



Turner & Townsend

Brasil nos trilhos - 2014

**Making the difference to
rail**

Lessons learnt in the UK
and around the Globe



Brasília, August 2014

making the difference

About us

Who are we?

Turner & Townsend is a leading global programme management and construction consultancy that supports organisations that invest in, own and operate assets. Working from 80 offices in 33 countries, we are making the difference to projects across the property, infrastructure and natural resources sectors worldwide. We help organisations succeed by managing risk while maximising value and performance during the construction and operation of their assets.

What are our core values?

Professional, quality driven, goal orientated, customer focus, flexible, open and integrated.

What differentiates us?

A track record in successful outcomes – you can rely on the Turner & Townsend solution. We have the credibility, knowledge and experience in delivering major infrastructure schemes around the world.

Flexible resource to meet changes in demand – we have people worldwide. We have in-depth expertise in substructures, highways and utilities and have the capacity to deploy expertise at the right time on this project.

No ethical conflicts of interest – Turner & Townsend is an independent professional service provider with approaching 70 years' experience as a quantity surveyor and cost manager. We are not designers or contractors nor owned by such organisations. We give our clients impartial and objective advice to help them design and procure affordability and with certainty.

Intelligence to help get the most from the project budget – our focus is to create opportunities which add value to the appraisal. We capture performance data and abnormalities at facility, system and component level. We are able to drill down to design and cost issues which drive site-wide planning and massing, phasing, space efficiency, environmental performance and carbon reduction.



Global reach

Countries with operations: 130 **Countries with subsidiaries: 36** **Offices: 87**



Americas

Belo Horizonte
Bogota
Calgary
Houston
Lima
Los Angeles
Nashville
New York
Ottawa
San Francisco
Santiago
São Paulo
Rio de Janeiro
Toronto
Vancouver

Europe

Amsterdam
Atyrau
Basel
Belfast
Birmingham
Bristol
Dublin
Edinburgh
Frankfurt
Glasgow
Krakow
Leeds
Liverpool
London
Madrid
Manchester
Milan
Moscow
Munich
Newcastle
Nottingham
Paris
Rome
Sheffield
Teesside
Vienna
Warsaw
Waterford

Africa

Bulawayo
Cape Town
Durban
Gaborone
Harare
Johannesburg
Pretoria

Middle East

Abu Dhabi
Doha
Dubai

Asia

Bangalore
Beijing
Hanoi
Ho Chi Minh City
Kuala Lumpur
Mumbai
New Delhi
Seoul
Shanghai
Singapore
Tianjin
Tokyo

Australia

Adelaide
Brisbane
Cairns
Canberra
Gold Coast
Melbourne
Perth
Sydney

Our Global Footprint

Turner & Townsend operates from seven global regions from which we are able to service clients in any part of the world. We operate out of 87 offices in 36 countries, and on client sites spread over 130 countries.

Corporate overview

We are an independent global market leader in Programme, Project and Commercial Management

Established

1946



Turnover

USD610m



Regional revenue

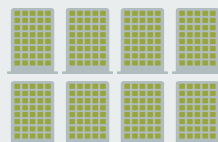
54%



Over half our revenue was generated outside the UK.

Offices

87



Staff numbers

3,700



Core sectors

Property
Infrastructure
Natural resources



8/10



We have maintained our high standard of client care, achieving an average satisfaction rating of eight out of ten.

We are working with clients around the world in all major industry sectors including mining and metals, oil and gas, alternative energies, utilities, defence, power, transport, commercial property, health, education, hi-tech and manufacturing, as well as pharmaceuticals, retail, regeneration, government and leisure and hospitality

Programme and project management

Safe delivery within budget, to time, at the required quality

Cost management

Achieving cost certainty, increasing value for money

Project controls

Effective control, assurance, integration and reporting

Performance improvement

Driving better outcomes, relentlessly

A local business

Key facts – LATAM

- Independent, wholly owned, organically grown
- >10 years experience
- Turnover USD\$10m
- 6 Offices, 4 countries
- 70 Professionals
- 80% repeat business

Key facts – Brazil

- >10 years experience
- Turnover USD\$7m
- 3 Offices
- 40 Professionals
- >USD\$3bn under our management



Our focus

Our focus in Latin America is on providing a full range of cost management, project management, consulting, contract and project controls services. We operate across a wide range of sectors including commercial, infrastructure, mining and metals and the public sector, where we focus on Public Private Partnerships (PPP).



Property

Commercial



Government



Health



High Tech



Life sciences



Manufacturing



Education



Retail



Hospitality



Urban Regeneration



Museums & Heritage



Sports



Infrastructure

Air



Defence



Power



Law and order



Rail



Roads



Telecom



Water



Waste



Natural Resources

Mining & Metals



Oil & Gas



Renewable Energy



RAIL EXPERIENCE





Recent international awards include:

■ **Building Awards 2013**

Construction Consultant of the Year

■ **NCE/ACE Consultants of the Year 2013**

Global Consultant of the Year

■ **British Expertise International Awards 2013**

Outstanding International Business

■ **Commercial Real Estate Awards Moscow 2013**

Best Very Large Retail Project

■ **Building Awards 2012**

Integrated Supply Chain of the Year: Yorkshire Water

■ **CMG Building and Design Awards 2011**

Construction Consultant/Project Manager of the Year

■ **Association for Project Management 2011**

Project of the Year

Community Project of the Year

Overseas Project of the Year

■ **APM Awards 2010**

Project Manager of the Year

Overseas Project of the Year

■ **Project Management Institute Awards 2010**

Programme of the Year 2010

■ **PMA Project Excellence Award 2010**

British Expertise International Awards 2010

Major Consultancy Project of the Year

■ **PMR Awards 2009**

Silver Arrow Award for Quantity Surveying Services

■ **Queen's Award for Enterprise**

International Trade 2009 – UK

■ **Building Awards 2009**

Project/Construction Management Firm of the Year – UK

The golden age of rail

With economic and population growth placing increased demand on existing transport networks, and climate change amplifying the desire to travel by rail, the sector is under pressure to expand. As we enter another golden age of rail new challenges abound. Major improvement programmes are needed to deliver more capacity while minimising inconvenience.

Making the difference

Turner & Townsend is a professional services organisation that provides consultancy, delivery, operations and programme management services to businesses that invest in, own and operate major assets.

Having worked on rail projects with a combined value of US\$6.9bn every year for the last ten, and currently a combined value in the region of \$60bn, whatever the challenges you might face, we will have devised a solution.

Major projects include:

Qatar Rail System

Crossrail Programme

Gautrain Rapid Rail Link

Queensland Cross River Rail

Dublin Metro North

Sydney Light Rail Program



Our understanding

With the global rail industry worth an estimated US\$130bn a year, and governments worldwide pushing for better public transport, the scale of investment into this sector is at an all-time high.

Rail organisations, operators and owners worldwide are navigating the political, environmental and commercial issues involved in the delivery of complex infrastructure programmes.

These infrastructure programmes are often delivered within a regulated environment, which can lead to a challenging array of issues that impede the achievement of return on these significant investments.

Several factors are crucial to the success of rail infrastructure projects. As a capital asset, they must have inherent longevity and remain cost-effective throughout their lifecycle.

As a working asset with typically long design lives, infrastructure assets must be efficient, functional and adaptable. Each of these factors has profound implications for budgetary control and cost management.

Our services and procedures provide alignment of the business case, programme objectives, operational requirements and delivery timescales.

Success factors

Key factors in the successful delivery of a rail infrastructure project are:

- understanding and working within financing and funding regimes
- understanding and working within a closely regulated environment
- understanding the range of affordability and associated business case limits
- adherence to project governance throughout the project life
- robust definition of scope and requirements
- reducing cost – capital, operational and maintenance
- cost, time and safety impacts of working in a live rail environment
- recognition of performance requirements and design life
- stakeholder support
- a culture of ownership within the delivery teams
- project management leadership and drive
- effective risk management
- optimising possession regimes
- understanding of working practices with a live railway environment

Relevant experience



Dublin Metro North

Client: Railway Procurement Agency

Project: Metro North

Value: € multibn

Programme: 2007–2014

Client's requirements

Metro North will connect Swords to Dublin city centre, via Dublin Airport, providing an important commuter link for communities and institutions on the north side of Dublin. It is forecast to carry up to 30 million passengers each year. Metro North is a key element in the creation of a fully integrated rail-based public transport network as envisaged in Transport 21, as it will interchange with the Luas (tram) lines as well as the DART and suburban rail services. The system will be fully accessible; it is approximately 19km long with 15 stops (including 8 deep stop boxes in the city centre). The alignment will run in twin bored tunnels in the city centre and at grade or elevated alignment sections in the suburbs.

Turner & Townsend's contribution

Healy Kelly Turner & Townsend was appointed to provide programme management and project controls services for the feasibility, design, planning and procurement phases, for both the main PPP project and the enabling works.

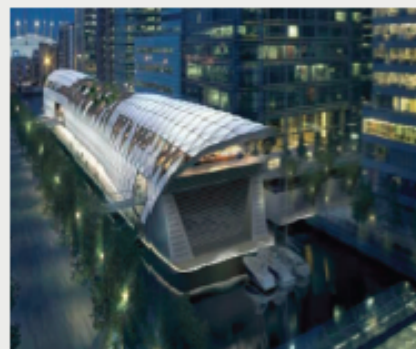
Our services include:

- project management and project controls
- risk management and value engineering
- contract administration
- design coordination and interface management
- PPP procurement advice
- public sector benchmark and shadow bid evaluations
- preparation of reports for funders – Department of Transport, European Investment Bank, etc

Making the difference

Whilst working in an integrated team with the client and other consultants (environmental and archaeological specialists, etc), Turner & Townsend brought particular expertise and experience to the enabling works project such as:

- design management and procurement of one of the deep stop boxes adjacent to the main adult, paediatric and private hospitals in Dublin city centre due to programme constraints
- design management and interface coordination of a deep underground sub-station with adjacent utility tunnels in the middle of Dublin's busiest street
- coordination of in-house and external design teams for surveys, civil engineering and utilities design
- stakeholder management particularly of local authorities, heritage and governmental departments, utility companies and local businesses
- development of risk management, health and safety and project governance processes
- preparation of submissions for the railway order process and evidence at the oral hearing



Crossrail Programme Partner

Client: Transcend

Project: Crossrail Programme Partner

Value: £14.8bn

Programme: 2008–2018

Client's requirements

Crossrail is a 118.5km railway system that will connect the City, Canary Wharf, the West End and Heathrow Airport to commuter areas east and west of the capital. The system will relieve congestion on London's transport network and support the future growth of London. The programme will include the upgrade of 28 existing surface stations (11 of which are major reconstructions), 21km of new sub-surface twin-bore railway, the upgrade of 90km of existing surface network and the construction of 9 sub-surface stations.

Turner & Townsend's contribution

Turner & Townsend acting as a subcontractor to the Transcend joint venture (supplying approximately 40 percent of the Transcend team) appointed by Crossrail Limited to provide integrated programme and delivery management services as part of the fully integrated Crossrail team.

Making the difference

As programme partner, Transcend provides strategic programme management to Crossrail. This enables the safe delivery of the overall programme and will ensure that the project is completed to time, to the desired standard and within budget.

Working through Transcend, Turner & Townsend has been instrumental in developing a cost-led culture in order to improve cost predictability and cost certainty.

Recently, in response to the government's Comprehensive Spending Review, we led an integrated value management process that has resulted in the identification of programme savings totalling £1bn. In the last few months we have also supported the tender evaluation team and have successfully awarded all of the main tunnelling contracts and the first of the major station contracts.

Turner & Townsend supported the demonstration to our sponsors (DfT and TfL) that Crossrail is an affordable program. This directly resulted in the issuing of a Positive Project Review Notice (PPRN) for Review Point 4 (RP4). This means that the Crossrail Board now has full delegated authority from the sponsors to oversee the delivery of the programme in accordance with the delivery strategy.

Relevant experience



Gautrain Rapid Rail Link

Client: Bombela Civils Joint Venture (Pty) Ltd

Project: Gautrain Rapid Rail Link

Value: R15bn

Programme: 2006–2011

Client's requirements

To deliver the civil works on an EPC basis for the Gautrain Rapid Rail Link Project. The civil works included building works for system maintenance depot and ten stations and civil engineering works over a distance of 80km of track formation, including 10km of viaduct (inclusive of two signature balanced cantilever structures), 15km of tunnels, and over 55 major bridge structures; all programmed for completion in two phases. Phase 1 of the rail link was opened in time for the 2010 Soccer World Cup with the balance due for completion in 2011.

Specific challenges faced by the civil contractor included interface management with existing infrastructure owners, site access and condition, fast-track procurement, and coordination with other participants in this PPP project; notably the Gauteng Provincial Government and the other Bombela entities with responsibility for provision of the balance of the project and its operation.

Turner & Townsend's contribution

Turner & Townsend's initial commission for secondment of just one individual to work within the civil contractor's commercial department grew to provision of more than a dozen staff and extended over the entire development period.

Turner & Townsend staff contributed towards a variety of the commercial department's duties, including contract/agreement negotiation and preparation, payment applications, variation submissions, addressing sub-contract claims, contractual and technical correspondence, disputes resolution and utilities relocation administration; additionally Turner & Townsend provided ad hoc measurement and estimating services for the station buildings.

Making the difference

As an integral part of our client's commercial team, Turner & Townsend brought insight, initiative and diligence to bear in meeting the commercial challenges posed by this major infrastructure project unique in the history of South Africa.



Southern Sydney Freight Line

Client: Australian Rail Track Corporation (ARTC)

Project: Southern Sydney Freight Line (SSFL)

Value: Confidential

Programme: 2009–2011

Client's requirements

Management and delivery of a 30km bi-directional, non-electrified dedicated freight line between Sefton to Macarthur in Sydney. Southern Sydney Freight Line (SSFL) is part of a nationwide investment programme to improve the efficiency and cost-effectiveness of rail freight services along the North-South Corridor (circa \$872m) between Melbourne, Sydney and Brisbane. Some of the SSFL objectives are:

- to substantially improve the overall system efficiency of highway-based public transport
- to potentially reduce the growth of road freight traffic within the Sydney metropolitan area along major highways linking the capital cities
- to complement other freight transport initiatives including the Port Botany expansion

ARTC would construct, operate and maintain the SSFL in the main south line railway corridor under an agreement with RailCorp. However, the corridor will still remain in the ownership of RailCorp.

Turner & Townsend's contribution

ARTC appointed Turner & Townsend for project and cost management services to assist in delivering the SSFL project. Reporting directly to SSFL project

director, the commission require the provision of project and cost management support which includes:

- managing design development from detailed design to for construction phase
- ongoing stakeholder management (Federal and State Governments, RailCorp, TIDC, Councils etc)
- developing scope of works for contracts
- being involved in tender review and evaluation
- managing third party services relocation works
- managing multiple construction contractors
- managing SSFL external design consultants
- creating management plans for SSFL
- assisting in generating the master programme
- assisting in establishing works agreements with RailCorp
- assisting in managing the risk and value process
- assisting in developing SSFL operation readiness

Making the difference

Turner & Townsend was able to provide a variety of skills to accommodate the project's diverse requirements and provide strength to the project team. We also provided impartial advice, consulting with a number of stakeholders, including community, council and third party.

Relevant experience



Gulf State Rail Strategic Programme Management

Client:	Gulf state national rail company
Project:	National portfolio of rail projects
Value:	\$multi billion
Programme:	Opening late 2018

Client's requirements

A leading Gulf state has embarked on a programme of rail infrastructure that will transform transportation in the country. Within the portfolio, which combined will form the largest transport infrastructure investment in the world, the projects include:

- major urban metro
- international high-speed rail line
- a number of LRT projects
- freight line provision

The projects will include multi-modal interchanges between the Metro, the LRT schemes and the high-speed and freight heavy rail links. The development of the portfolio of projects includes the establishment of a rail governance structure where none previously existed.

We have been at the forefront of devising and implementing the procurement strategy and tendering procedures for the construction of the station, which provided increased confidence and delivered the best buy from the marketplace.

