



## A Second Runway for Gatwick Appendix

# A22

### Construction Delivery & Transition

YOUR LONDON AIRPORT  
*Gatwick*



## **Construction Delivery & Transition Gatwick Airport Limited**



This Appendix has been prepared by Gatwick Airport Limited and Turner & Townsend, with input from Bechtel Limited.





12 May 2014

Gatwick Airport Limited  
Destination House  
Gatwick Airport

Attention: GAL Chief Executive

Subject: Gatwick Airport's Second Runway Submission  
Reference: Providing input on Gatwick Airport's submission

Dear Mr Wingate,

You asked us to confirm the ways in which Bechtel has been working with your project team to provide input and comments in support of Gatwick's second runway submission to the Airport Commission. In the context of your team's overall management of the content of the submission, input from Bechtel Limited has been focused in the following areas:

1. Constructability Assessments: input on the construction programme and phasing, which has been developed predominantly by Turner & Townsend
2. Airport Operational Readiness/Transition Planning: input to the Construction Delivery and Transition Report, specifically addressing the transition period from construction into operation
3. Cost Estimate Review: comments on the cost basis and assumptions developed by Turner & Townsend, including input on methodology, benchmarking and scope summaries
4. Contingency Evaluation: working with the Gatwick team to evaluate the various elements of contingency/risk added to the base estimate, including direct contingency, factors tied to the estimate's class or P-rating and contributors to optimism bias
5. PM/CM Delivery Plan: input to a plan for managing key contractors within the context of Gatwick's overall governance arrangements (e.g. contracting strategy, contract administration, technical oversight, manage cost/schedule...etc.), including a perspective on ways to manage delivery and influence reliable performance with regard to cost/schedule
6. Master Plan Peer Review: comments on Arup's draft R2 Master Plan, including input on the executive summary

We have appreciated the opportunity to assist to date and look forward to continuing to do so. We wish you continued success with the Gatwick submission. Please let us know if we can offer further assistance as you advance through the Airport Commission's process.

Very truly yours,

Peter A Dawson  
President  
Bechtel Civil

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1.0 Executive Summary

The Airports Commission has identified four main risk categories within the Delivery module of the Appraisal Framework. These areas of concern are:

1. Planning and construction phase
2. Public engagement
3. Transition
4. Surface access

This section demonstrates how the Gatwick new second runway (R2) Programme will be structured to project manage the 'Delivery', to mitigate risks and capitalise on opportunities, while also supporting Gatwick's Business Plan to 2025.

This Construction Delivery and Transition Report forms part of Gatwick Airport Limited's (Gatwick) submission to the Airport Commission (AC) detailing how it is planned to project manage the construction and transition into operation of a second runway.

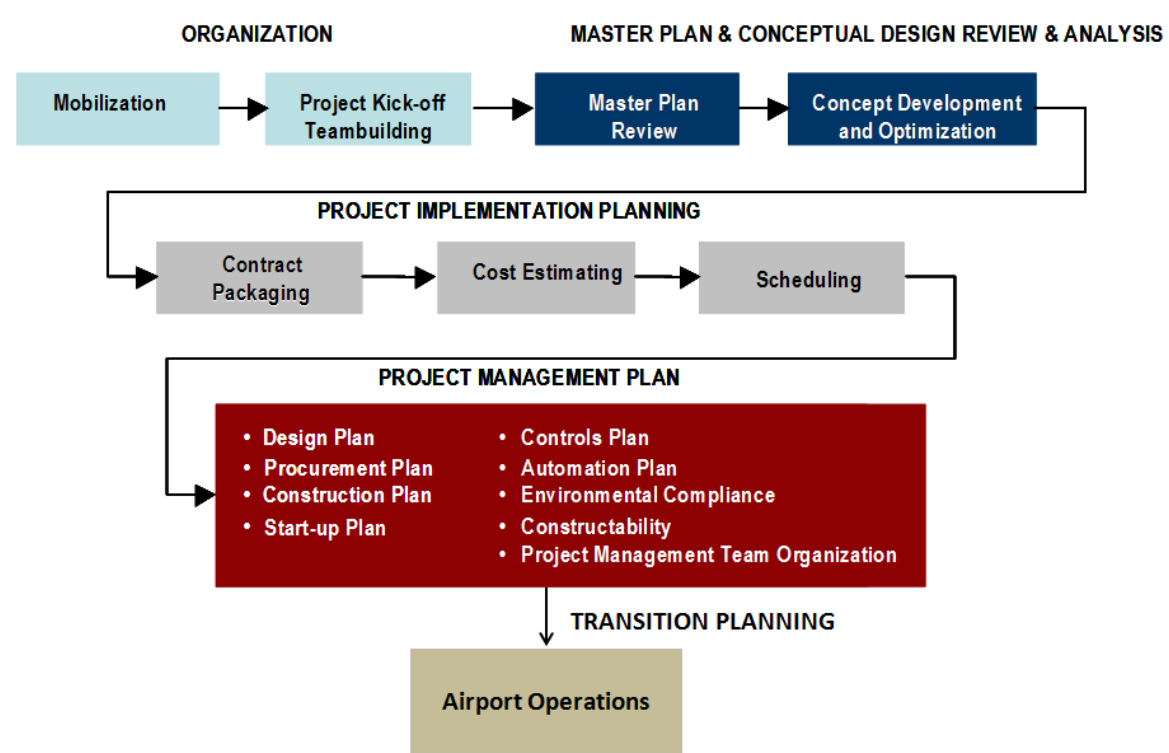


Figure 1.1 Management Action Plan Activities

Gatwick has assembled a dedicated experienced and innovative core team for the purpose of developing its submission for the second runway. It will continue to formalize its structure through pre- planning into construction and operation until the entire Runway 2 (R2) facilities are built and placed in operation. This team will have all the resources, tools, and processes to deliver this program with certainty meeting the quality, safety, cost, and schedule set by the strategy and technical governance.

Gatwick is committed to the highest levels of health and safety and environmental management in its operations and in delivery of construction projects. Through its 'Destination Zero' campaign, certification to OHSAS 18001 and ISO 14001 and the use of targets and monthly reporting, Gatwick continues to improve its health, safety and environmental performance.

Gatwick R2 will be a very important project with an estimated cost of £7 billion and will be one of the largest infrastructure projects undertaken in UK. The project will also be very complex with multiple contractors, subcontractors, vendors and suppliers involved. Managing a project of this size and complexity requires proven processes, procedures and a highly experienced professional team who have successfully completed similar challenging projects. However, Gatwick's Development team has just completed the successful delivery of £1.1B of construction projects between 2008 and 2014 using robust processes and procedures which are certified to ISO 9001 and have an ongoing programme of major construction projects.

Gatwick has high levels of confidence in delivery for this stage of the process driven by the benefits of having a safeguarded site to build within and no major existing infrastructure to reconfigure. We will be constructing the new facilities in a landside site, without impacting the existing airport operations. Equally, the existing airport operation can continue without impacting the progress of the construction activities.

