planning process as well as a more robust governance structure are driving significant improvements in our capital programme planning and delivery capability in the long, medium and short term.
These changes are also supporting better communication and more collaborative behaviours within Network Rail, its key delivery partners, and customers.

**Strategic and operational benefits**

The route asset management team reorganisation and the creation of the controlling mind team brought clarity of purpose and clearer focus on our corporate objectives. They enabled a better understanding and ownership of the five-year programme with the sponsor team now managing with the support of the controlling mind team the day to day renewal programme and therefore allowing the route asset management team to focus on the timely delivery of the CP5 renewal projects remits and the early development of the CP6 renewal workbank. Anglia route now has a robust three years rolling integrated resource and access plan, and has a better understanding how key programmes such as Crossrail impact on Anglia objectives and priorities. Between 2013/14 and 2016/17, Anglia Route increased its capital expenditure delivery from £250m to £624m with no negative impact on train delays. A detailed review by the DfT in 2016 of Anglia’s integrated capital program for 2017-2019 had also identified the programme on a page document illustrating the unprecedented level and complexity of work being undertaken within Anglia Route as ‘best in class’. Figure 4 is a snapshot of this programme on a page.

The asset management SharePoint site together with the client programme office has moreover promoted transparency, openness and accountability both within the route asset management team and with our delivery partners; and the improved change control process supported benchmarking of achievements against annual baselines and thus promoted
continuous improvement. The short term delivery reviews have helped promote the development of robust resource loaded plans as well as operational contingency plans, and therefore minimise the likelihood and severity of overruns. The number of incidents resulting in a failure to handback on time has decreased from 623 in 2014/15 to 493 in 2016/17. This corresponds to a reduction in incidents per million pounds spent from 9.4 to 4.5. This also corresponds, to a decreasing number of delay minutes per million pounds spent from 69 min/£m to 33 min/£m as Figure 5.

The long term controlling mind process described in section 2.3.2 has also led to a better application of the Network Code Decision Criteria and has resulted in a significant reduction in the number of disputes with train and freight operators throughout the iterations of the EAS for 2016/17, 2017/18 and 2017/19.

For example, in August 2016 in a timetable dispute hearing Anglia Route successfully argued that it had correctly applied the Network Code Decision Criteria to its decision to take the Great Eastern Main Line Restrictions of Use in weeks 28 to 30 of 2016/17. This successful dispute hearing was key to the timely completion of Shenfield re-modelling and therefore delivery of the Crossrail programme.

Anglia Route is also now able to challenge validity of access requests within the required timescales to ensure robust timetabling and minimum customer disruption. We are able to minimise cancellation costs from contractors by identifying at T-47 incompatibility of works.

For example, through the T-47 workshop it was identified that that a large number of paths for haulage trains in and out of Whitemoor depot for work throughout Anglia conflicted
with possessions on the EMP and a HOBC possession at Manningtree between weeks one and 24 in 2016. The early identification of these clashes, enabled for priorities to be agreed with the Track RAM and work to be re-planned cost effectively.

Anglia Route’s improved approaches to train movements into and out of possessions has not only identified potential issues in advance, but has contributed to improved understanding by Operations, and as a result has contributed to an increase in site safety.

**Behavioural benefits**

Anglia’s integrated master plan approach, enabled by a re-organisation to clarify roles and responsibility, a client programme office to promote transparency as well as the development and implementation of an integrated planning process is also generating more collaborative working.

A key example of this increase in collaborative working is the Acton Wells Junction Project completed over Christmas 2015 by the S&C South Alliance, a Colas – Network Rail partnership. This had started as a relatively simple project: the replacement of 12 items of switches and crossing with a stretch of plain line and a crossover on a bridge, over the London Underground’s Central line and another single track. However, it quickly became a complicated project. During the early planning phase, it was identified that the bridge needed substantial work and the Kirov crane required to lift the crossing represented a serious threat to the structural integrity of the bridge. The approach taken combined the bridge repair with the S&C work, minimising the impact on the availability of the asset for traffic. This junction has strategic importance for freight flow.
The controlling mind team together with the sponsor actively managed the collaborative effort in planning and delivering the works safely and on time. Engaging all contractors early and creating an integrated plan enabled all issues to be addressed in a collective manner and resolved efficiently. Subsequently this work was recognised at the 2016 National Rail Award: Winner of “team collaboration”. One of the comments from the judges’ comments was “most impressive was the motivation of the team and each part of it to compete the work as its main objective, but to deliver the best possible overall industry result.” Figure 6 is a photo taken during Acton Wells Renewals.

The controlling mind approach and the assurance review panel have promoted better communication between different teams in the organisation and more control and oversight around specific major projects.