We have improved the project controls system and reporting functions, differentiating this project amongst its peers within LU, providing real-time reporting with respect to time, cost and quality, enabling full visibility at all times.

Turner & Townsend's contribution

Turner & Townsend with a major engineering consultant have been appointed as the strategic programme management consultants responsible for:

- development of the procurement strategy
- establishment of the initial order of cost
- development of the tender documentation for the initial contract packages including enabling works and the metro tunnelling packages
- programme management
- commercial management

Making the difference

- We have integrated our services with the client's organisation to provide a single point of reporting and a shared responsibility to successfully deliver the portfolio of projects.
- Assisted the client in producing a set of project-specific processes and procedures for their tendering and award activities.
- Utilising our global benchmarking database for rail capital costs, we have developed the initial order of cost for the \$ multi-billion portfolio of schemes, using costs sourced from more than 90 global rail schemes, normalised to the local market.



Tottenham Court Road Station Upgrade

Client:	London Underground
Project:	Tottenham Court Road Station Upgrade
Value:	£500m
Programme:	2005–2016

Client's requirements

Tottenham Court Road is a major interchange station and a key point of access to the West End serving major commercial, tourist and retail centres. The station is busy throughout the day providing interchange between Central and Northern line services, in addition to street access to Oxford Street, Tottenham Court Road and Charing Cross Road. The station manages approximately 37 million passenger journeys annually. With extensive developments taking place in the area, passenger numbers are forecast to increase to 43 million by 2016 and to 50 million after Crossrail services start in 2017.

The enlarged station will include a new ticket hall, additional escalators, subways, step-free access and link with the new Crossrail station, all constructed within a live and operational working environment. The project supports the Mayor's 'London plan and transport strategy' and is part of TfL's Investment Programme. LU has appointed Turner & Townsend, as part of an integrated project team, to provide commercial management, procurement, planning and risk management services.

Turner & Townsend's contribution

To ensure affordability, Turner & Townsend undertook several estimate validation exercises. Benchmarking against a variety of other major station projects, working methodologies and the pricing basis were challenged. For the past three years, commercial cost

and risk management have been at the forefront of the procurement process to deliver the project.

London Underground has now appointed Turner & Townsend to provide contract administration and cost audit services to manage this contract.

We are undertaking a proactive approach to risk management to ensure appropriate and effective mitigation measures are in place.

Making the difference

Our unique estimating and cost control processes allowed the project to generate a robust budget, which demonstrated affordability to internal and external stakeholders allowing the project to progress through project gateway reviews.

We have been at the forefront of devising and implementing the procurement strategy and tendering procedures for the construction of the station, which provided increased confidence and delivered the best buy from the marketplace.

We have improved the project controls system and reporting functions, differentiating this project amongst its peers within LU, providing real-time reporting with respect to time, cost and quality, enabling full visibility at all times.

Relevant experience



Nottingham Express Transit Phase 2

Client:	Nottingham City Council and Nottingham County Council
Project:	Nottingham Express Transit Phase 2 (NET2)
Value:	£500m
Programme:	2001–2014

Client's requirements

To develop and procure through a PPP arrangement Phase 2 of Nottingham Express Transit (NET) extending the use of high-quality light rapid transport within Greater Nottingham.

Turner & Townsend's contribution

Building on the success of NET Line One, Turner & Townsend was commissioned to support the development of two network extensions totalling 17.5km. Turner & Townsend provided project management support to the promoters during the project definition, route option identification and evaluation, route selection and initial scheme development, preparation and submission of the Transport & Works Act Order (TWAO) and development of the business case and procurement strategy. In addition, specialist advice and strategic support has been provided on route development, the TWAO process and PFI procurement.

NET2 is to be procured under a PFI concession arrangement, which will provide the extended infrastructure, take-over the existing Line One and extend operation over the network. In preparation for this, Turner & Townsend have managed the further refinement of the scheme, the preparation of tender documentation, the tender process and this continues with preferred bidder evaluation and negotiations for the new PFI Concession.

Advance design has been undertaken, coordinated by Turner & Townsend, to refine the system design, the functional performance requirements, and to target the reduction of uncertainty in respect of statutory and third party approvals in advance of the tender process.

Making the difference

NET2 forms part of an integrated transport strategy for Greater Nottingham, and Turner & Townsend, through their involvement on the major transport innovations being developed by the city council & county council, and is able to ensure close coordination between Net Phase 2, Nottingham Station Hub Project and a scheme to introduce the Workplace Parking Levy.

The Turner & Townsend team procured and managed the team of engineers, parliamentary agents, environmental consultants, land referencers, finance consultants and lawyers. The team developed the TWAO documentation including environmental statement, plans and sections, land referencing plans, book of reference, draft order and accompanying side agreements.



Nexus Tyne and Wear Metro PMO Setup

Client:	Nexus Tyne & Wear Metro
Project:	Tyne and Wear Modernisation
Value:	£580m
Programme:	2010–2011

Client's requirements

Nexus has been awarded £580m to modernise and operate the Tyne and Wear Metro, of which £350m will be spent on the 'All Change' modernisation.

The 'All Change' programme, over the next three years, will see the modernisation of 12 stations, including Newcastle Central Station and various works including new escalators, lifts at key interchanges, 30 of the 90 strong Metrocar fleet refurbished, the installation of 225 new ticket machines and ticket barriers, 34 bridges repaired/strengthened and extensive signalling and communications works.

All remaining stations will be modernised, the remainder of the Metrocar fleet will be refurbished, and a new communication system implemented between the fleet and the Gosforth Control Centre.

Turner & Townsend's contribution

Turner & Townsend is commissioned to setup and implement a full PMO to cater for the increase in the volume and complexity of works undertaken by Nexus, and also to develop the management structure to collect the projects in a programme.

To satisfy Nexus' requirements we are in the process of implementing the following:

- project controls, processes and procedures
- clear programme & project management roles and responsibilities

- integrated reporting functionality delivering robust and timely management information
- commercial management processes including purchase to pay and contract administration
- integrated and costed master programme schedule and project interface management
- qualitative risk analysis and proactive risk management

Making the difference

Turner & Townsend has made a number of significant improvements during this commission that have added significant value, including:

- efficient and effective programme and project management delivery capability
- properly defined programme of works
- greater visibility and control of the complex programme of works
- a single point of truth for all project data
- accurate and consistent project and programme reporting

We have successfully setup a programme management office and are assisting the client in maintaining a well-controlled and managed programme of works.

Relevant experience



Edinburgh Tram

Client: City of Edinburgh Council

Project: Edinburgh Tram Network

Value: £750m

Programme: Completion 2014

Client's requirements

The Edinburgh Tram system construction and tram supply contracts were awarded by a stand-alone agency in 2008. Construction halted in 2010 subsequent to disputes between the agency and the contractors. Following the development of a settlement agreement by the Council, Turner & Townsend was engaged as project and commercial managers in autumn 2011 to take the contracts to completion. This required replacing the existing agency, including the TUPE transfer of a number of staff and the rapid mobilisation of the management team in an environment where public confidence had been eroded by repeated delays. The initial tramline is approximately 12km long and will link the airport with the city centre.

Turner & Townsend's contribution

Turner & Townsend has been commissioned to setup and implement a full PMO to manage the main infrastructure and rolling stock contracts but also to manage the extensive enabling works contracts including utilities diversions. To achieve the level of control and reporting required on such a high-profile project, we have implemented the following:

- project controls, processes and procedures
- clear programme and project management roles and responsibilities
- integrated reporting functionality delivering robust and timely management information
- commercial management processes including contract administration
- integrated master programme schedule and project interface management

Making the difference

- Turner & Townsend has made a number of significant improvements during this commission that have added significant value, including:
- efficient and effective programme and project management delivery capability
- properly defined programme of works
- greater visibility and control of the complex programme of works
- a single point of truth for all project data
- accurate and consistent project and programme reporting

We have successfully setup a programme management office and are assisting the client in maintaining a well-controlled and managed Programme of Works.



Sydney Light Rail Program

Client: Transport for NSW

Project: Sydney CBD and South East light rail

Value: Confidential

Programme: Study 2011 to 2013; Delivery 2014 onwards

Client's requirements

Turner & Townsend are part of an integrated project team appointed to deliver a Strategic Plan that provides an assessment of the expansions of the light rail network.

Identify the tasks, challenges and opportunities to help prioritise a set of corridors and possible routes within the study area. Test the route and modal options through a multi-stage process involving input from several specialist disciplines, leading to the identification of a preferred project.

The initial Strategic Cost Plan considered three major corridors in the Feasibility Design which was then developed to consider the details of connecting the Central Business District and the South East of the city through the Scoping Design and the Preliminary Cost Plan.

A final Business Case Cost Plan will be required to represent the Definition Design and capture the assessed risks of implementing the project in an established urban environment.

Throughout the program Turner & Townsend will provide benchmarks and experience from international light rail projects to assist with the evaluation of value for money and delivery strategies.

Turner & Townsend's contribution

Provide and coordinate comprehensive cost planning services including cost plans, costing advice on options, pricing schedules for tender documentation and quantitative risk assessments.

The requirements encompass a broad spectrum of civil, road and light rail/trail engineering, urban design, architecture and building construction activities associated with a major above ground and potentially below ground light rail project. These areas include:

- Route alignment, roads and permanent way;
- Civil and structural engineering, including bridges, viaducts, tunnels, embankments and cuttings;
- Electrical, including high and low voltage power supplies, traction substations, overhead wiring, earthing, bonding and stray current mitigation;
- Light rail systems, including signalling and vehicle control, communications, and vehicle stabling; and
- Services relocation and protection, in particular underground services and utilities

Making the difference

Transport for NSW benefit from the ability of Turner & Townsend to draw upon global light rail capability and experience to determine benchmarks and learning from other similar projects

Relevant experience



North West Rail Link

Client: Transport for NSW

Project: North West Rail Link

Value: \$8.3 billion

Programme: 2011 to 2019

Client's requirements

The North West Rail Link is Australia's largest public transport project currently under construction. It will be the first stage of Sydney's new rapid transit network. The project includes 15 kilometres of tunnels between Bella Vista and Epping – the longest rail tunnels ever built in Australia. The western section of the project will be constructed above ground, including a 4km skytrain structure between Bella Vista and Rouse Hill. Eight new stations will be built together with a new train rapid transit rail facility at the north-western end of the route.

Turner & Townsend's contribution

Turner & Townsend have been working as cost advisors to the project since July 2011.

Working as part of a co located, integrated multi disciplinary project team including Transport for NSW, engineering, rail systems and architectural technical advisors, master planning and urban designers and integrated transport and land use planners, Turner & Townsend's scope of service includes the following:

- Preparation of comparative cost estimates to inform the decision making process relating to different design considerations including station configuration, design of structures, type of permanent way;
- Advising the design team on the cost implication of proposed construction methodologies including tunnel drive strategies and station construction methodology;

- Preparation of strategic cost estimates as part of a process to assess value for money offered by alternative project solutions including station locations, and alternative alignments;
- Preparation of the capital cost estimate for the preferred project for inclusion in the project business case;
- Preparation of cashflow forecasts;
- Assessing the impact of escalation over the duration of the project program;
- Quantitative Risk Assessment to determine a risk adjusted outturn cost estimate;
- Program level cost change control process;
- Commercial support and advice

Making the difference

Turner & Townsend's principal role on the North West Rail Link is to provide support and advice that assists the Project Team manage the project budget and demonstrate to the taxpayer that they are receiving maximum value for money.



Crossway Delivery

August 2014

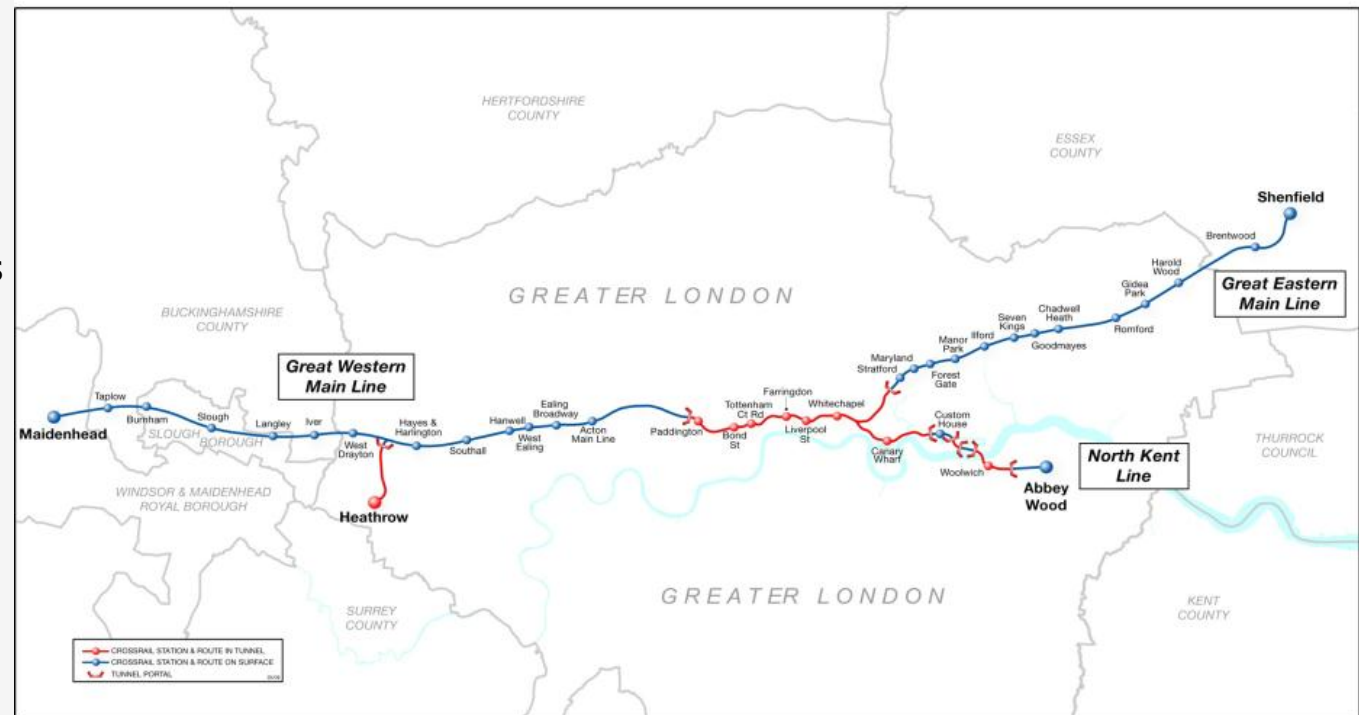


making the **difference**

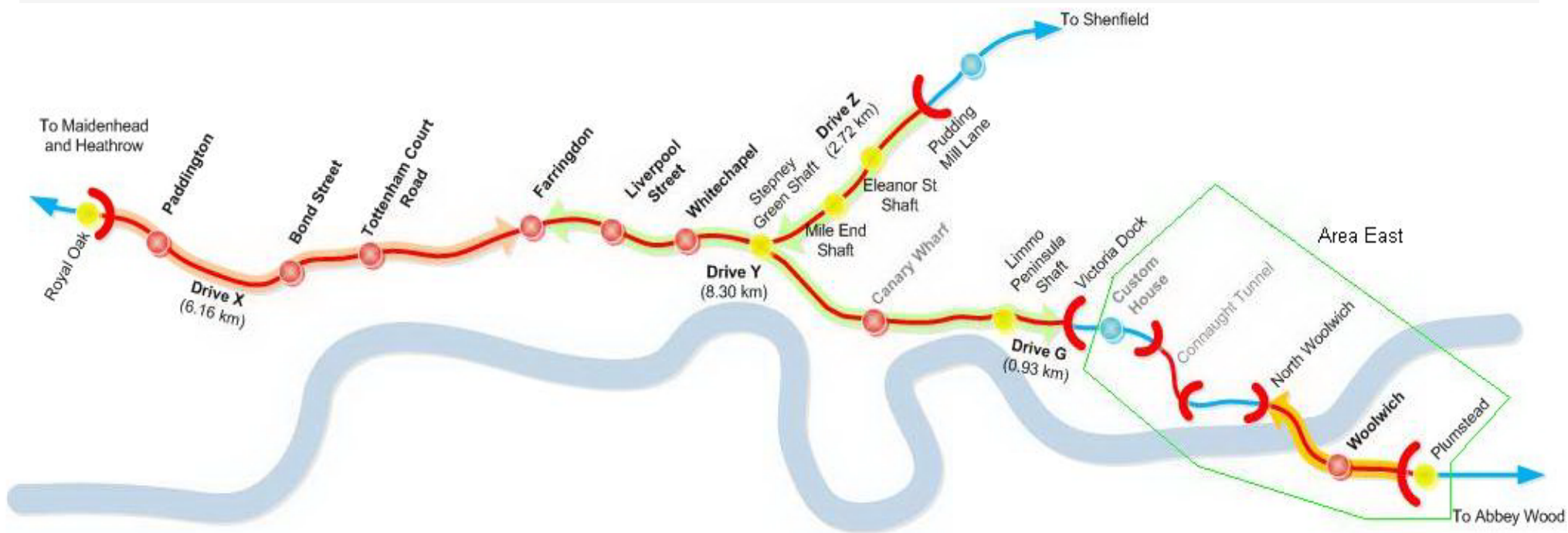
Introduction to Crossrail

Crossrail is a 118.5km railway system that will connect the City, Canary Wharf, the West End and Heathrow Airport to commuter areas east and west of the capital.