In the following sections of this document, we introduce Gatwick's approach to the project management, describing how we will structure our team and the key project management processes related to the core functions of project delivery as further described in Section 2.1.

The report also includes details of Gatwick's approach to managing the transition from construction, through commissioning, trials and training into full operation. This again is being built on an existing Gatwick procedure for 'Airport Operational Readiness' which has been used during the last capital programme to bring major items of new infrastructure into operation.



## **2.0 Project Management Strategy**

### **2.1 Programme Management Approach**

In this section we introduce Gatwick’s approach to the project management, describing how the team will be structured, and the proposed project management processes.

The structure of this programme management organisation is very flexible and it is intended to change as work is completed or new work is undertaken. Figure 2.1 below reflects the typical transition that would take place from pre-planning stage through construction and operation.



**Figure 2.1 TRANSITION GRAPH**

It is recognised that the alignment and leadership of these multiple work streams will be a critical success factor in driving complexity and risk from the delivery environment. Therefore at the core of the development philosophy will be a programme management approach that will provide organisational concepts and directions and ensure that business objectives are being adequately addressed and the project remains under control. The Executive sponsors provide official backing, support, adequate resources, and promote comprehensive, timely and efficient decision-making.

#### **2.1.1 Project Management Organisation (PMO) functions**

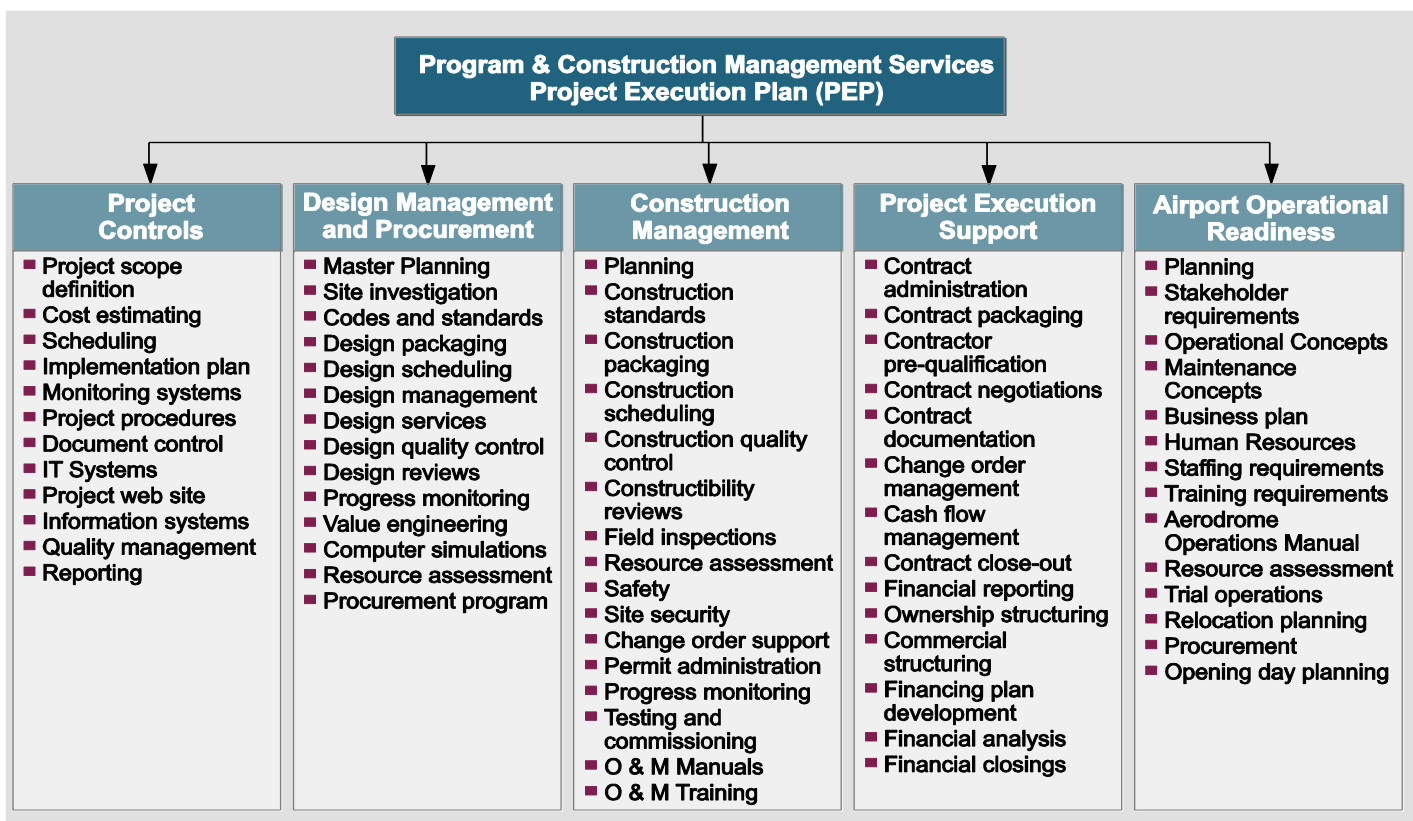
A Project Management Organisation (PMO) will be created to deliver highly effective and proven processes in executing the management of the Gatwick R2 project. Each function will be tailored to specific requirements and will be developed at the beginning of the project by the project management team, covering the following areas;

- Project Controls,
- Design Management,
- Construction Administration,
- Contract Management and Procurement,
- Quality Management,
- Permit & License Management,
- Health, Safety and Environmental Management,



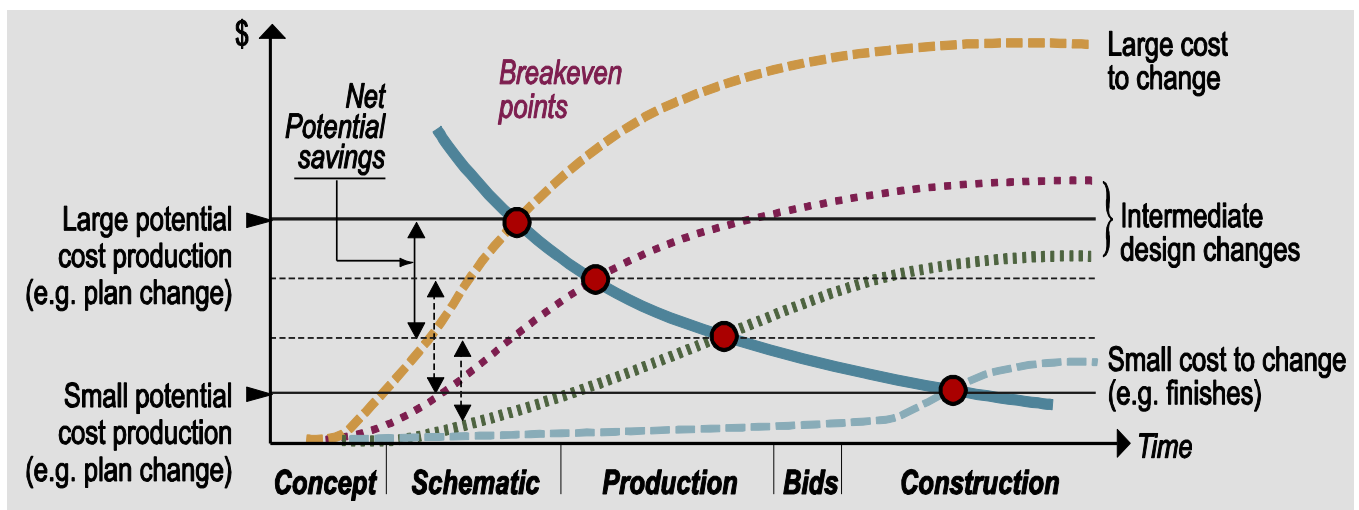
- Stakeholder and Sustainable Development,
- Testing, Commissioning and Airport Operational Readiness (AOR),
- Document and Records Control,
- Automation Software and BIM,
- Risk Management.