They were acknowledged, for example, by Peter Lensink, Operations Director, Abellio Greater Anglia for driving “a reduction in the number of engineering overruns and an improvement in information and communication to us as customer and therewith improved communication with our end-users”. The Anglia Route Controlling Mind approach was shortlisted in the “infrastructure planning “category of the UK Rail Industry Award 2017.

**Conclusion and next steps**

Through the governance structure, systems and processes we are implementing in Anglia, we are progressively becoming a more intelligent client and therefore more confident in the capability of our deliverers. In the last three years, over £1,429m of capital works, both renewals and enhancement, have been delivered successfully.
This approach is followed for the development of our CP6 Plans together with an active engagement of our stakeholders both to inform priorities and to increase and sustain transparency around the planning process. This enables us to maintain the delicate balance between stakeholder priorities, funding and engineering access required to deliver the work.

Acknowledgements

The authors would like to acknowledge all the staff within Anglia Route and the Project Leaders team who contributed to the development and implementation of the approach described in this paper. The authors would like to acknowledge the contribution of Colas Rail and Amco Engineering for the contribution to the success of Acton Wells Bridge & S&C Renewal.
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Network Rail (2016), Sponsors’ Handbook, internal publication January 2016


Figure 1. Anglia route geographical area
Figure 2. Anglia route - change control process
**Figure 3. Controlling mind methodology**

<table>
<thead>
<tr>
<th>Route Controlling Minds Key Processes</th>
<th>Long Term</th>
<th>Medium Term</th>
<th>Short Term</th>
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<td><strong>Integration</strong></td>
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<td>Integrated Plan</td>
<td>Possession and Route Integration</td>
<td>Possession and Route Integration</td>
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<td></td>
<td>Integrate RAM workbank, works, access (with FAP) and haulage to optimise a deliverable plan at Engineering Access Plan (EAS) stage. Generate EAS maps to facilitate this process. Ensure revisions to workbanks are reflected in the Access Plan. Seek to maximise planned work volume. EAS Review, report and recommend EAS to DRAM for approval. Lead discussions with operators.</td>
<td>Organise, chair and record the output for an integration meeting to integrate works within pre-identified disruptive possessions and integrate Engineering Train Paths for the whole Route before planning and haulage lockdown. Assist with efficient allocation of worksite designation at the T-47 integration workshops. Organise and chair adhoc haulage path integration meetings for paths that were unresolved in the T-47 workshops.</td>
<td>Ensure output from Medium-term integration is carried through to delivery. Check Engineering Train Paths for T-16 / T-6 / T-10d / Live to limit impact on planned works.</td>
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<td>Haulage Forecast</td>
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<td>Generate Haulage forecast with SCO as part of the EAS development to enable work, resources and access coordination.</td>
<td>Obtain confirmation from Engineering Teams of resource demand and supply at T-47. Resolve clashes or seek executive support for priority decisions.</td>
<td>For Key weekends, obtain evidence from delivery teams that resources are in place.</td>
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<td>Disruptive access changes submitted after the EAS (but before Medium-term integration meeting)? Organise, chair and record the output for a regular meeting to review, challenge and where appropriate recommend for proposal via planning or reject.</td>
<td>Disruptive access changes submitted after the medium-term integration meeting Organise, chair and record the output for a regular meeting to review, challenge and where appropriate recommend for proposal via planning or reject. Haulage changes submitted after the Medium term integration meeting Use the Medium term follow-up meetings to review Engineering Train plan changes.</td>
<td>Late changes requiring access change (patch T12) Review and obtain evidence (such as designs, programmes and late scope change) for late change and where appropriate recommend for DRAM approval.</td>
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<td>Requests for access to be included in EAS Where there are conflicts, review and challenge requests for access in the EAS based on readiness and priority. Challenge deliverers to maximise volumes delivered.</td>
<td>Identification of Key Route Deliverables Identify access planned for Key Route Deliverables and agree Readiness requirements with Deliver team.</td>
<td>Key Route Deliverable Readiness Organise, chair and record the output from a regular meeting to review and record Deliverer readiness for Access for Key Route Deliverables (eg DIWP Rest, other intrusive works, key volumes, obtaining evidence of physical readiness and hazard mitigation). Recommend to Executives Go / No Go from Route perspective at T-16 / T-6 / T-10d / Live.</td>
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<td>Weekend Reporting</td>
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<td>Identify key weekends that warrant enhanced Route reporting eg. Bank Holidays.</td>
<td>Identify key weekends that warrant enhanced Route reporting eg Bank Holidays.</td>
<td>Identify key weekends that warrant enhanced Route reporting, arrange roster and put in place reporting arrangements.</td>
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<td>Access Issue Resolution</td>
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<td>Liaise between deliverers and planning for specific access issue resolution.</td>
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Figure 4. Anglia route - programme on a page
Figure 5. Anglia route possession related incident and delay minutes
Figure 6. Acton wells renewals