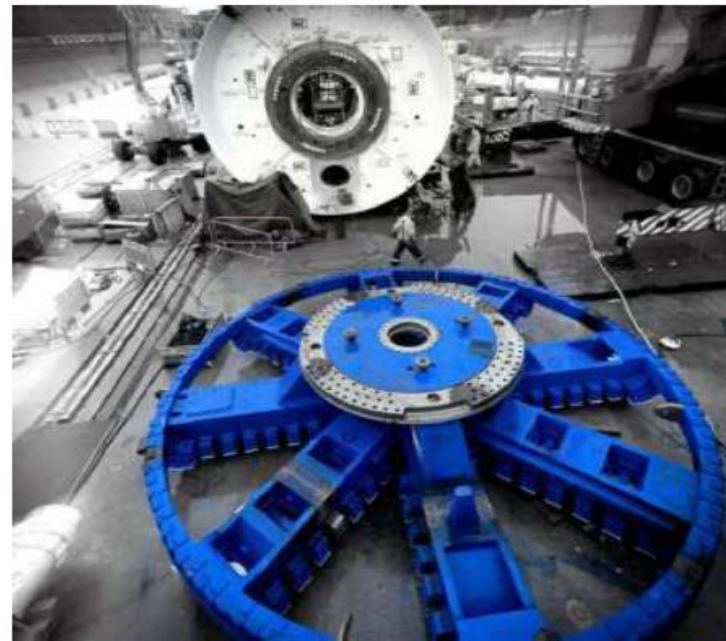
- 9 new stations
- 28 station upgrades
- 21km new twin bore tunnels
- 90km network upgrade
- Budget = £14.5bn
- Completion = Sep 2018
- % Complete = 55%



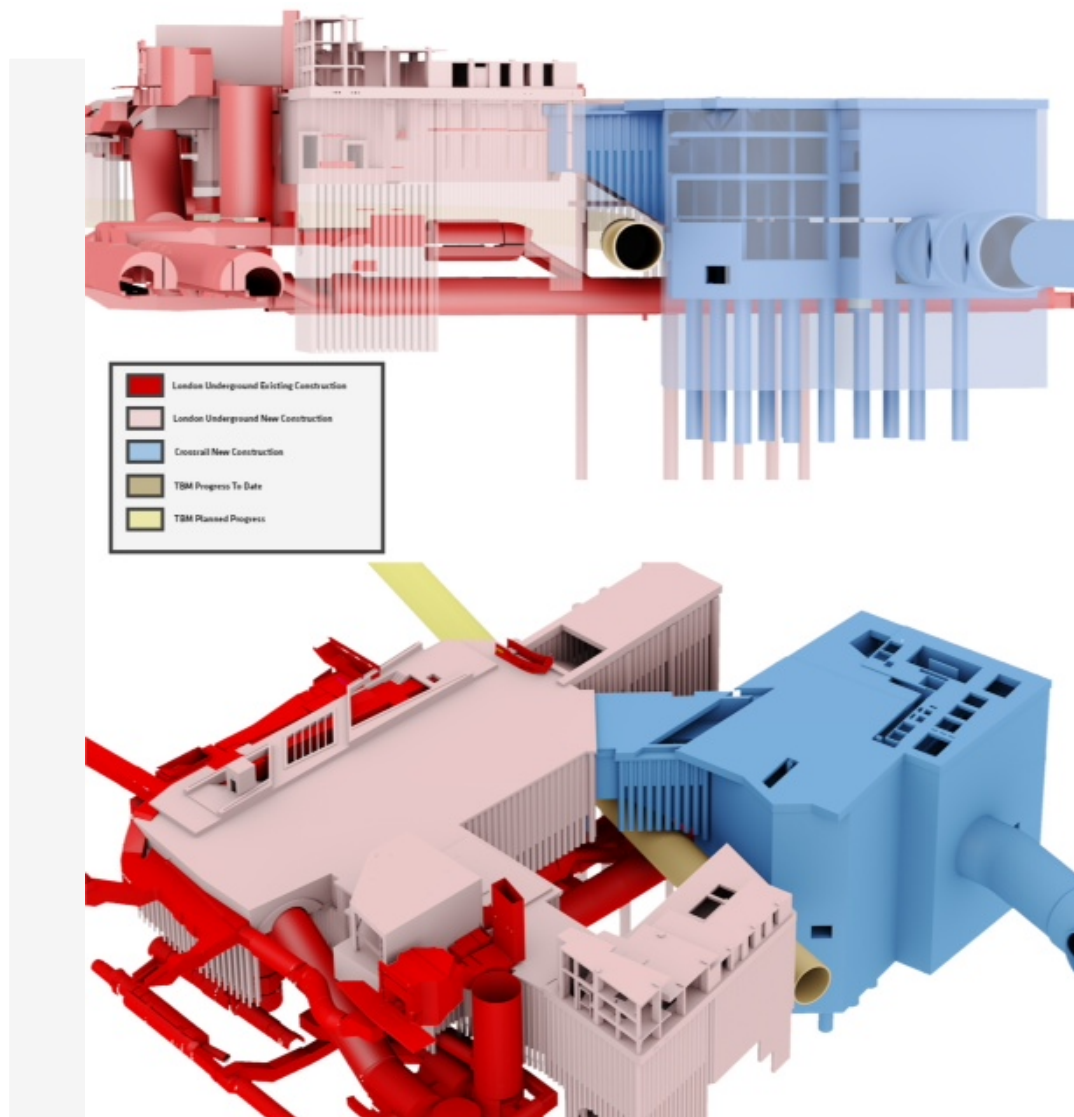
Tunnel Drives



Tunnel Boring Machines



TBM2 passage through TCR

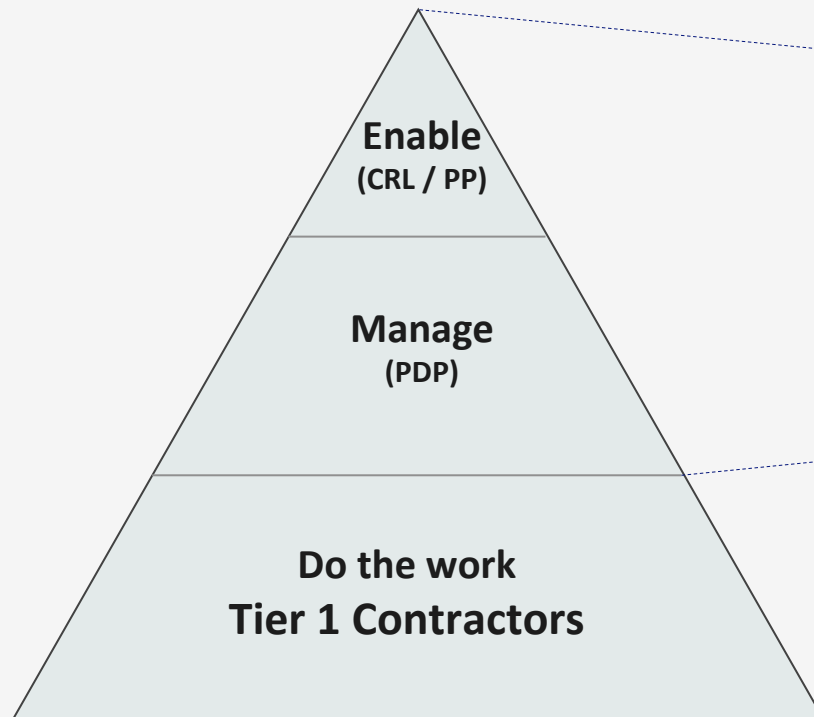


Stepney Green Cavern

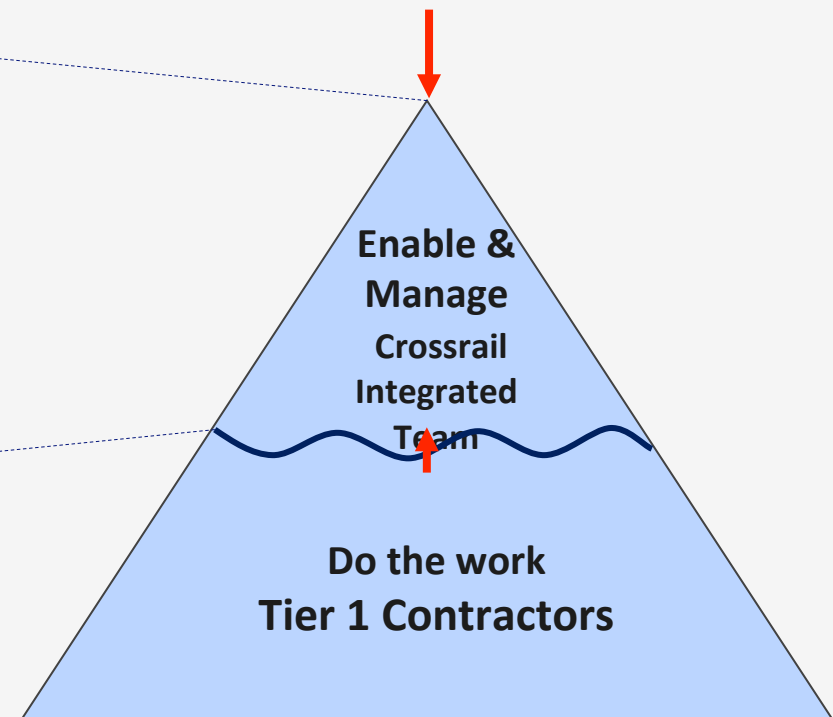


Review → organisational changes

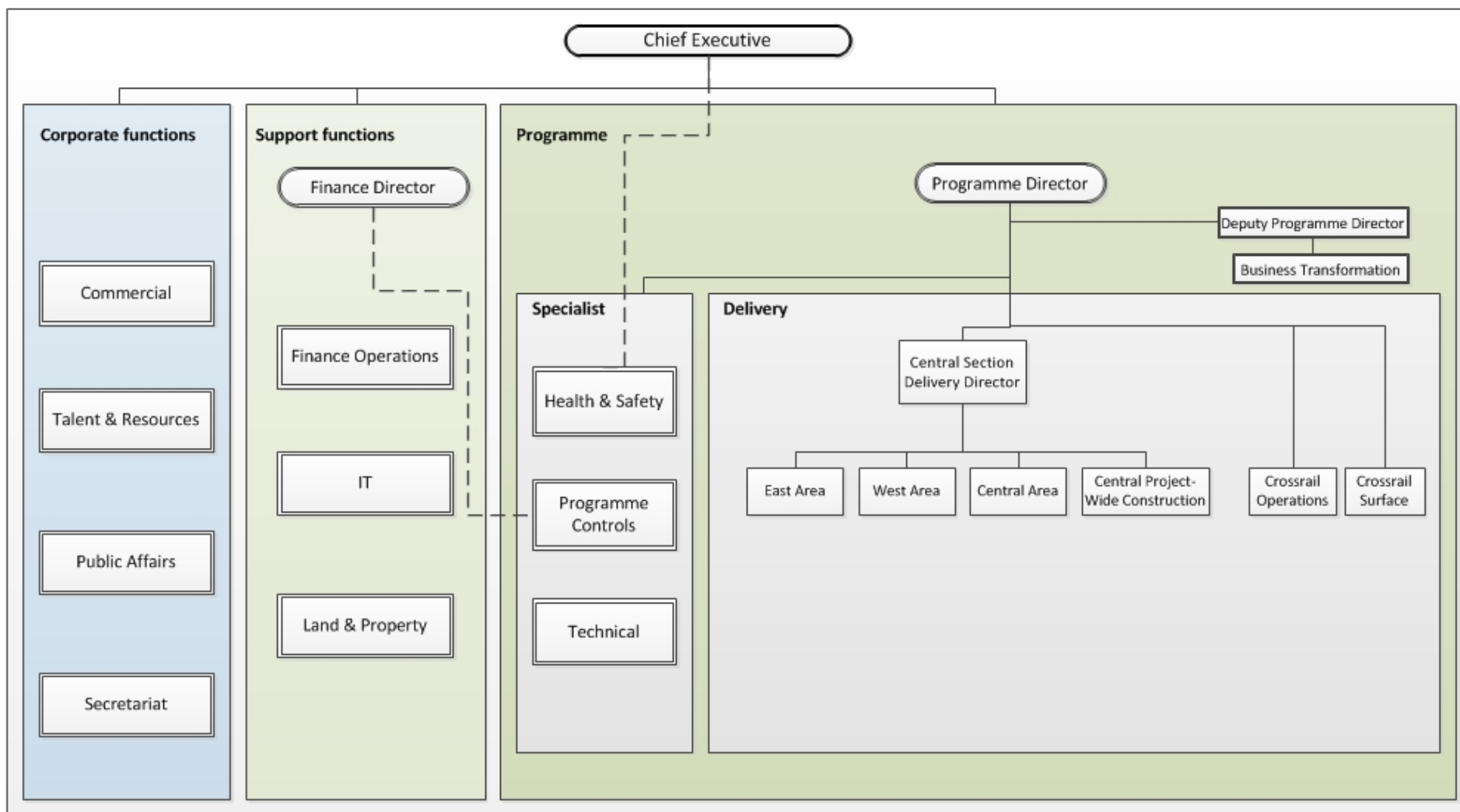
Pre 2011 model



Current model



Crossrail Organisation Structure



Introduction to Crossrail

Turner & Townsend's role:

Crossrail's Programme Partner – Transcend JV

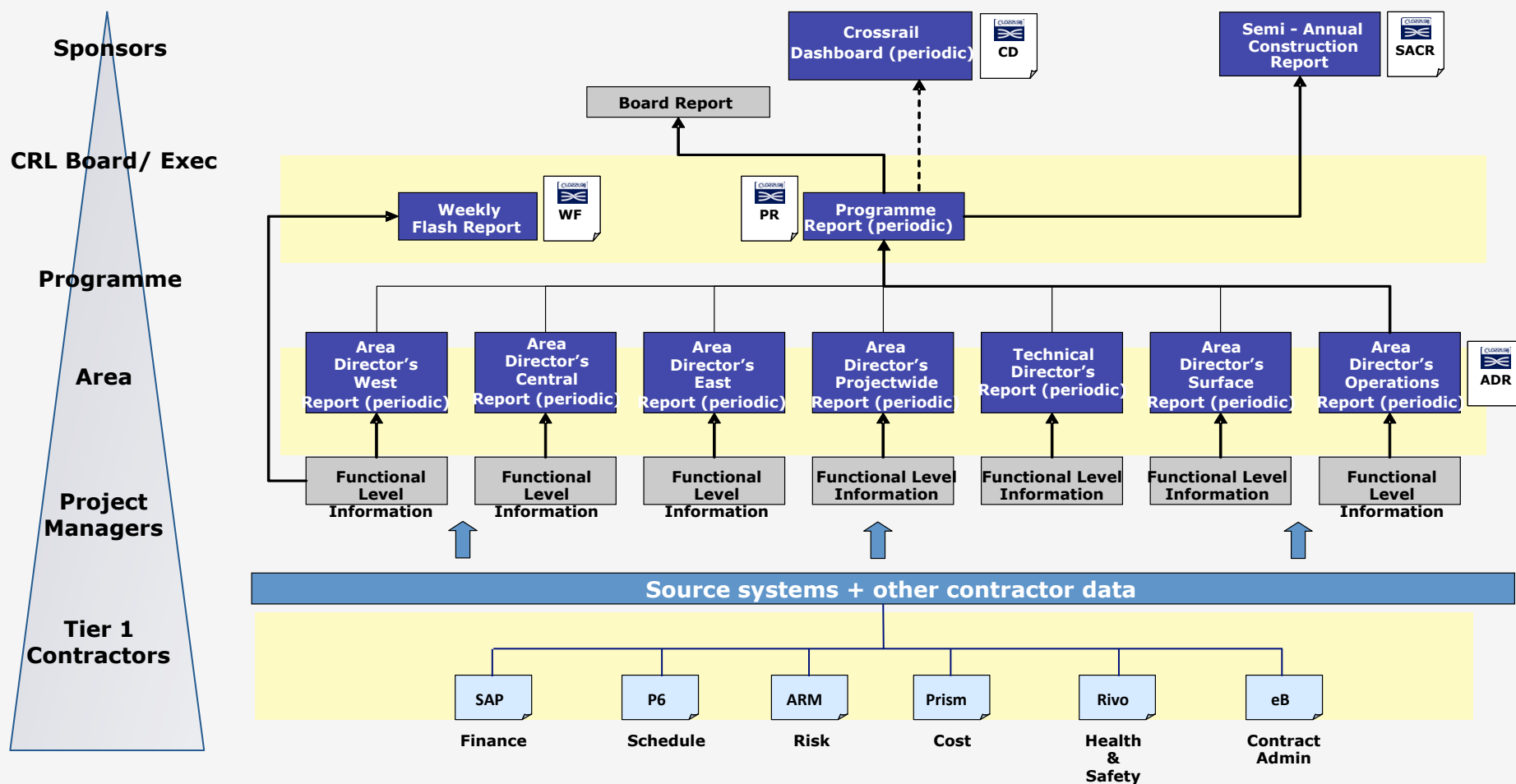
■ Programme Controls

- Project Controls
- Cost Management
- Estimating & Baseline Management
- Benchmarking (in liaison with IUK)
- Programme Reporting
- Procurement
- Commercial Assurance
- Contract Administration
- Value Management
- Business Continuity

Information Management: Programme Reporting

- Clear visibility of controlled data sources from contract to programme level
- Single suite of periodic reports and dashboards rolling up to the Board/Sponsors, managed by the central team
- Standardised formats with controlled templates
- Available at all levels of the Programme – Programme, Area, Project, Contract
- Functional Dashboards also developed – Cost, Schedule, H&S, Contract
- Good stakeholder confidence with programme report quality monitored periodically
- Fully defined procedure with roles, responsibilities and processes

Reporting Heirachy



Dataflows & Ownership



SAP – OWNED BY FINANCE

- Finance management data
- Auto updated from Prism
- Aligned data set



Prism G2 – OWNED BY CONTROLS

- All cost data on the programme
- Standard suite of reports
- Linked to SAP



Contractors Dashboard – OWNED BY CONTRACTOR

- Specified centrally
- Captures all cost & Performance data in accordance with WBS
- includes quantity tracking, hours, % complete etc



Qlickview

- Dashboard Reporting
- Drill down reports



Bentley – Contract Admin

OWNED BY DELIVERY TEAMS

- Manages contract timelines
- Contains contract commercial data
- Contains KPI data

Qlikview Implementation

Clear Back Forward Lock Unlock Search Bookmarks Current Selections Refresh Print Reports Menu

Main Dashboard

Crossrail Dashboard

Print << Clear >> Search

Financial Year: 2011/2012, 2013/2014, 2015/2016, 2017/2018, 2012/2013, 2014/2015, 2016/2017, 2018/2019

Units: £, £K, £M

Refreshed Date 13/11/2013 15:37:22 (excludes late submissions) Selected Period: 2013/14-P08 Current Reporting Period: 2013/14-P08

Organisational Area

- Programme Level
- Projectwide
- Technical (Systemwide)
- Technical (Design)
- Surface
- Surface (On Network Works)
- East
- West
- Central
- Operations

Project

- T001 - Bond St Station
- P001 - Bond St Station
- P002 - Canary Wharf Station
- P003 - CB2 Adjustments
- P004 - Connaught Tunnel
- P006 - Custom House Station
- T006 - Custom House Station
- P008 - Ilford Yard
- T010 - Farringdon Station

Contract

- NRLW - Linewide
- A020 - Heathrow Spur - Works
- AX09 - Ilford Yard Stabling
- A017 - LIS Urban Realm
- A033 - Ilford Yard Stabling Design
- C212 - LIS Station (Demo Adv Wrks-comb)
- CB2C - CB2 Adjustments - Stations
- UVIR - Utilities : Virgin
- UVER - Utilities : Verizon / MCI WorldCom
- UGEO - Utilities : Geo
- UFBR - Utilities : Fibrespan

Current Selections

- Divisor: £M
- Programme Code: L1
- Period Year: 2014
- Reporting Period Name: 2013/14-P08

Costs

Organisational Area	Budget - RP4.2	Budget - CCB	AFC	Project to Date - Planned Value £ (BCWS)	Project to Date - Earned Value £ (BCWP)	Project to Date - Actual Cost £ (ACWP)	SPI	CPI
Central	£2,180	£2,437	£2,538	£1,135	£1,140	£1,246	1.04	0.91
Depot	£170	£170	£170	£0	£0	£0	-	-
East	£476	£559	£600	£281	£278	£296	0.99	0.96
Indirects	£1,593	£1,854	£1,818	£1,338	£425	£1,303	0.32	0.33
Land & Property	£790	£816	£827	£812	£825	£836	1.02	0.99
Operations	£115	£115	£126	£1	£1	£0	0.01	1.41
Programme Level	£116	£178	£196	£143	£143	£136	1.00	1.00
Projectwide	£556	£386	£428	£231	£229	£226	0.99	1.02
Surface	£57	£616	£582	£37	£36	£36	0.98	1.00
Surface (On Netw...)	£1,984	£2,049	£2,026	£357	£352	£357	0.99	0.99
Talent & Resources	£3	£2	£2	£0	£0	£0	1.00	1.00
Technical (Design)	£314	£437	£500	£369	£355	£370	0.96	0.96
Technical (System...)	£831	£707	£834	£32	£31	£31	0.98	1.00
West	£1,991	£2,142	£2,265	£1,028	£1,013	£1,078	0.99	0.94

Health & Safety CCB/AFC FY Cost Forecast Costs

Organisational Area	Key Event ID	Key Event Milestone Name	Baseline Early Date	Baseline Late Date	Actual or Forecast Date	Variance BL Early - Forecast	RAG
East	K204	C520 - Custom House - Commence Erection of Station Structure (West)	17-Jul-13	22-Jan-14	28-Oct-13	-103	
Technical (Design)	K551	C122 PLU Sidings Gate 3	17-Apr-13	30-Apr-14	08-Nov-13	-205	
Technical (Design)	K552	C122 comments on NR design closed out	17-Apr-13	30-Apr-14	08-Nov-13	-205	
Central	K138	C350 - PML - Complete DLR 6 Span Viaduct	19-Aug-13	27-Jul-14	15-Nov-13	-88	
East	K213	C520 - Custom House - Complete piling on site	23-Oct-13	09-Dec-13	25-Nov-13	-33	
East	K210	C520 - Custom House - Close existing DLR footbridge	25-Oct-13	01-Nov-13	11-Jan-14	-78	
East	K481	C530 - Issue ITT	05-Mar-14	13-Mar-14	13-Jan-14	51	
East	K141	BH - Woolwich - Sch 7 SR Decision (Approval or not) by Greenwich Council	29-Oct-13	13-Mar-14	03-Feb-14	-97	
Central	K217	C305 - TUN - Drive Z - WB - Pudding Mill Lane Portal to Stepney Green - Key Start	09-Nov-13	24-Feb-14	05-Feb-14	-88	
East	K233	C310 - Thames Tunnel - West Bound, TBM dismantled at NOV and removed	03-Feb-14	31-Jan-14	14-Feb-14	-11	
Central	K207	C305 - TUN - Drive Y - Westbound Drive - Stepney Green Junction - Traverse Junction &...	22-Jun-14	15-Jul-14	18-Feb-14	124	
East	K221	C310 - Last Ring Available for Thames Tunnel	03-Mar-14	29-May-14	06-Mar-14	-3	
East	K480	C530 - Woolwich Start on Site (C310 finish tunnelling EB & WB tunnels)	31-Jan-14	28-Feb-14	31-Mar-14	-59	

Anchor Milestones Key Event Milestones

Qlikview Implementation



Qlikview Implementation



Dashboards – Functional – Contract Admin



Crossrail Contract Administration Dashboard

CONTRACTS SELECTED C300, C272, C310, C411, C501

PERIOD FROM 01/2011

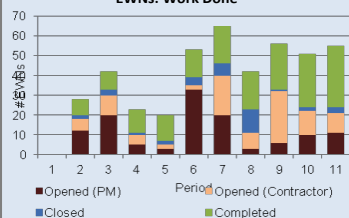
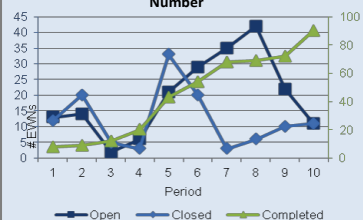
PERIOD TO 10/2011

LIVE (CUMULATIVE)
EWNs

OPEN EWNs RAISED BY:	Total	<7d	7 - 14d	>14d
PM	150	110	20	20
CONTRACTOR	25	10	5	10
CLOSED EWNs (DISCUSSED/ ACTIONS ASSIGNED)	Total	<28d	28 - 56d	>56d
	150	110	20	20
OPEN RISK ACTIONS	Total	LOW	MED	HIGH
	150	110	20	20

COMPLETED EWNs (ACTIONS COMPLETE)	90
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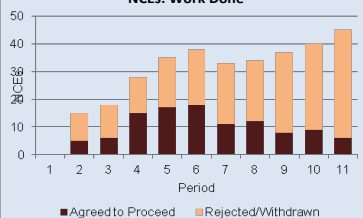
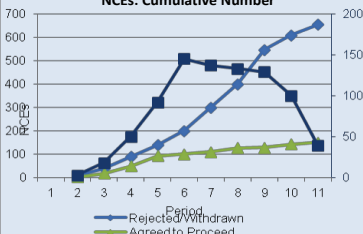
OPENED	150
CLOSED	25
COMPLETED	25

EWNs: Work Done

EWNs: Cumulative Number

NCEs

CNCEs: PM RESPONSE OUTSTANDING	Total	<7d	7 - 14d	>14d
	150	110	20	20
COMPLETED CNCEs	Rejected/ Withdrawn	150		
	Agreed as NCE		110	

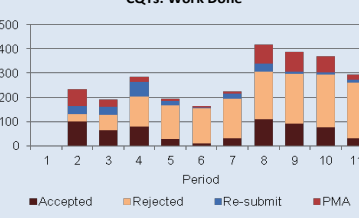
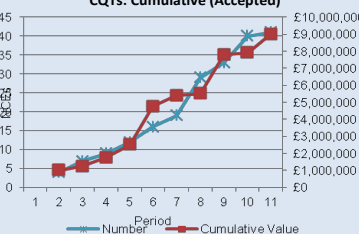
PMNCEs	30
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PMNCEs RAISED	29
CNCEs RAISED	29
PROGRESSED TO ICE	134

NCEs: Work Done

NCEs: Cumulative Number

CQTs

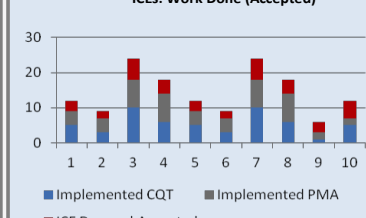
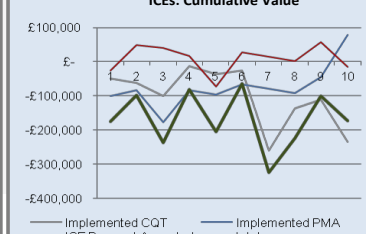
REQUESTED CQTs	Total
FROM PMs	150
FROM CNCEs	25
SUBMITTED CQTs	Total
	150
PM RESPONSE OUTSTANDING	Total
	150
	<7d
	7 - 14d
	>14d
COMPLETED CQTs	Total
ACCEPTED	36
REJECTED	1
RE-SUBMIT CQT	54
PMA	2

INSTRUCTED BY PM	70
SUBMITTED BY CONTRACTOR	50
ACCEPTED	12
REJECTED	0

CQTs: Work Done

CQTs: Cumulative (Accepted)

ICEs

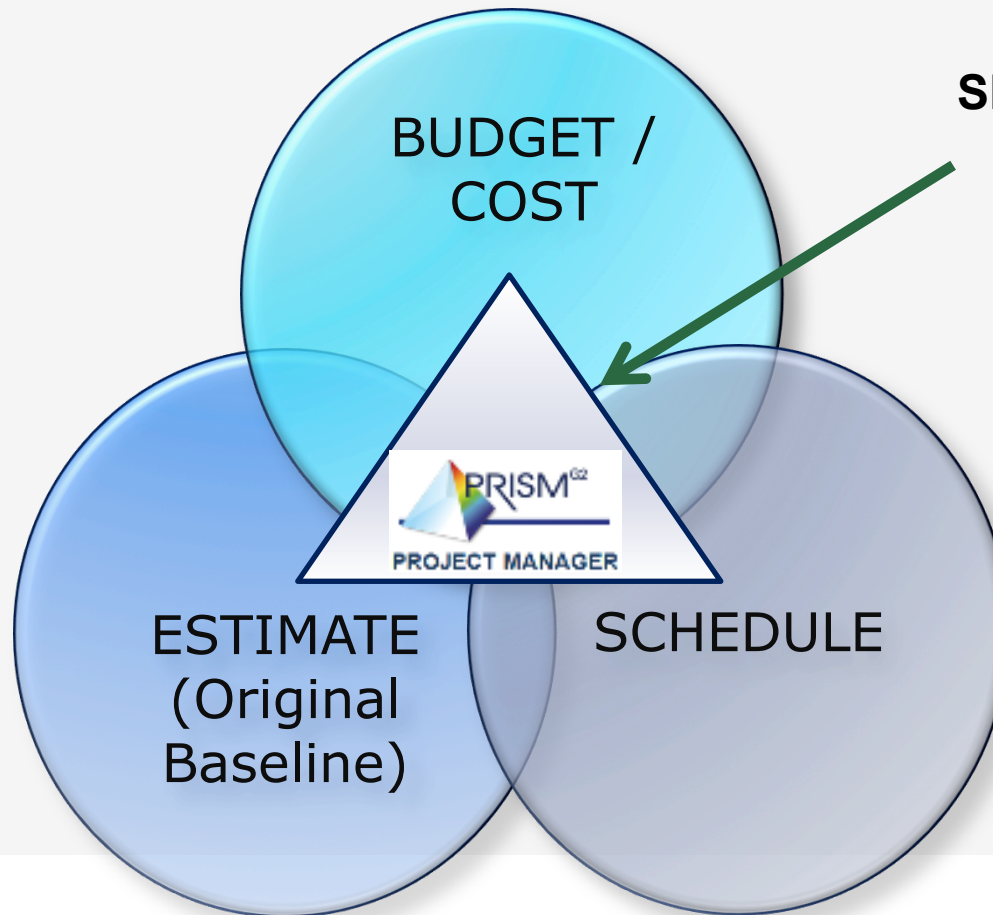
ICEs	Total		
NUMBER	150		
VALUE	£14,987,234		
ICE VALUE BRACKET	1 st CQT to ICE		NCE to ICE TIME
	Av. Δ	Av. Δ	
£0 – 10k	-20%	£3k	62 days
£10k – 100k	-30%	£12k	89 days
£100k – £1,000k	-21%	£129k	112 days
>£1,000k	-10%	£390k	129 days
OTP GROWTH	+12%		