As shown in Figure 2.2 below, the best practice approach to project management includes the provision of services throughout all phases of the project consistent with the requirements of the scope of work.



**Figure 2.2** Typical Programme Management Services

Comprehensive project planning is the most important activity in the successful delivery of a project. As shown in Figure 2.3 below, the ability to influence a project's final cost and schedule is greatest at the beginning of the project, and Gatwick has begun planning at this conceptual stage and will continue it through project execution and operational transition. The focus on constructability through to operational readiness provides a structure to the project execution plan that provides a detailed plan for all phases of the project.



**Figure 2.3** Early planning to avoid later cost impacts

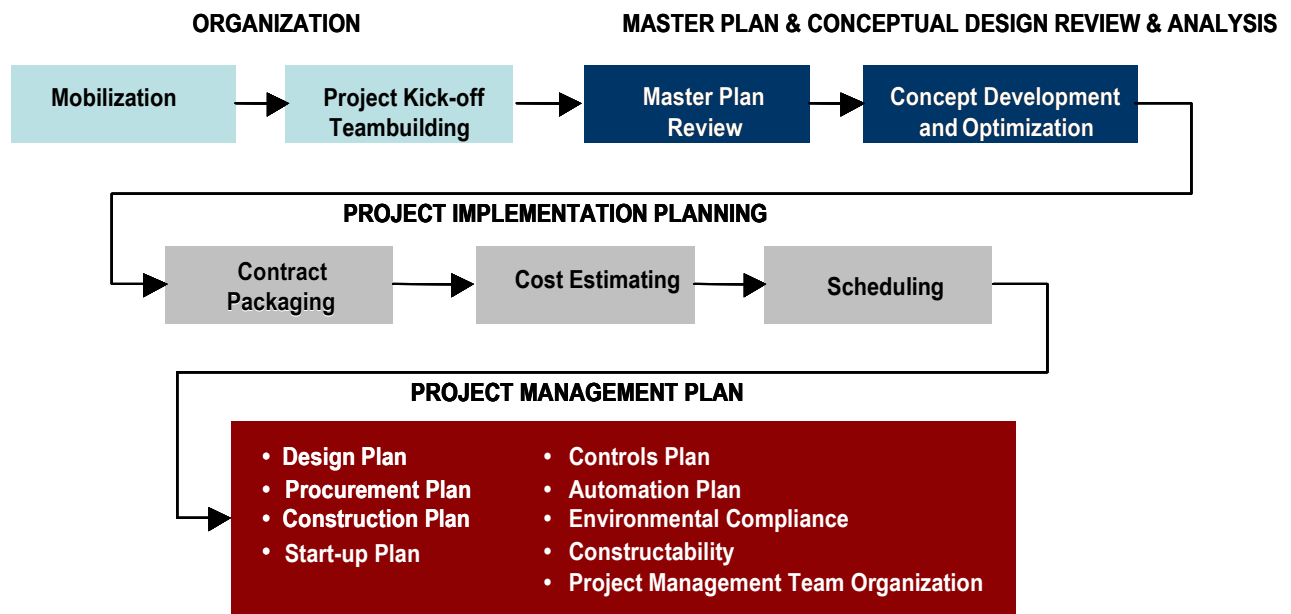
### 2.1.2 Project team integration

Gatwick will co-locate the PMO staff and the project team in suitable offices within the airport boundary. Co-location will provide the project management team with the best opportunity to function as an integrated organisation and will help to achieve the following:

- **Teamwork.** Co-location facilitates open and continuous communications among participants, a clear and consistent sense of purpose, and a common understanding of the project's goals and objectives.
- **Enhanced Customer Participation.** Co-location will allow Gatwick's perspectives related to planning, design, and implementation to be directly communicated to the PMO team to ensure that their efforts match the goals and objectives of the overall project.
- **Continuous Forum for Review and Comment.** Interaction between team members is encouraged to provide an ongoing forum for project review and comment. Thus, the project will have more frequent informal reviews permitting the PMO team to deal with issues as they arise with appropriate decisions, rather than having to await formal reviews.
- **Integration of Knowledge.** Through co-location, the knowledge of the Design Team and any other support consultants is combined to facilitate accessing local information, standards and procedures.
- **Key Stakeholder engagement.** Colocation will facilitate early and effective engagement with business functions, ensuring asset management and business requirements are incorporated into the scheme at the optimum time.

### 2.1.3 Project Implementation Planning

As shown in Figure 2.4, once the master plan and physical planning is further defined, planning for the implementation of the project will be rapidly developed.



**Figure 2.4** PMO Action Plan Activities

Key elements to be undertaken by the PMO during this implementation planning will include the following:

- **Contract Packaging Strategy.** The first step in project implementation planning will be to define all programme elements, and partition design work into discrete design packages to mirror the proposed construction contract tendering strategy. These packages will include one or several systems, facilities, or activities that are interrelated and can be optimised, detailed, drawn, specified, and phased. They will also be broken down by disciplines such as civil, structural, mechanical, electrical, and architectural, and/or by facilities.
- **Design Interface of Packages.** A critical issue for design planning is the definition of common boundaries where two systems meet. This definition will ensure that design efforts are not duplicated and that the project management team has a clear definition of each contractor's responsibility.
- **Construction Packages.** An in-depth review of all design packages will then be undertaken to evaluate and select the best way to organise and separate the work into the most efficient construction packages. These packages may include one or several systems, facilities, or activities, which will be grouped in a logical manner with consideration to relationships and phasing. The systems will be grouped into phased construction packages, eliminating contractor and space interfaces. Interface management is a crucial

focus area. Design interface, Schedule interface and physical work space interface all play a major role in ensuring that the design and work interfaces are coordinated allowing the contractors to install work as per their schedules.