	Nr.	£
IMPLEMENTED CQT (Nr.)	70	£50,000
IMPLEMENTED PMA (Nr.)	42	£25,000
ICE DEEMED ACCEPTED	1	£10,000

ICEs: Work Done (Accepted)

ICEs: Cumulative Value


Cost & Performance Management

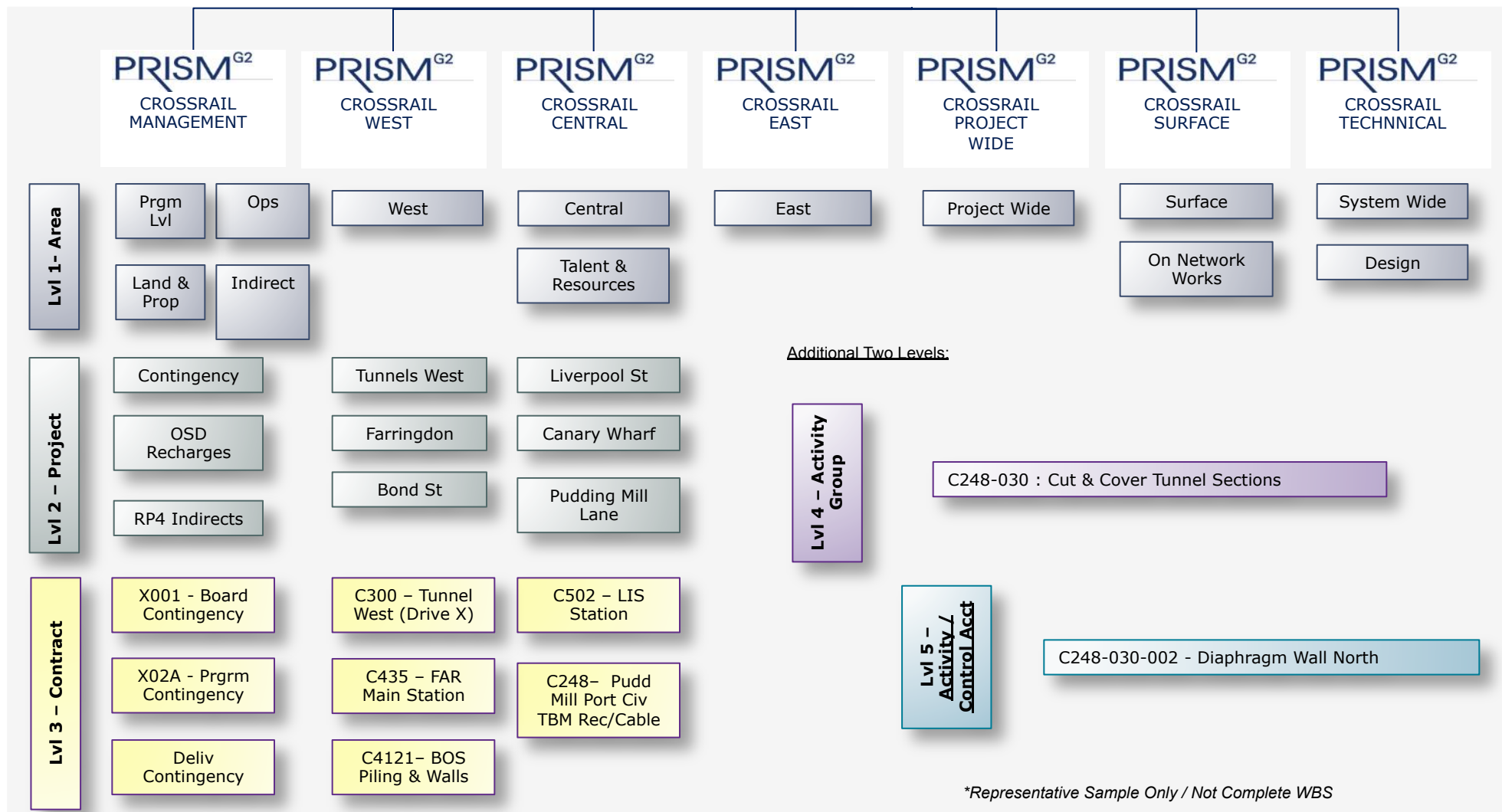
◀ PRISM G2 : Crossrail Configuration



SINGLE INTEGRATED WBS

** Provides integration & traceability from Original Estimate (OBB) and our operating Budget /Cost data, which is then time phased with the Schedule start & finish dates*

Common WBS



Why Applying Commercial & Performance Assurance?

Organisations recognise the need to set up progressive commercial assurance functions

Realise
Procured
Contract
Value

Pro-actively
identify
contract level
commercial
risk and
opportunity

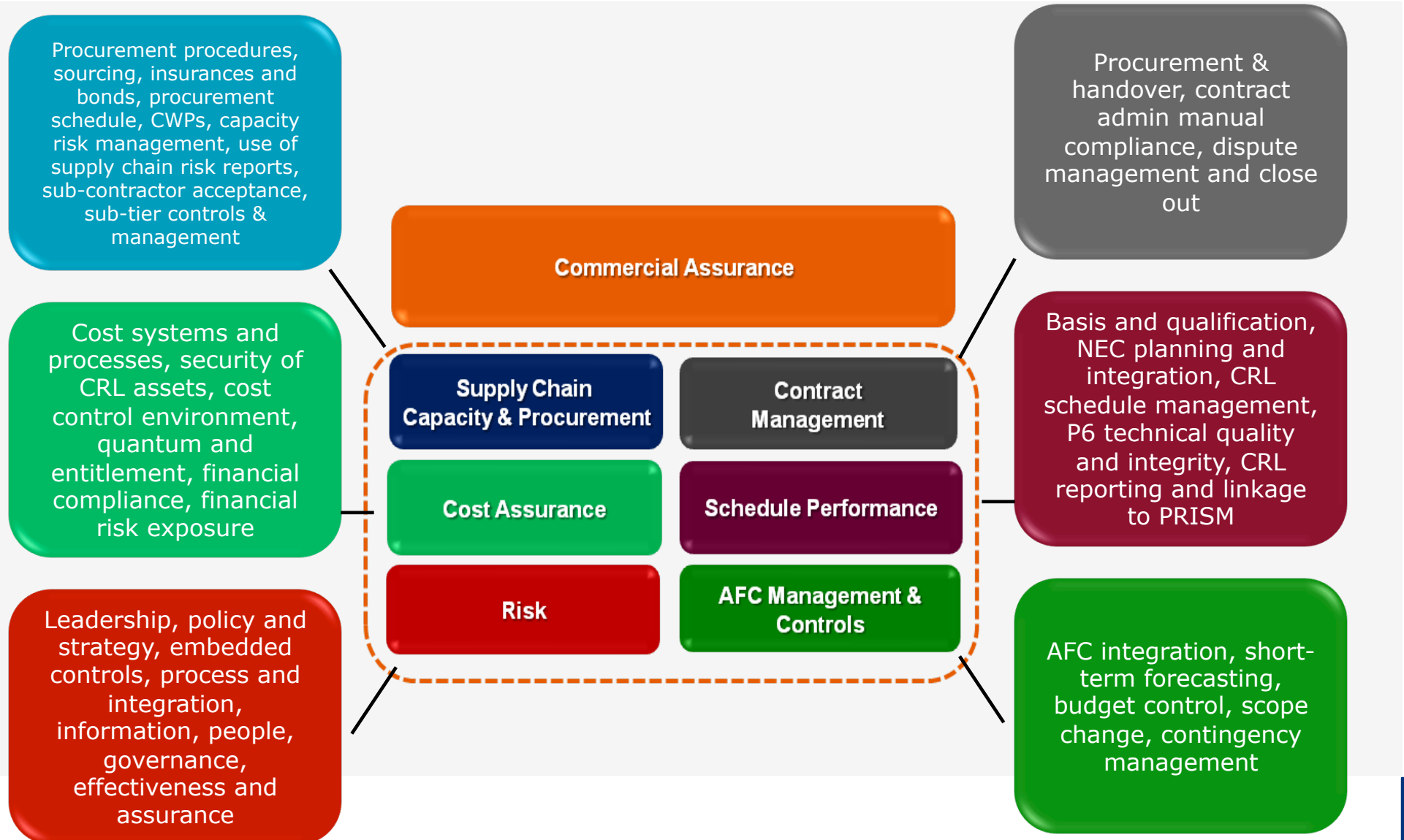
Benefit from
programme
wide
commercial risk
and opportunity

Demonstrate
VFM and self
assurance

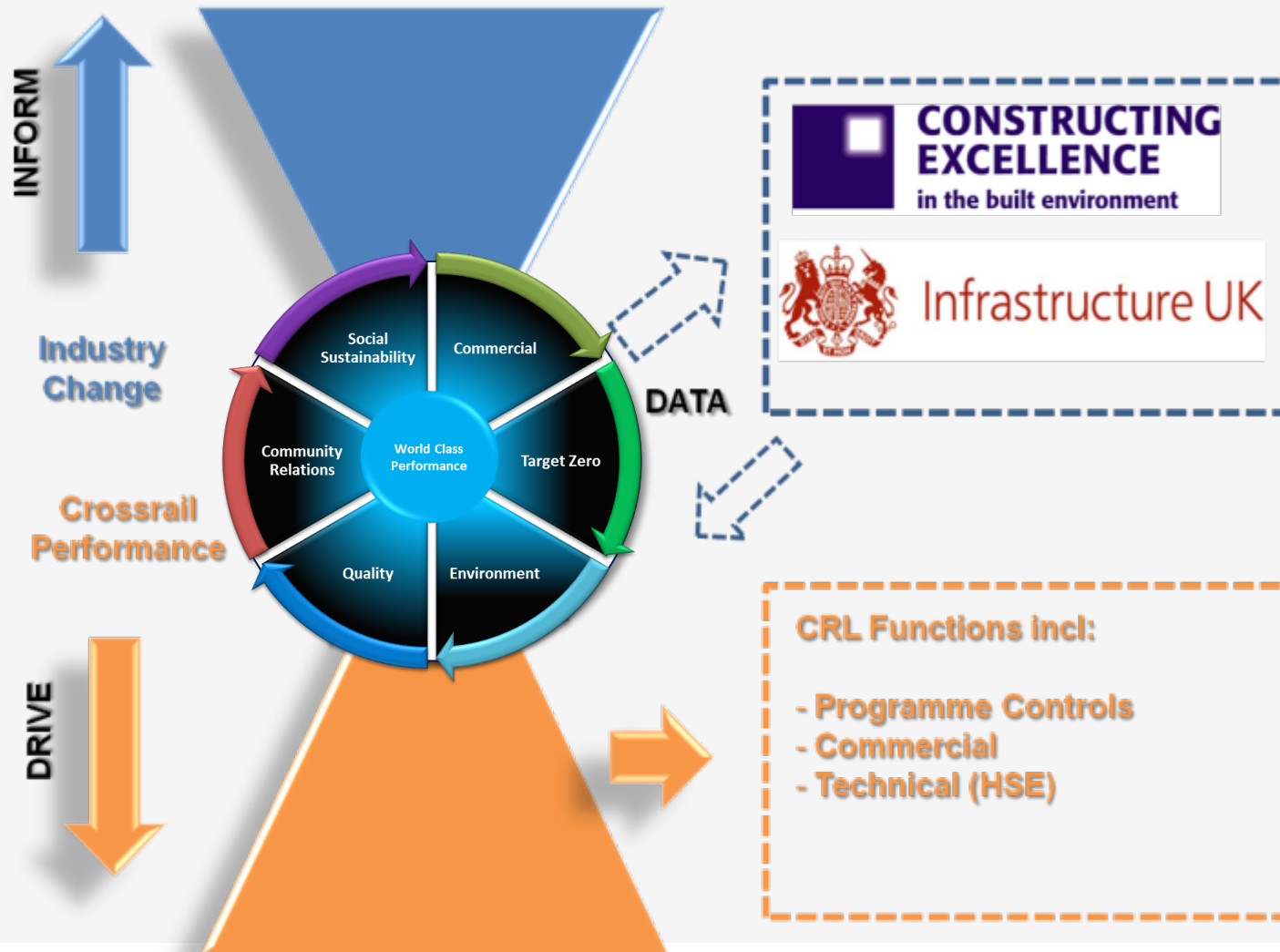
Drive Supplier
Commercial
Performance



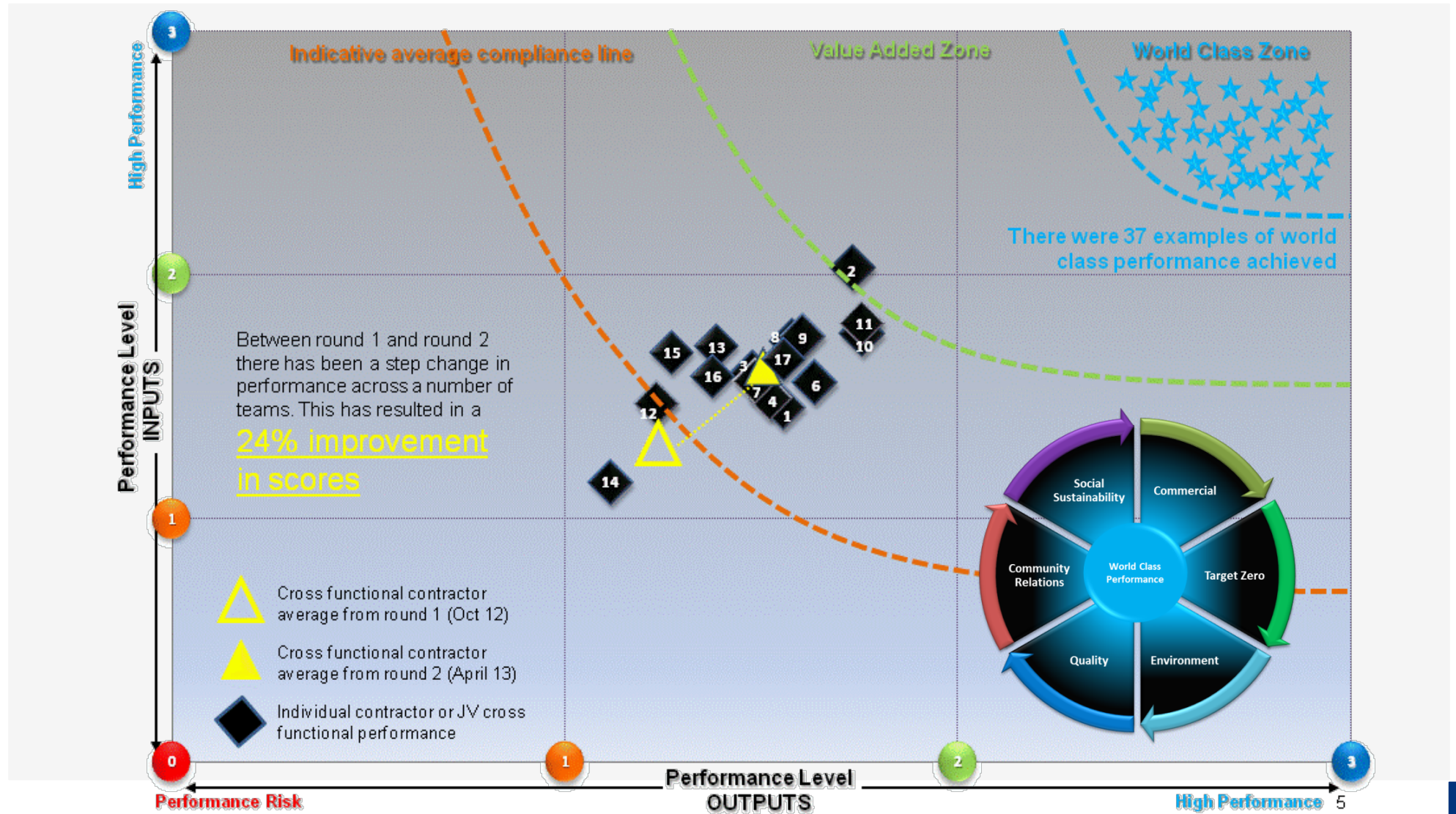
Crossrail – Commercial Performance & Assurance Framework



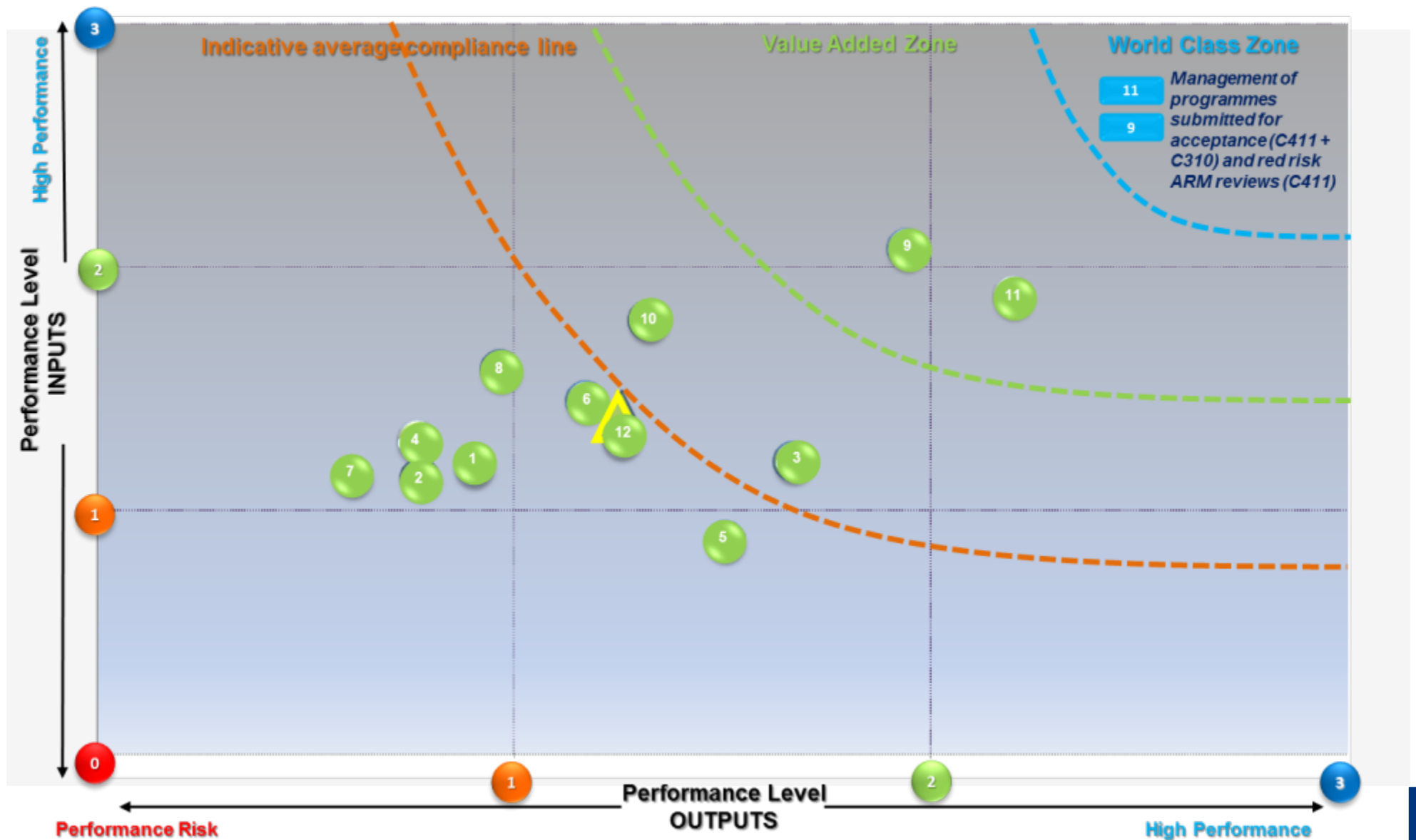
Performance Assurance – Programme & Industry Change



Performance Assurance – Driving Supplier Performance



Performance Assurance – Driving Commercial Performance



Contract Risk Management: Strategy/Policy Considerations

- Project too big for single package
- PFI considered but rejected – not possible to transfer risk
- Have to break into packages that are attractive to market
- Optimise interface risk
- Design & build rejected for two reasons:
 - Market would not bear risk
 - Insufficient design resources to bid

The Procurement Strategy

The Key Principles driving the Procurement Strategy

- Focus on risk
- Optimising interfaces
- Delivering value for money based on most economically advantageous offer
- Working collaboratively and engagement with the supply chain
- Contracts based on a sensible allocation of risk to the party best placed to manage them
- Responsible Procurement
- Collaboration with other clients to achieve smart purchasing and deliver savings and efficiencies

CRL Application of NEC

- Predominantly NEC Option C (Target Cost with Activity Schedule) :Used for both Design as well as Main Works
- 50/50 *contractors share* seen to be equitable and a real incentive to control cost

CRL Included Options

- X1 Price Adjustment for Inflation*
- X2 Changes in the law
- X4 Parent Company Guarantee
- X5 Sectional Completion
- X7 Delay damages
- X8 Collateral warranty agreements**
- X13 Performance Bond
- X18 Limitation of liability
- X20 Key Performance Indicators
- Y3 Rights of Third Parties Act 1999

CRL Excluded Options

- X3 Multiple currencies
- X6 Bonus for early Completion
- X12 Partnering
- X14 Advanced Payments
- X15 Limitation of liability (Design)
- X16 Retention
- X17 Low performance damages
- Y2 Construction Act 1996***

Station Contracts Only

CRL Bespoke Option

Contractual Incentives

Design Contracts

- NEC PSC contracts Option C targeted on cost of the works later revised to Option E contracts for later stages

Works Contracts

- Early/Enabling works – NEC Option A contracts
- Major Works Contracts – Civils NEC option C – 50/50 pain/gain
- Systems Contracts – NEC Design and Build

Partner Contracts

- NEC PSC contracts – Option E with KPIs for bonus pot
- Annual Service Delivery Plans, Annual KPIs, bonus released 25% annually, 75% banked to end of the project

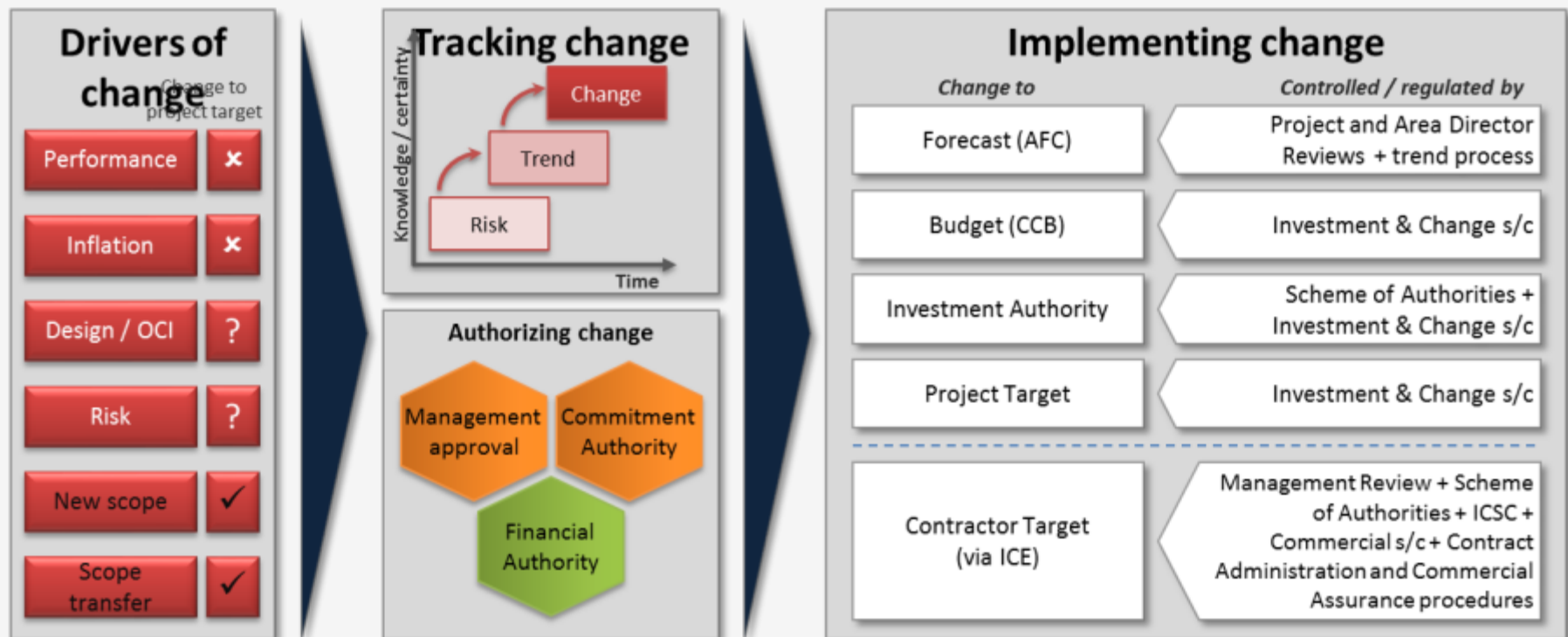
Governance: Managing Change

Trend Management and Change Control procedure is to establish a methodology for the **early identification, control** and ultimate approval of all potential changes (Trends) from the agreed programme and project baselines including requirements, scope, quality, schedule, budget and operations.

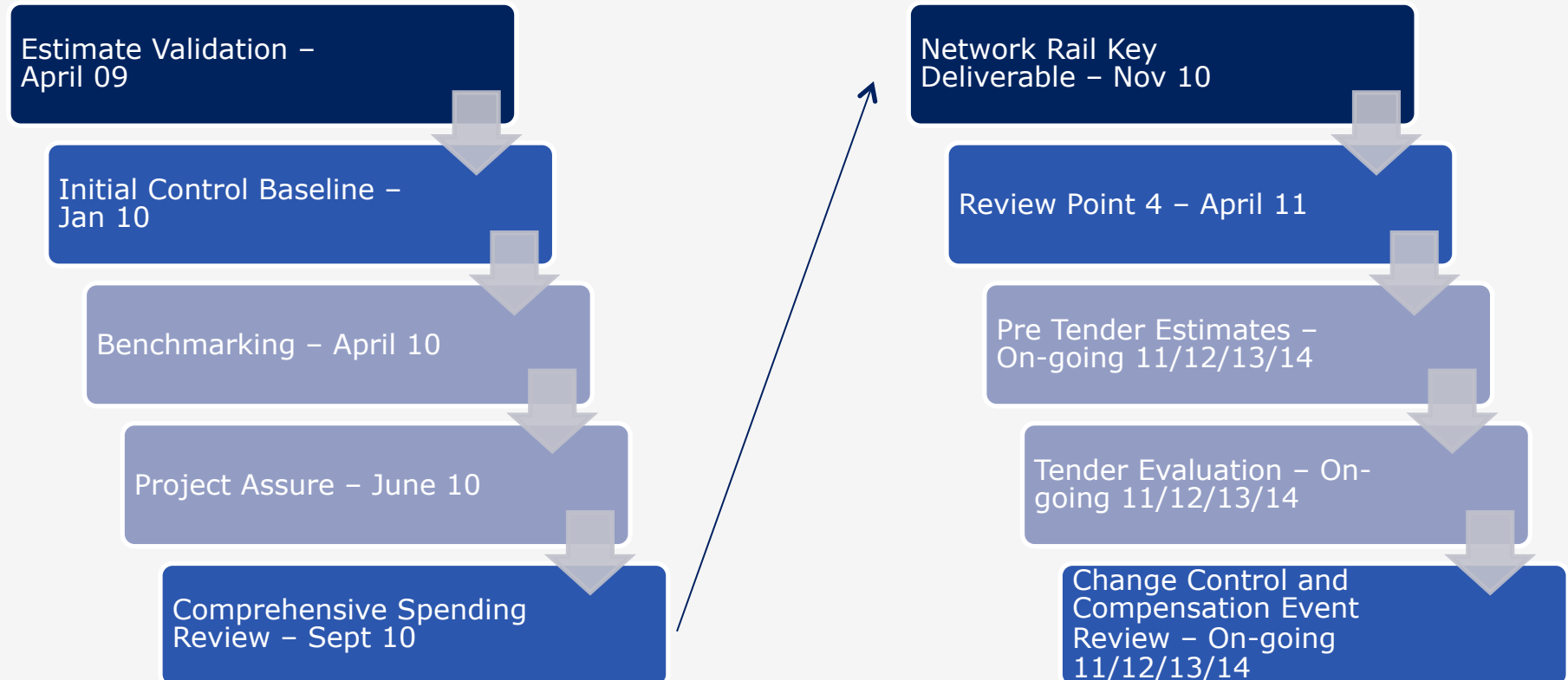
Hierarchy of change

- Trend Process
 - Managing project related change
- Programme Change
 - Managing programme change and project to project interfaces
- Sponsor Change

Governance: Change Control



Estimating – Timeline of activities



Process

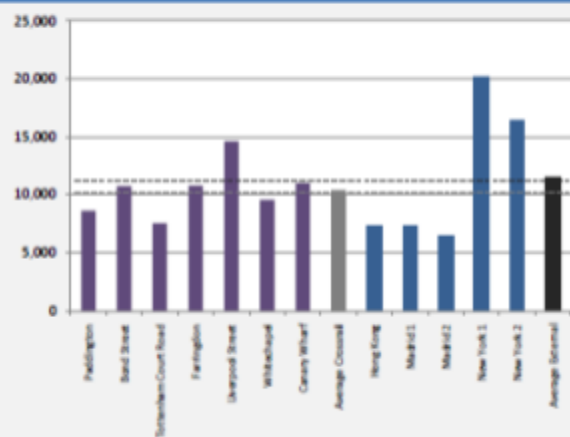
Our Process through the Baselines:

- Re-evaluation of point estimates for c.200 contracts & works packages,
- Generation of cashflow forecasts to inform investment model,
- Formulation of construction package targets,
- Adjustments for market conditions and tender returns,
- Mapping of the control baseline to the agreed WBS,
- Programme Change Control progressing the validation of project forecast and proposed changes in the baseline,
- Value Management resulting in the generation of value and opportunities registers with potential programme savings of £1bn,
- Development of full contract and project QRA outputs.