- **Design-Build Packages.** Where the advantages of design-build contracts to provide contractor accountability and achieve schedule reductions are appropriate, design-build contracts will be utilised.
- **Capital and Operating Cost Estimates.** Estimates for capital and operating costs will be derived from the detailed components from the Work Breakdown Structure (WBS). The estimates will serve as a basis for planning and preliminary budgeting.
- **The operation and maintenance cost estimates** will be prepared in basically the same manner as the capital cost estimate, with the cost being divided into identifiable and quantifiable components. Recurrent activities and replacements will be identified to determine the quantity and frequency of replacement costs. A life-cycle analysis of various systems, equipment, and facilities will be performed.
- **A training and transition programme** will also be developed to address any transitions from existing project facilities and the commissioning phase of the new project facilities. This programme will identify the necessary staff, support, and schedule required to accomplish a smooth transition and Airport Operational Readiness (AOR) of facilities and systems – see “Transition Planning & AOR” in Section 9 below.
- **Project Schedules** Detailed project schedules will be prepared to include the major tasks and subtasks required for each phase of the project: design, procurement, construction, commissioning, operational readiness and transition, maintenance and warranty.
- **Project Definition.** A detailed definition of the on-project and off-project facilities (if any) and the manner in which they will be staged will be used to develop a comprehensive and detailed schedule. Project management, technical experts, and procurement specialists will use an integrated scheduling concept that combines the physical developments with the required implementation activities, such as long-lead purchase orders and required governmental actions and approvals.
- **Fast-Tracking.** Once all required implementation activities are identified, fast-track scheduling techniques will be investigated to meet the Client’s start-up objectives. This would involve the phasing or overlapping many critical activities. Construction activities can be scheduled so they coincide or overlap, resulting in the collateral benefits of time compression, capital and financing cost savings, and the opportunity for early revenue generation.

## **2.2 Core Principles**

Gatwick has been delivering and project managing construction projects for many years and has just completed a development programme of £1.1B capital spend in 6 years. This was delivered using best practice programme and project management techniques, with a core of internal Gatwick staff acting as Project Managers. A number of key staff are members of the Association of Project Management (APM) and Gatwick has been working to build stronger relationships with the APM and other professional organisations to assist with the Continuous Professional Development (CPD) of their staff.

The performance of the Gatwick Development & Construction team was evaluated against the P3M3 criteria by Aspire in 2012.

- The rating achieved by Gatwick Airport Limited is exceptionally high. It significantly outperforms the overall average and the transport sector average in the Aspire/Outperform database of over 200 results from across the world,
- The strongest rating is in project management which is a core competence underpinning the service proposition of Gatwick, this result endorses the significant efforts that are being made to achieve excellence,
- Particular strengths include excellent project management, governance and control.
- Areas for improvement have been identified, including the need to formalise stakeholder communications on projects; and tightening up of requirements management to ensure project scope is controlled,
- The programme view methodology for the Q6 development phase requires greater focus on Portfolio and Programme maturity.

The project management principles for delivering R2 will be based on current procedures and processes, but updated to suit the requirements of the R2 project and the organisational structures.

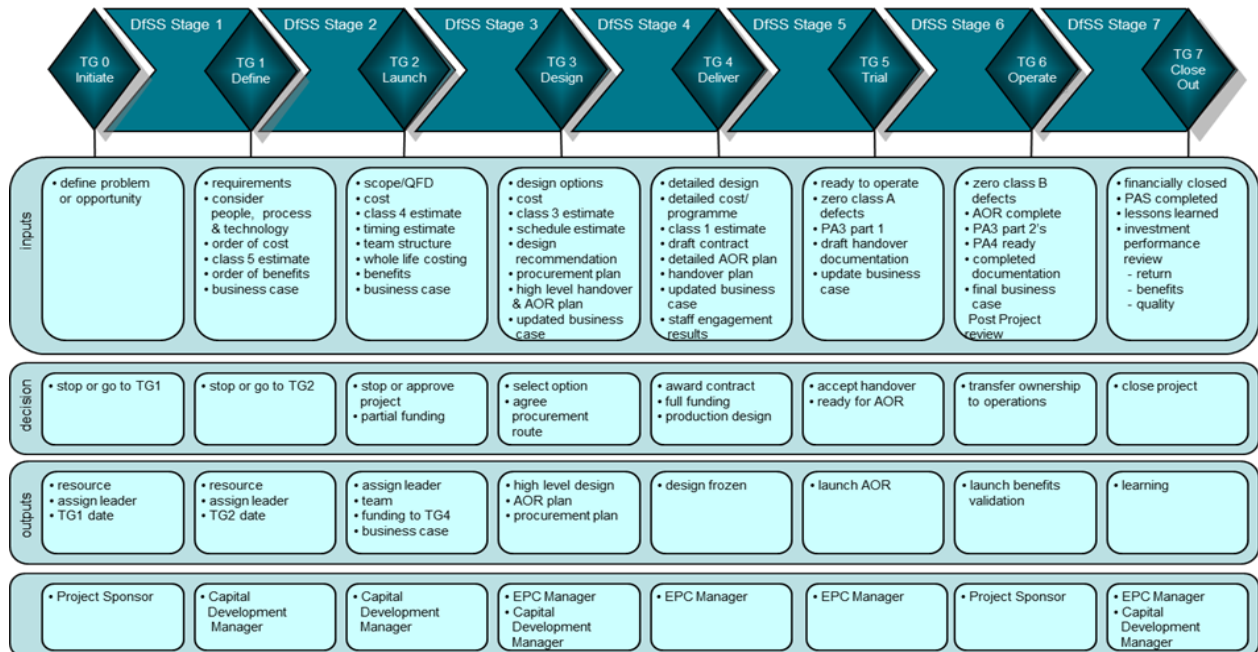
The Gatwick Development Team's processes and procedures are certified to ISO 9001 with 6 monthly surveillance audits measuring performance and continuous improvement of the team.

## **2.3 Strategic Governance**

Gatwick has a mature project governance process and robust and innovative project delivery procedures which were introduced in 2009 following the sale of Gatwick to Global Infrastructure Partnership. These procedures have been subject to a number of improvements and changes to suit the requirements of Gatwick to robustly deliver projects and are certified to ISO 9001. For the R2 project Gatwick would implement Governance and Assurance in accordance with its current 'Project Approvals and Governance Procedure' utilising the existing Design for Six Sigma (DfSS) Tollgate process.

A Tollgate Review Board, with authority delegated by the Executive Management Board, would be set up to manage the projects through the majority of the gateways against set predetermined criteria. At the major gateways, namely Tollgate 2 (commitment to commence design) and

Tollgate 4 (commitment to start construction), the R2 Executive Board would be responsible for managing governance.



**Figure 2.5 DfSS Tollgate process**

In addition to the Governance gateways, projects at Tollgate 2 and Tollgate 4 would be subject to an Assurance Review to using the Construction Industry Institute's (CII) Project Definition Rating Index (PDRI) which provides a health check on the condition of the project at the stage of the project process. This process has again been used at Gatwick to help with the delivery of the recent construction projects.

### 2.3.1 Project and Programme Governance: Gateway Process

With approval for Gatwick to deliver R2, the airport will start an exciting and challenging period of capacity enhancement to meet the increasing passenger demands. This will require high levels of investment and be subject to high levels of engagement from Gatwick's Board and many other stakeholders, such as passengers, the local community, airlines and the Regulator and government. This is further detailed in our Engagement Strategy.

Gatwick has a strong reputation of delivering capital investments, while satisfying the strict governance requirements necessary to ensure reporting transparency to these stakeholders. As such, the existing gateway process for project and process delivery will be reviewed in line with the objectives of the programme and enhanced if and where necessary.

The rationale for applying a gateway process is as follows:

- Gatwick Airport has a high national profile, and the R2 Project will be the most favourable and opportune to local communities and businesses, in Gatwick's recent history. Concise

and visible gateway management of the individual projects within the programme will be essential for Gatwick to demonstrate control and provide high level quality assurance,

- The timescales, budgetary and operational constraints of the development, while not overly complex, require a clear forum for decision-making. The gateway process provides excellent definition of execution planning and informs the decision-making process to ensure more effective delivery of capital projects,
- The numerous stakeholders and interdependencies, such as airport operations, airlines, passengers, the local community and local councils, the Regulator, will all have relevant yet differing requirements. The gateway process creates an audit trail which will demonstrate the management of stakeholder engagement and requirements, throughout the delivery of the projects,
- Gatwick will comply with Government financing agreements and promote the Government's 2025 vision for the industry. The gateway process will provide Gatwick with a mechanism for control of funding approvals and promotion of the values needed to drive performance improvement.

The deployment of Gatwick's DfSS Tollgate Process will endorse the following key principles;

- A controlled, methodical approach to delivery,
- Planning and execution in manageable chunks,
- Use of multi-disciplinary teams and effective communication,
- Encourages creativity and innovation,
- Effective use of tools and techniques,
- Consensus decision making,
- Achievement of goals.

### **2.3.2 Funding and Financial Management**

Overall control of funding and the reporting of work streams progress will remain with the Programme Management Board. Requests will be made by Programme Leaders or their delegated representatives (Project Managers), in accordance with a predefined calendar of Programme Board dates.

The Project Management Office (PMO) will provide the necessary technical support in generating reports. Programme & Project procedures will put financial control at the heart of delivery. All work will be tracked against budget, sanction and forecast in a manner that enables early intervention to mitigate performance issues

### **2.3.3 Levels of Delegated Authority and Financial Control**

Levels of delegated authority would be determined at the start of the programme starting at the Executive Management Board, through Project Boards and down to the Project Managers. This will be in accordance with the Gatwick Policy for Delegated Financial Authority (DFA). The levels of DFA will be agreed for R2 according to the organisation structure and to meet the requirements of the delivery programme.



Financial control would be set up with different levels of expenditure requiring different sign off working in accordance with the Budget Change Control Procedure. Expenditure will be reported on a monthly basis in an agreed format at monthly project review meetings against the predicted spend profile, with the causes for variations being clearly highlighted.

3.0 Organisational Structure

3.1 Programme Board & Delivery Organisation

The structure of the Programme Management Board will be confirmed by Gatwick Airport Limited following the outcome Airports Commission decision and agreement of the National Policy Statement. In order to support the core principles referenced in section 2.1, the board will consist of a representative of the Programme Sponsor, Finance, Operations, Health, Safety and Environment, Information Technology and the R2 Programme Director. This management group will report directly to Gatwick’s Chief Executives’ Office, as shown in Figure 3.1 below.

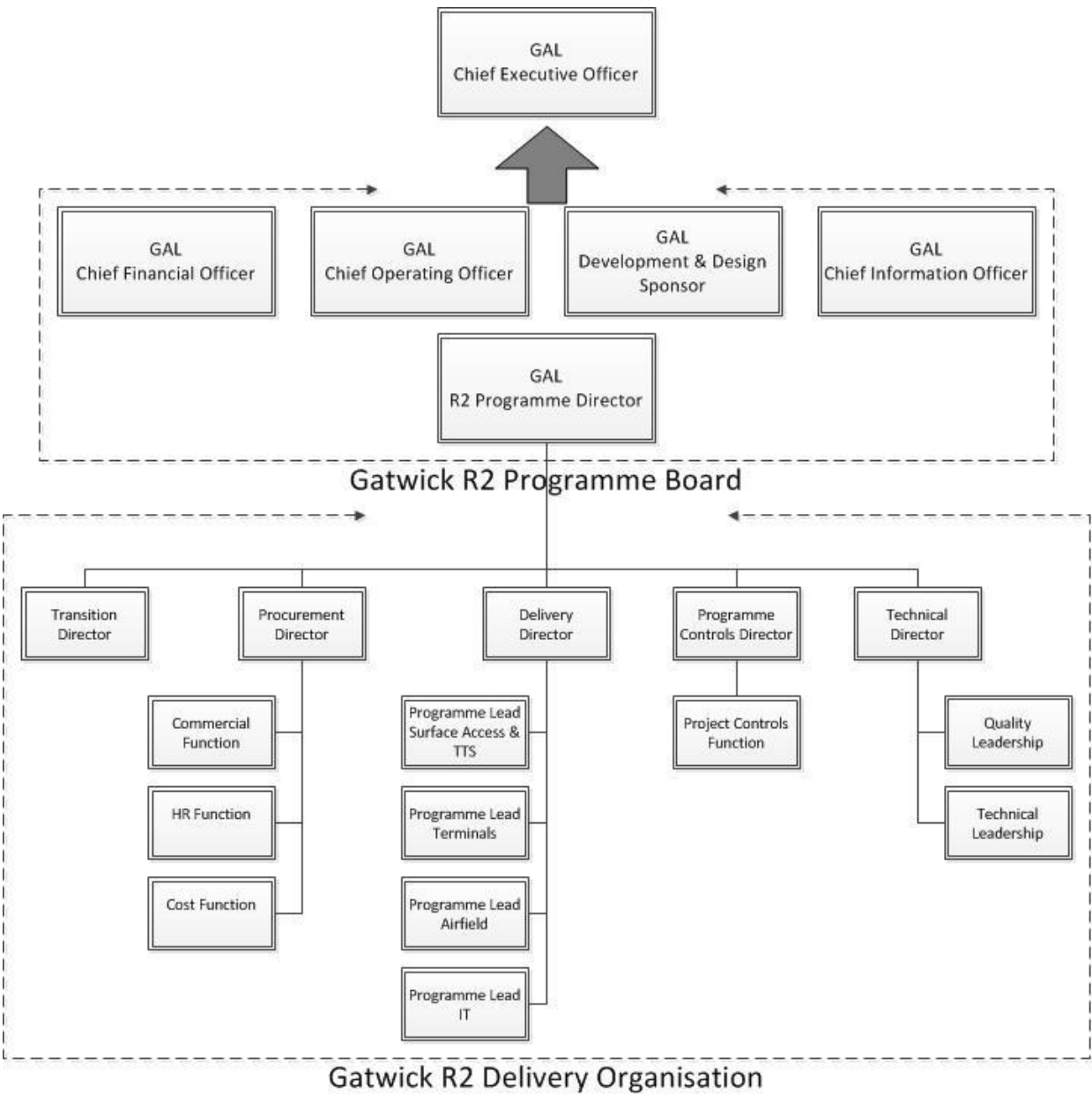


Figure 3.1 Gatwick R2 Delivery Organisation

3.2 Organisation - Up to Planning Consent

The initial mobilisation during the planning phase of the work will be critical to the overall success, and will involve the appointment and mobilisation of the PMO team, as described in Section 2 above. This will create an integrated Project delivery team focused on managing the delivery of this project, and who will fit within the framework of the Programme.