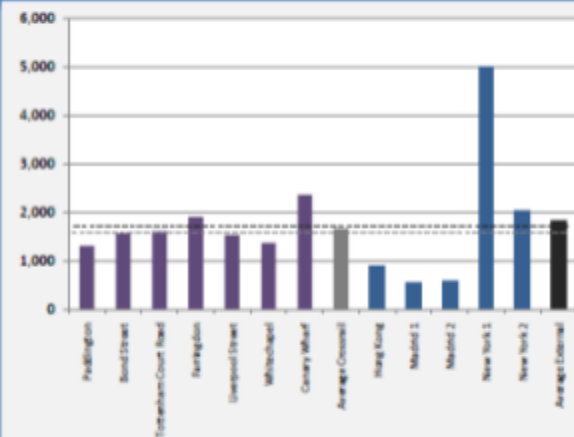
Benchmarking

Key Cost Metrics

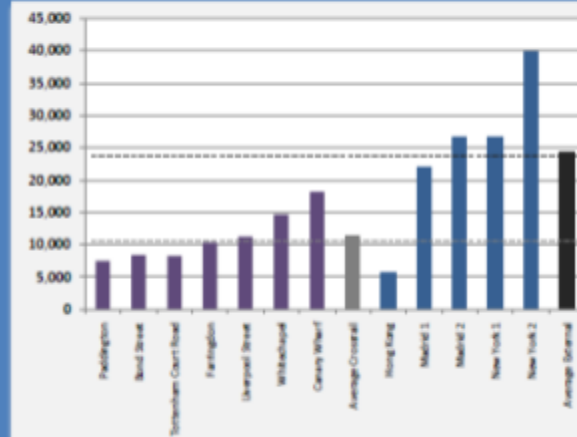
Construction Cost per Square Metre (£)



Construction Cost per Cubic Metre (£)



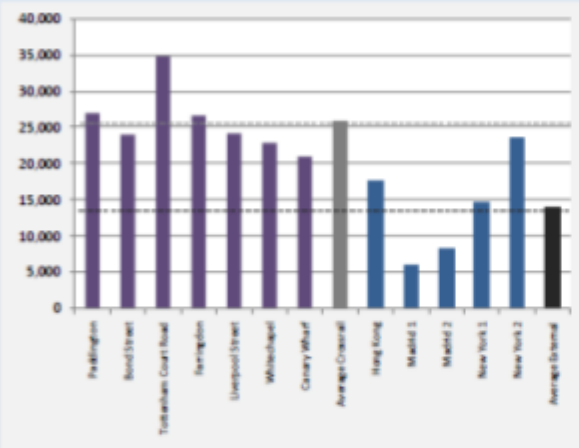
Construction Cost per Peak Passenger (£)



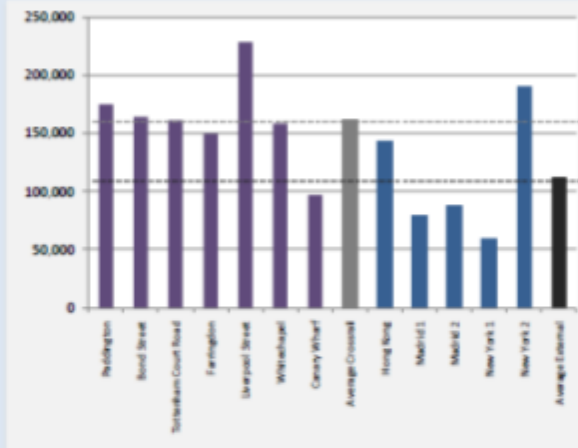
Spatial Benchmarking

Spatial Metrics

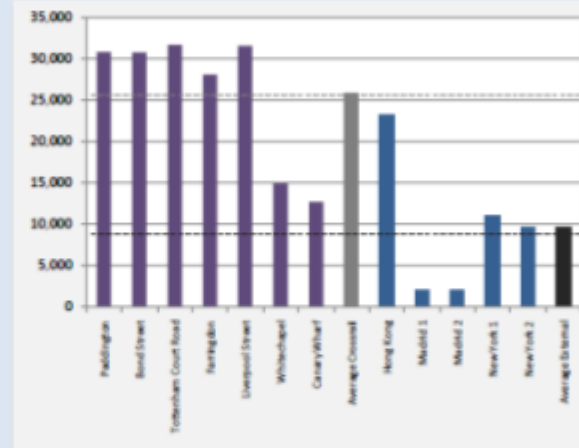
Gross Internal Floor Area (m2)



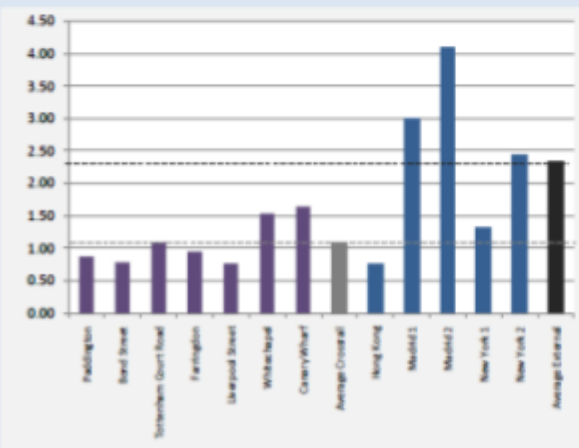
Station Volume (m3)



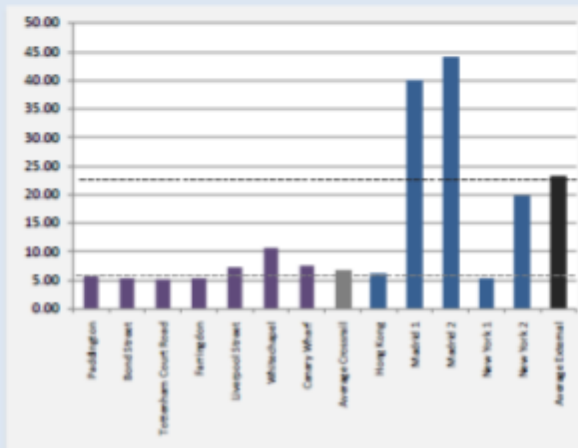
Peak Hour Passengers (nr)



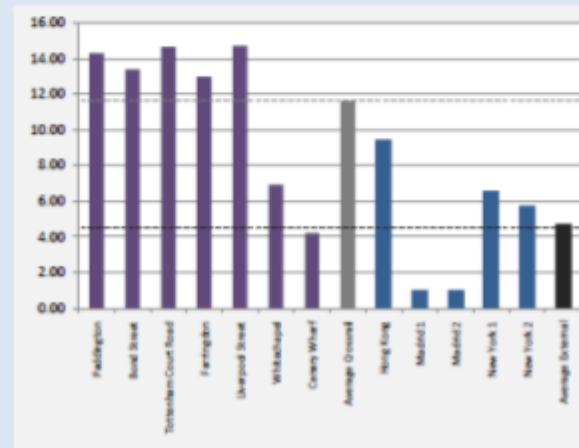
Area per Peak Passenger (m2)



Volume per Peak Passenger (m3)



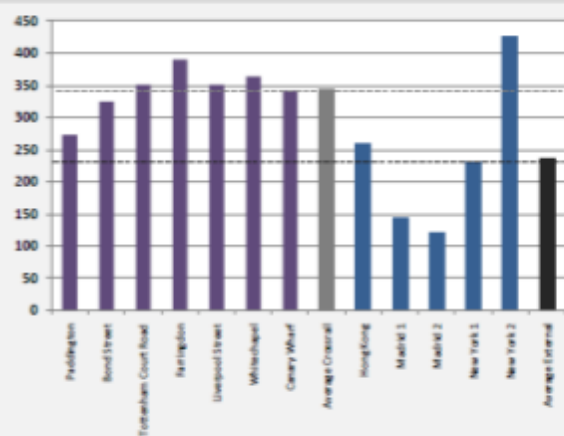
Peak Passengers per Square Metre Platform (nr)



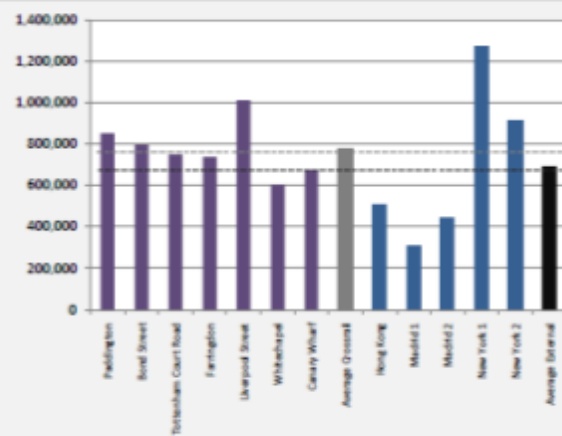
Schedule Metrics

Schedule Metrics

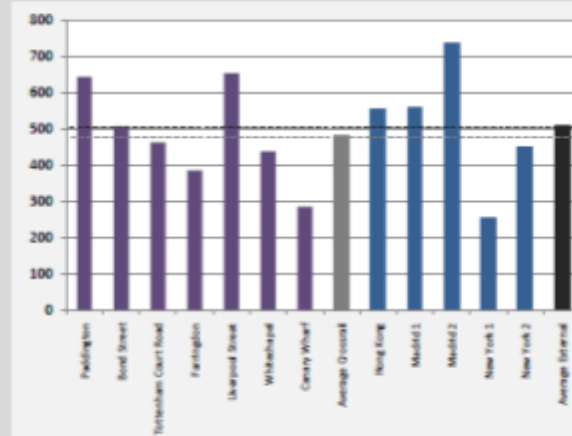
Construction Schedule Duration (weeks)



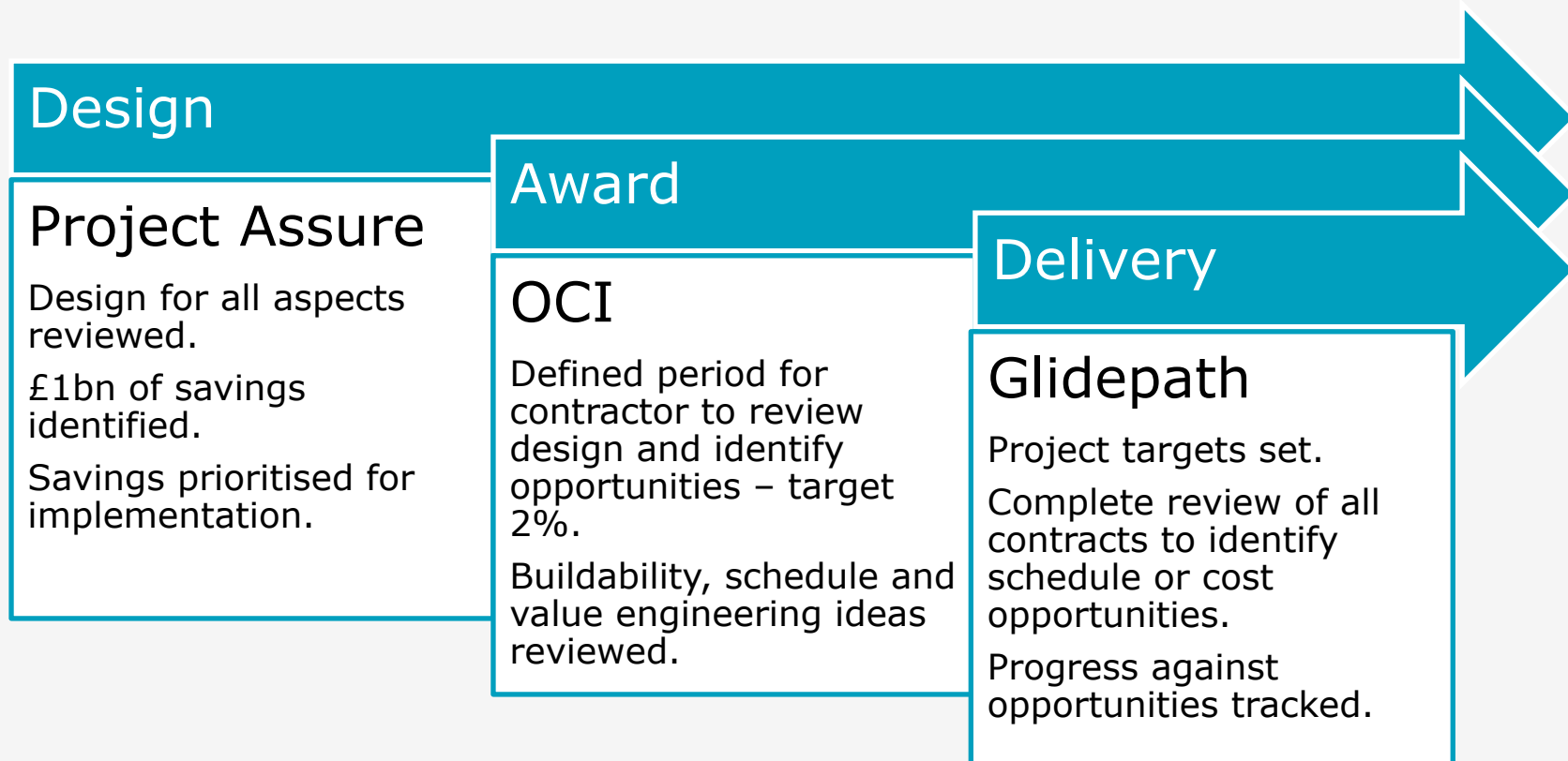
Average Construction Expenditure per Week (£)



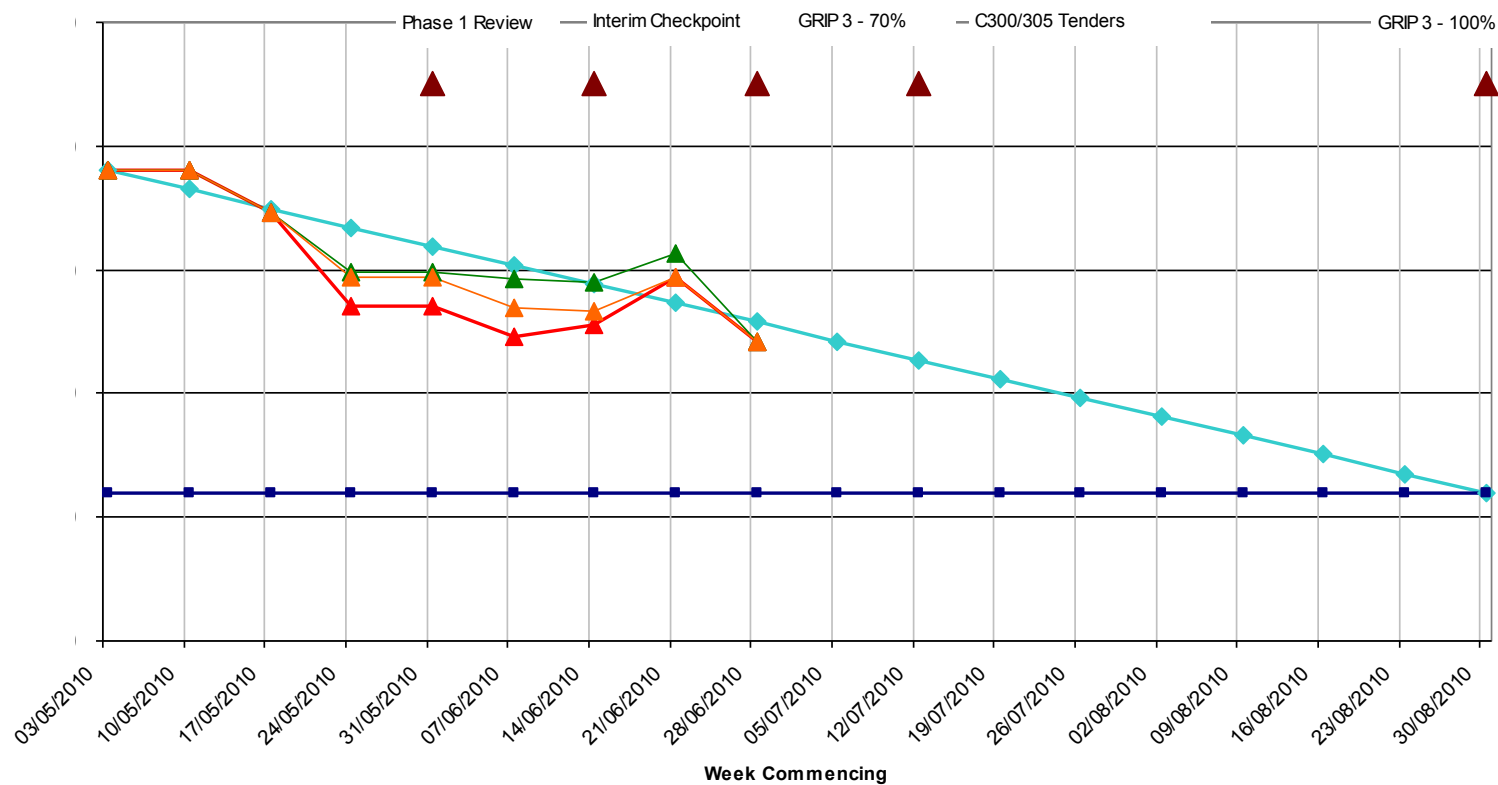
Cubic Meters of Station Constructed per Week (m3)