3.2.1 Organisation structure and relationships

The complexity of this project requires multi-functional integrated delivery teams led by project managers to deliver optimised solutions. The integrated delivery teams will include Gatwick staff, PMO staff and supply chain partners for design, construction and implementation. This would be a matrix organisation that fits with the programme organisation, as it provides the flexibility to allocate people to projects as the overall project moves through each phase.

3.2.2 Roles and functions

Within the PMO delivery organisation, it is anticipated that there will be strong discipline leads who will be responsible for cascading and maintaining compliance with the strategy, processes and procedures from the programme team to the project teams. They will manage the integration of data for reporting to the project and the programme. There will also be strong area directors with extensive experience who will be accountable for managing the delivery of the works packages for all stages of the project. These area directors will have strong leadership skills and will be accountable for all stages of delivery.

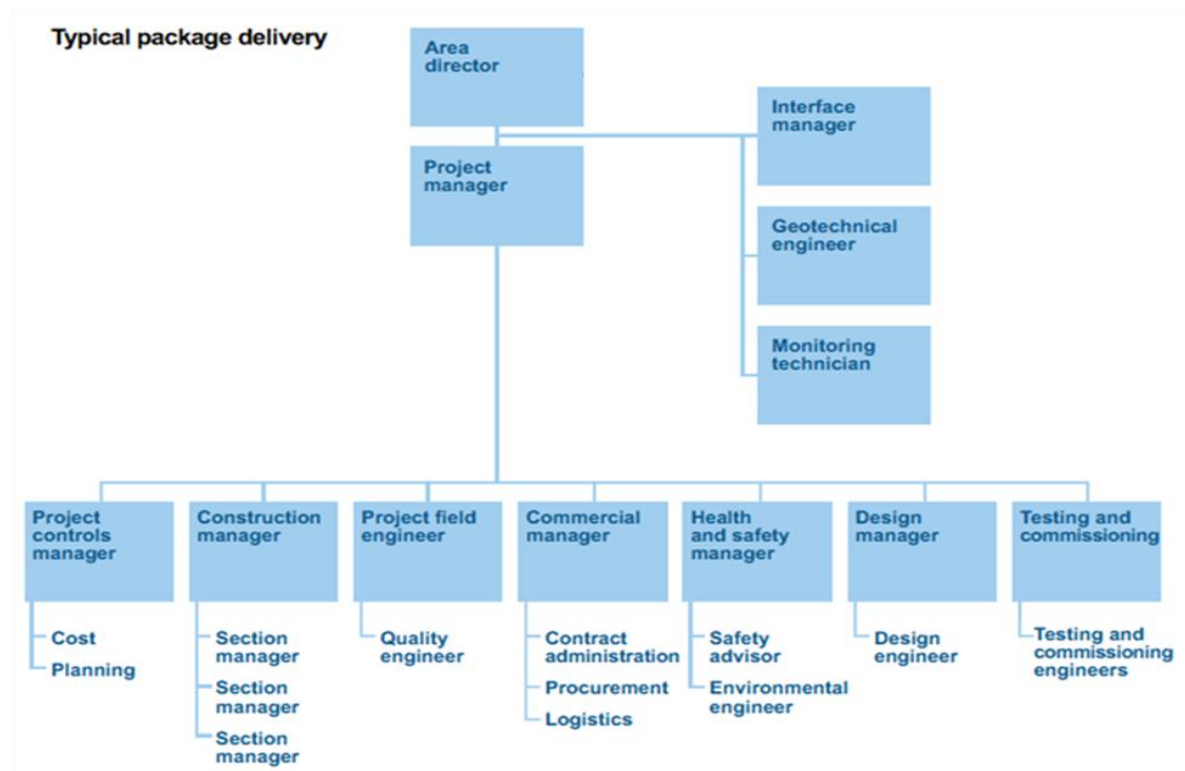


Figure 3.2 Typical PMO package delivery team

The project managers, depending on the phase of the project, will have staff allocated to them from the disciplines that are within the integrated project delivery team, and other specialists as required. Each employee working within a project team will account to the area director for day-to-day performance to deliver safely, to quality, scope, cost and schedule objectives.

The matrix organisation allows the flexibility for the project to evolve, as the area directors are able to maintain consistency across transitions. We believe that the overall structure will remain similar over the life of the project, whereas the number of staff and their skills will vary at each stage.

### **3.2.3 Mobilisation**

An efficient and effective mobilisation of the PMO is essential, and during this planning consent phase the core members of the team would be mobilised, together with the following functions;

- Design Consultant: required to commence design works to support detailed planning applications,
- Construction: a number of select construction personnel would be mobilized at this early stage to commence detailed planning and logistics, and to participate in early sequencing and constructability reviews, as well as scoping of early works packages,
- Contracts and Procurement: C&P staff would be required to commence contract formation for early enabling works and other consultancy and services contracts.

During the initial months, the team will be focused on setting up the project management organisation and working with this team to develop the project execution plan. The discipline leads will work with the programme team to build on their understanding of the existing strategy, standards and process. Where required, they will assist the programme team with project specific information used to set strategy and define standard work process and information flows. The discipline leads will then pass the strategies, standards, work processes and procedures down to the project teams. Discipline leads, project managers and the area directors will work together to make sure there is a common understanding of the baseline (scope, budget and schedule). Once the baseline is understood, the organisation will set up control points and work to identify opportunities for improvement. The project manager will lead on delivering on the opportunities for improvement within the specific work packages.

## **3.3 Organisation - Up to Construction**

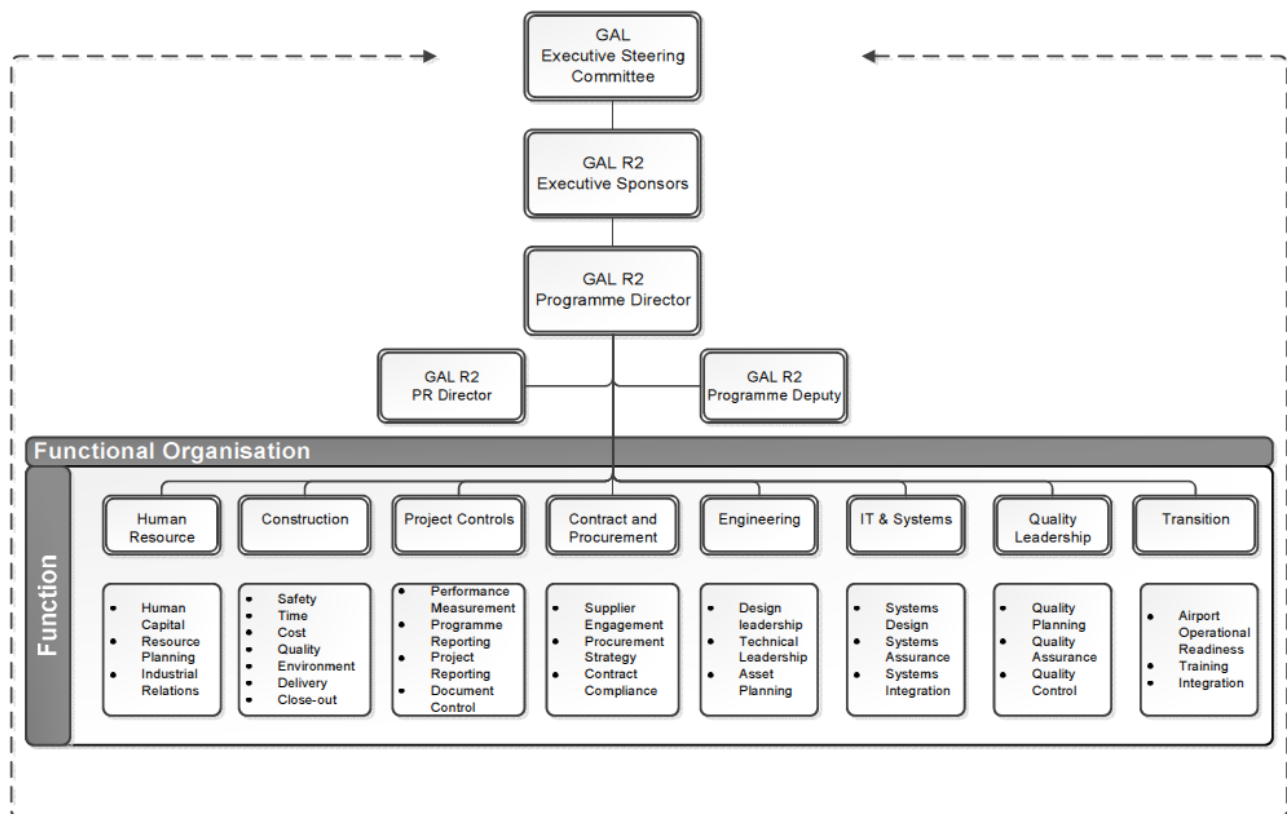
In this phase of the project development there will be considerable activity in advance of the main construction packages being commenced. During this phase there will be the following main activities being undertaken;

- land acquisition works,
- early contractor involvement,
- enabling works packages
- detailed design and letting of outstanding design packages,
- sustainability and environmental baseline monitoring,
- contract formation and execution,

## Gatwick Airport Limited Construction Delivery & Transition

- finalising cost and schedule controls and reporting requirements,
- setting up the project management system and procedures and processes to measure and manage the main construction phase of the works in progress,

At this stage almost all of the functions from the PMO organisation will be mobilised to the project, although not in the total numbers required during construction delivery phase, and the organisation is expected to be reflective of that shown in Figure 3.3 below.



**Figure 3.3** Gatwick and PMO Functional Organisation Chart

The Gatwick engineering team will work closely with the programme engineering team to deliver optimum solutions for the project – as noted previously, this is the key opportunity to achieve best value, maximise functionality and increase the ability to construct safely in the design phase. Therefore it is important that the design takes into account construction, commercial, health, safety, quality and environment (HSQE), sustainability, cost and schedule. To promote integrated design delivery, the area directors will manage the overall delivery of the design, using multi-functional teams, while the engineering discipline will oversee the integration of the design and certify compliance with the specification and standards.

### **3.4 Organisation - In Construction**

As the project moves into the Construction phase, a number of significant early works and construction contracts will now begin on site. This increase in activity will result in a ramp up of the project staff and the full complement of functions shown in Figure 3.3 above will be mobilised on the project. At this stage, information management is key to having the right data to make timely decisions and detailed discussions will take place to establish an information management strategy and management framework process. Gatwick currently uses a Documentum based information management systems and initial discussion will be around its suitability to be used for R2 and if any alterations are required. Effective information management will greatly assist in mitigating project risk and extensive knowledge of programme management information systems will be drawn on from other major infrastructure projects and Clients.

### **3.5 Organisation - During Transition and Operation**

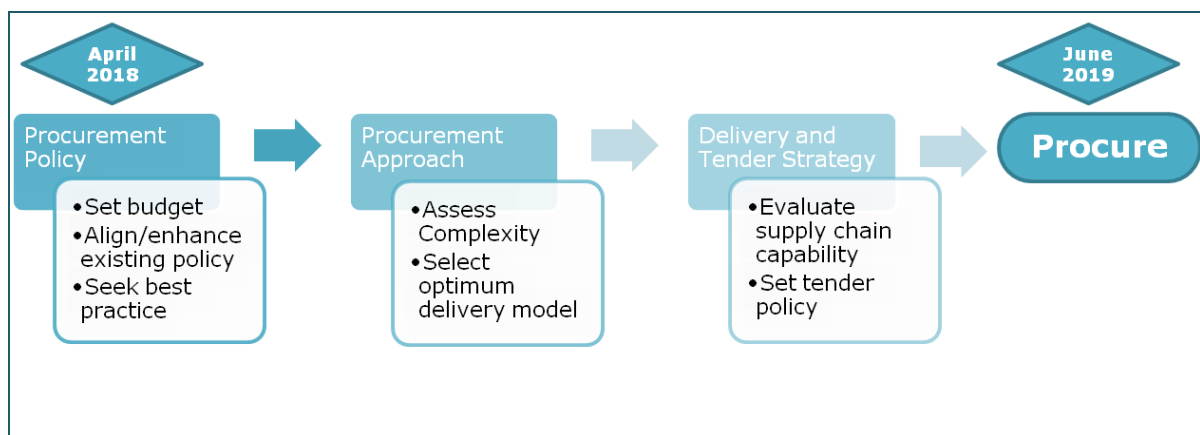
The delivery organisation required for this phase of work, as the project transitions into testing, commissioning, training, Airport Operational Readiness (AOR) and ultimately into normal operation, is further described in Section 9. The phased programme foresees concurrent construction, transition and operational readiness activities and where possible, staffing will be provided in-house by Gatwick. In other circumstances, where specialist knowledge or additional assistance is required due to increased workloads, temporary and/or supplementary staff may be engaged. Human resource requirements will be reviewed to ensure the most appropriate and cost effective solution to staffing is identified and implemented, in accordance to the phased approach to the works. Where personnel have acquired specific skills and knowledge, these will be purposefully transferred to the new phases of the works.

## **4.0 Procurement Approach**

### **4.1 Objectives Programme Approach**

Gatwick Airport Limited has an established approach to procuring major projects and programmes with considerable experience having been gained through delivering £1.1B of capital construction projects in the Q5 Business Case, between 2008 and 2014. In line with the drivers established in delivering the Q5 Business Case, the R2 programme will have at its core the following, and as shown in Figure 4.1 below:

- Being an Intelligent Client by facilitating the success of appointed delivery partners,
- Maintaining ultimate commitment to transparency in relations with its stakeholders,
- Early engagement of future asset operators to ensure design is right first time,
- Seeking to continuously improve programme performance and value for money,
- To champion best industry practice throughout the procurement process,
- To champion continuous improvement by reviewing of lessons learnt and incorporating these into programme practices; and by monitoring the industry for process improvements and material and plant developments.