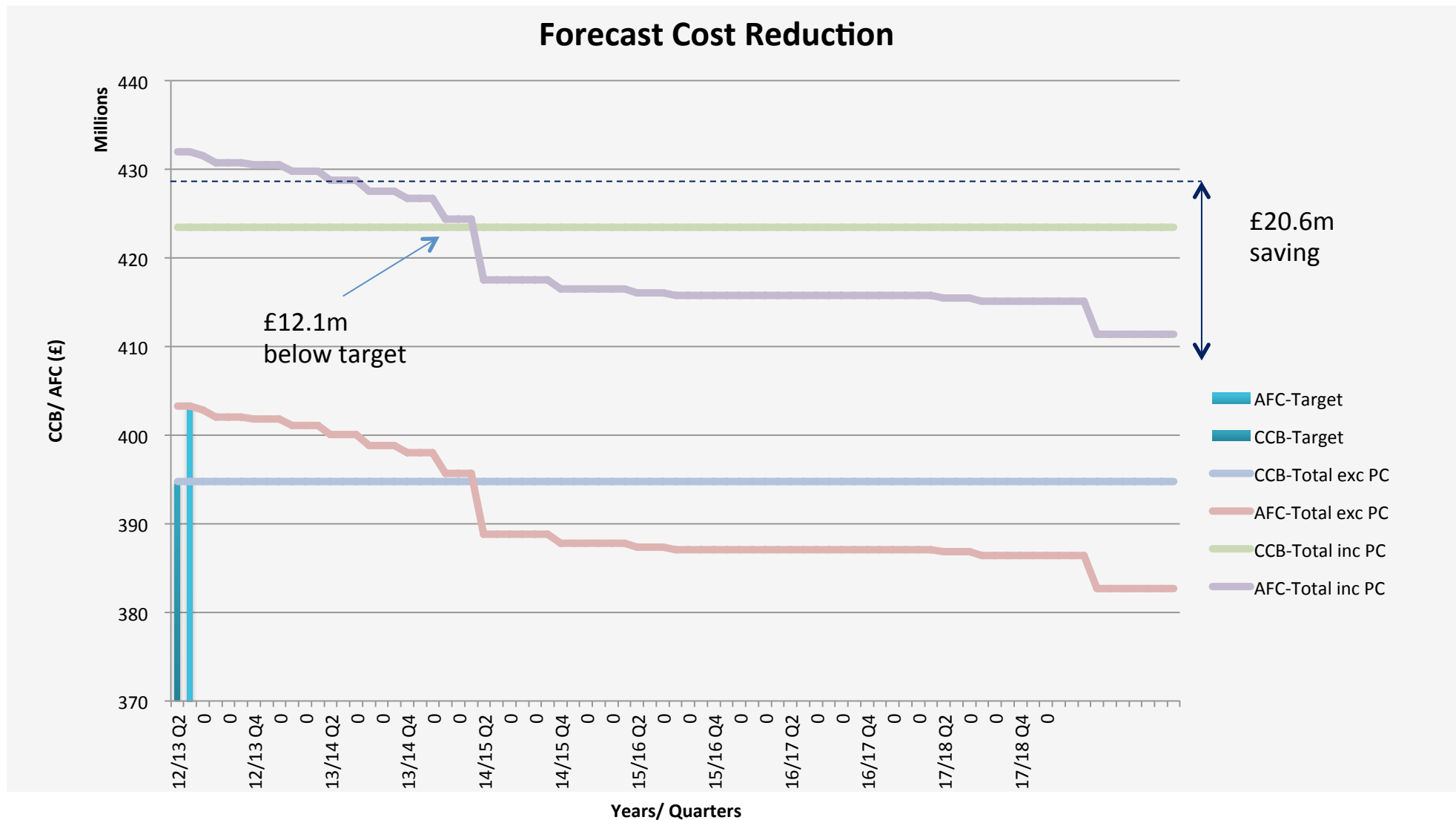
Value Management Process



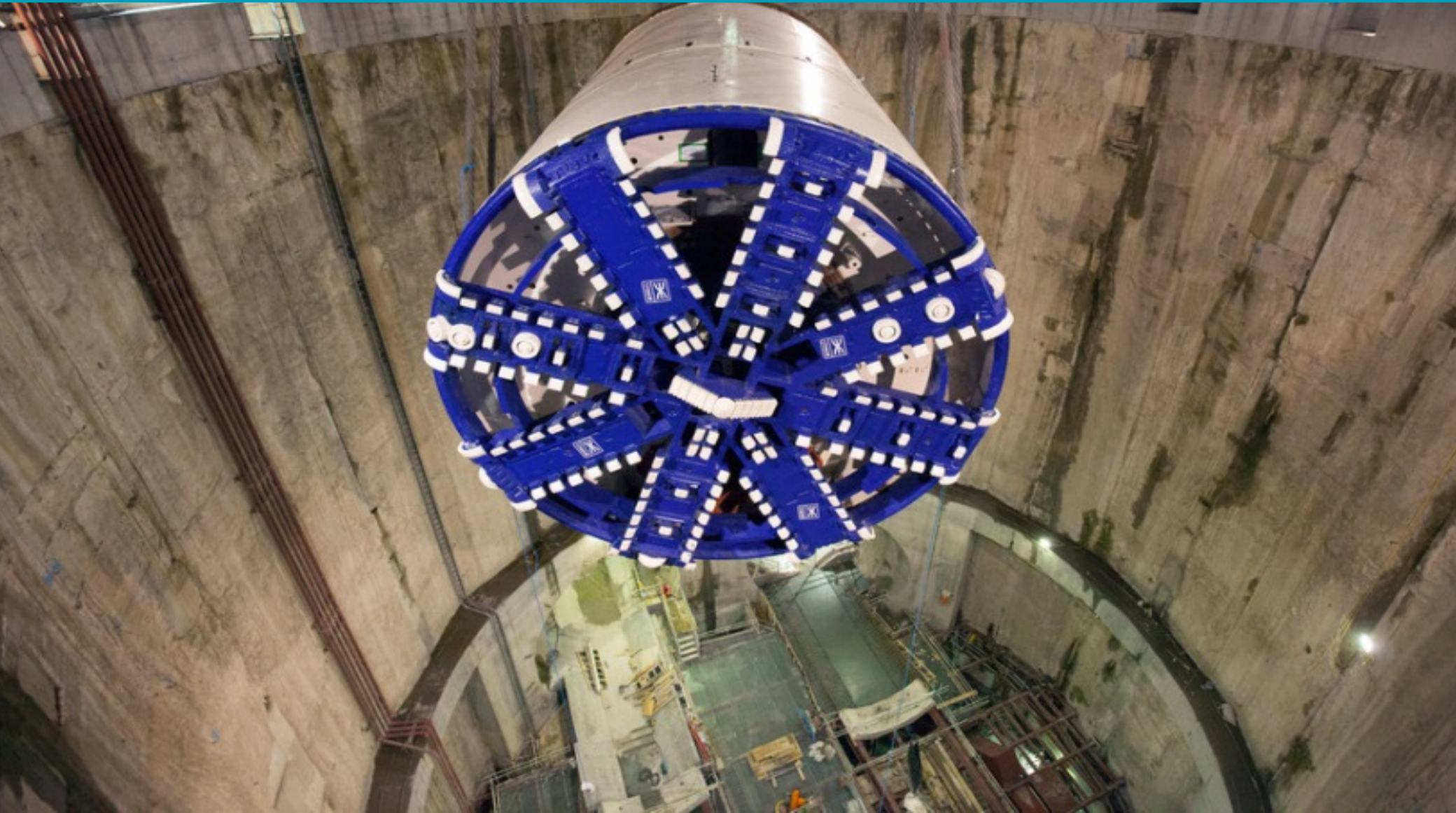
Project Assure – Example Progress



Example Glide Path



LESSONS LEARNT



Applying lessons learnt to the issues

Business case development

Development of the business case is the most critical stage in the development of a major transport infrastructure project. It defines the scope of the project, assesses the transport need and the solution that best satisfies that need, and forms the basis upon which funding is procured. In this formative stage of the project there are numerous strategic decisions that must be taken to define the project. These decisions must be made by addressing key issues associated with the development of the project.

Key issues	Solution	How we can help
<i>How to define the project scope</i>	Clarity on project boundaries including network interfaces	<ul style="list-style-type: none"> ■ Define work breakdown structure supported by scope checklists ■ Resolve interface issues from knowledge capture and lessons learned from previous rail projects
<i>How can we confirm the robustness of capital and life cycle costs?</i>	Global benchmarking of estimated and outturn costs from rail projects	<ul style="list-style-type: none"> ■ Benchmarking against \$multibillion rail projects ■ Forensic analysis of primary cost structure
<i>How to select the optimum procurement/delivery models for testing</i>	Benchmarking procurement models and market consultation with rail supply chain	<ul style="list-style-type: none"> ■ Implementing a structured process for defining client requirements and expectations ■ Objectively analysing against primary options ■ Drafting the project delivery plan
<i>Can affordability be confirmed with confidence?</i>	Risk assessment linked with contingency management	<ul style="list-style-type: none"> ■ Independently checking and assuring the project cost estimate ■ Assessing and pricing project-specific risk ■ Aligning the estimate and the risk plan
<i>Can developer contributions be captured?</i>	Utilising legislative powers to capture development contributions	<ul style="list-style-type: none"> ■ Developing additional funding within the local, national and regulatory framework ■ Implementing process designed to capture private sector contributions to transport schemes ■ Supporting the value proposition against individual contributions

Applying lessons learnt to the issues

Legal and planning powers

No matter where the project is located, before it can be fully developed and implemented, national planning and legal requirements must be met. Wherever possible, the needs of affected stakeholders must be met in a way that delivers value for money and while achieving maximum benefits.

Key issues	Solution	How we can help
<i>Has comprehensive consultation been carried out?</i>	Stakeholder management with supporting document control	<ul style="list-style-type: none"> ■ Implementing stakeholder identification, mapping and profiling ■ Adopting a proven consultation process ■ Carrying out quantitative risk assessment on potential objectors ■ Utilising web-based document and discussion control
<i>Can objections be designed out?</i>	Linking consultation with design development of rail requirement	<ul style="list-style-type: none"> ■ Mapping stakeholder requirements to the design brief ■ Formalising the consultation and sign-off process ■ Managing the design process ■ Implementing formal gateway approval and validation processes
<i>Can protective provisions be captured?</i>	Rigorous document control and established commitments database	<ul style="list-style-type: none"> ■ Implementing web-based document control ■ Develop databases capturing rail scheme obligations
<i>Can the case for the scheme be presented effectively?</i>	Anticipating objections and preparing comprehensive evidence	<ul style="list-style-type: none"> ■ Proactively managing issues registers ■ Evidence preparation and acting as expert witness
<i>How to manage interfaces with major stakeholders, i.e. utilities, highways, other rail operators</i>	Establishment of interface consultation and detailed interface agreements	<ul style="list-style-type: none"> ■ Implementing a proven consultation process ■ Facilitating and managing interface groups ■ Utilising model documents representing previous successful delivery
<i>How to minimise land acquisition</i>	Management of design to define requirements while minimising land take	<ul style="list-style-type: none"> ■ Providing strategic support to the acquisition team ■ Carrying out option appraisals linked to business case

Applying lessons learnt to the issues

Procurement

Selecting a procurement strategy that will deliver the project's benefits in a way that optimises value for money is one of the most critical decisions in the life of a project. The choice reflects the balance of risk transfer that best meets promoter needs whilst providing an incentive towards high levels of performance.

Key issues	Solution	How we can help
<i>Can the project scope be defined?</i>	Clarity of contract responsibilities	<ul style="list-style-type: none"> ■ Creating a framework for individual contracts ■ Providing a delivery processes for each level of the supply chain
<i>How to manage the interface risk between contracts</i>	Definition of interfaces between contracts	<ul style="list-style-type: none"> ■ Adopting lessons learned from previous schemes ■ Developing an interface matrix covering all contracts and each level of the supply chain ■ Developing individual scopes mapped to WBS
<i>Can high performance be incentivised?</i>	Performance monitoring systems that promote good industry practice	<ul style="list-style-type: none"> ■ Drafting and implementing proven payment mechanisms ■ Developing of key performance indicators ■ Adopting proven performance measurement systems
<i>How to deliver quality</i>	Knowledge of standards and codes defining quality standards	<ul style="list-style-type: none"> ■ Using design quality indicators ■ Developing a design reference manual as basis for evaluation
<i>Which procurement model reflects best value transfer of risk?</i>	Comparison of NPV and risk profile of competing models	<ul style="list-style-type: none"> ■ Implementing a proven consultation process ■ Facilitating and managing interface groups ■ Utilising model documents representing previous successful delivery
<i>How to minimise land acquisition</i>	Management of design to define requirements while minimising land take	<ul style="list-style-type: none"> ■ Analysing potential procurement methods using the experience gained through successful delivery

Applying lessons learnt to the issues

'Turner & Townsend has provided important leadership in establishing the cost management, commercial and procurement processes and procedures that will enable us to monitor and control Crossrail. The high-quality Turner & Townsend resources that have been deployed and integrated across our team have been invaluable during Crossrail's evolution to become an effective, delivery-focused organisation. Turner & Townsend's staff have consistently demonstrated high standards of team play and their leadership team has gone out of its way to offer practical, insightful advice on the basis of experience in other industries and with other clients.'

Finance Director, Crossrail

Implementation

During the implementation phase the focus is on achieving the project objectives in a manner that meets the schedule, cost and quality requirements. In doing so control and monitoring measures must be established that protect the ideals upon which the project are based.

Key issues	Solution	How we can help
<i>Can all systems be properly integrated?</i>	Cross package integration and liaison	<ul style="list-style-type: none"> ■ Adopting expertise gained by portfolio and programme management of series of projects ■ Implementing dashboard reporting ■ Designing compatible performance measurement across projects
<i>Can we avoid late delivery?</i>	Programme monitoring and detailed interrogation	<ul style="list-style-type: none"> ■ Implementing project controls for managing integrated project programmes ■ Adopting earned value management
<i>Can utilities diversions be managed effectively?</i>	Joint Utilities Group liaison, defined estimates and interface agreements	<ul style="list-style-type: none"> ■ Adopting successful utilities management principles from diversion works for major rail projects ■ Implementing rigorous contract administration ■ Adopting incentive arrangements that deliver value for money
<i>How will obligations be managed?</i>	Stakeholder management and monitoring of cascaded obligations	<ul style="list-style-type: none"> ■ Implementing stakeholder management as part of integrated project controls ■ Adopting sign-off and close-out procedures ■ Providing assurance and compliance processes
<i>How will affordability be maintained?</i>	Rigorous change control management	<ul style="list-style-type: none"> ■ Providing change control processes as part of integrated project controls ■ Adopting dashboard presentation of risk, change and contingency reporting understood by all

Why Turner & Townsend?

- Providing cost certainty from the outset. We will not let the design or construction proceed unless it is affordable and can be completed to programme. We do this collaboratively with you and the project team. We identify the milestones for option selection to maximise the time you need to take decisions on value for money and schedule certainty
- Intelligently packaging scope and risk to get the best buy from the market. Suppliers are absorbing higher input prices but are still at risk on excess capacity. We use our contracting knowledge and supply chain management skills and knowledge to protect your commercial interests
- Hands-on control of change and costs – a no-surprises approach during the intensive detailed design and production information stages
- Rigorous verification of the contractor's commercial position during construction – through comprehensive interim valuations, on-going due diligence of wider market performance and detailed remeasures where necessary of the progressing final account

“... I was looking for a team... looking for something I felt comfortable with... Turner & Townsend has joined us and become an extension of us. They have their independence which is important to us. They have an edge against which we can test ourselves... But importantly, they look at what needs to be done and work with us in doing it – that is massively important on a big project.”

Bernard Ainsworth, Project Managing Director, London Bridge Quarter Development Team



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