**Figure 4.1 Procurement timeline**

In accordance with the programme delivery schedule, Gatwick will seek to commence procurement activities for the R2 Programme in April 2018, following the submission of the Development Consent Order (DCO) for planning consideration.

Initial activity will focus on the development and ratification of the R2 Procurement Policy. This will include the evaluation of fitness-for-purpose of the existing Gatwick capital procurement policies, the enhancement of these in accordance with the aims and objectives of the programme, and the establishment of a new R2-specific procurement policy statement.

Gatwick recognises the need to drive behavioural change in the procurement of major UK construction projects and programmes in order to achieve greater efficiencies and higher levels of service for its customers, and therefore in line with the recommendations of Infrastructure UK,



will then enter into a period of complexity assessment to ensure selection of the optimal delivery model.

This supports the work of HM Treasury and Infrastructure UK, in addition to Government's 2025 vision for the construction industry and it is Gatwick's intention that through the procurement of the R2 programme it seizes the opportunity to positively influence current and future construction clients.

Once an optimal delivery and tender strategy has been selected, the PMO will seek to engage with delivery organisations in June of 2019 to enable a start-on-site in June of 2021.

#### **4.1.1 Procurement Objectives**

The following key areas have been identified by Gatwick as Critical Success Factors to the successful delivery of the programme:

- Collaborative working,
- Appropriate allocation of risk,
- Incentivisation of the supply chain at first and second tier level,
- Application of supply chain performance management.

In line with these, Gatwick's procurement of the R2 programme will be guided by the following objectives;

- **Deliver Value**  
Achieve best affordable value in delivering the benefits identified in the business case, seeking opportunities for efficiency and economies of scale across the programme by working with the best delivery partners in the industry,
- **Effective Governance and Control**  
Conduct procurement activities in a manner that satisfies the requirements of accountability and internal control, fulfils Gatwick's legal obligations, complies with financial constraints and effectively manages commercial risk,
- **Promote Standardised Approaches**  
Provide and enforce effective, efficient and consistent commercial arrangements for procuring works, products and services of a common nature,
- **Create Effective Supplier Relationships**  
Recognise that in order to achieve best affordable value appropriate relationships must be developed and maintained with suppliers and their supply chains.

To achieve the programme, the PMO will structure the Forms of Contract to best suit the procurement objectives and route. The specific contract option for individual projects within the programme will be selected and justified through an individual procurement plan process.

#### **4.1.2 Procurement Route**

The work of Infrastructure UK recognises the benefit in carrying out complexity analysis of the programme delivery environment, organisation and associated pipeline in order to select the appropriate procurement model. In addition to this, it is recognised that the capability of the

sponsor, asset management approach, delivery client and the supply chain will have a critical influence on the successful achievement of the programme objectives.

In combination, carrying out these assessments will assist in ensuring that the selection of the procurement strategy is made with full understanding of the risks and opportunities that may affect successful delivery. To align to these hypotheses Gatwick will implement the following process to take the organisation from inception to the tendering and procurement of the main contracts:

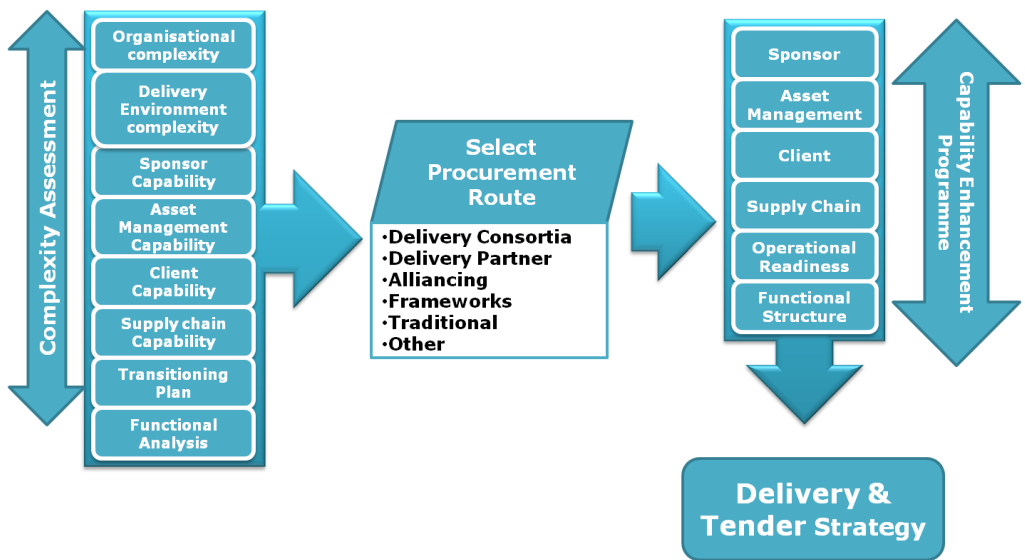


Figure 4.2 Selection of Procurement Model

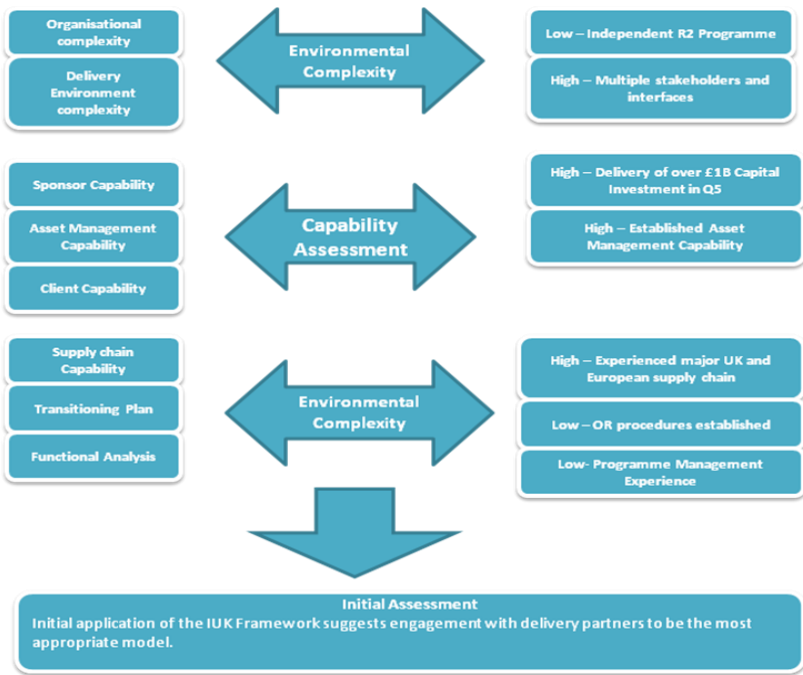
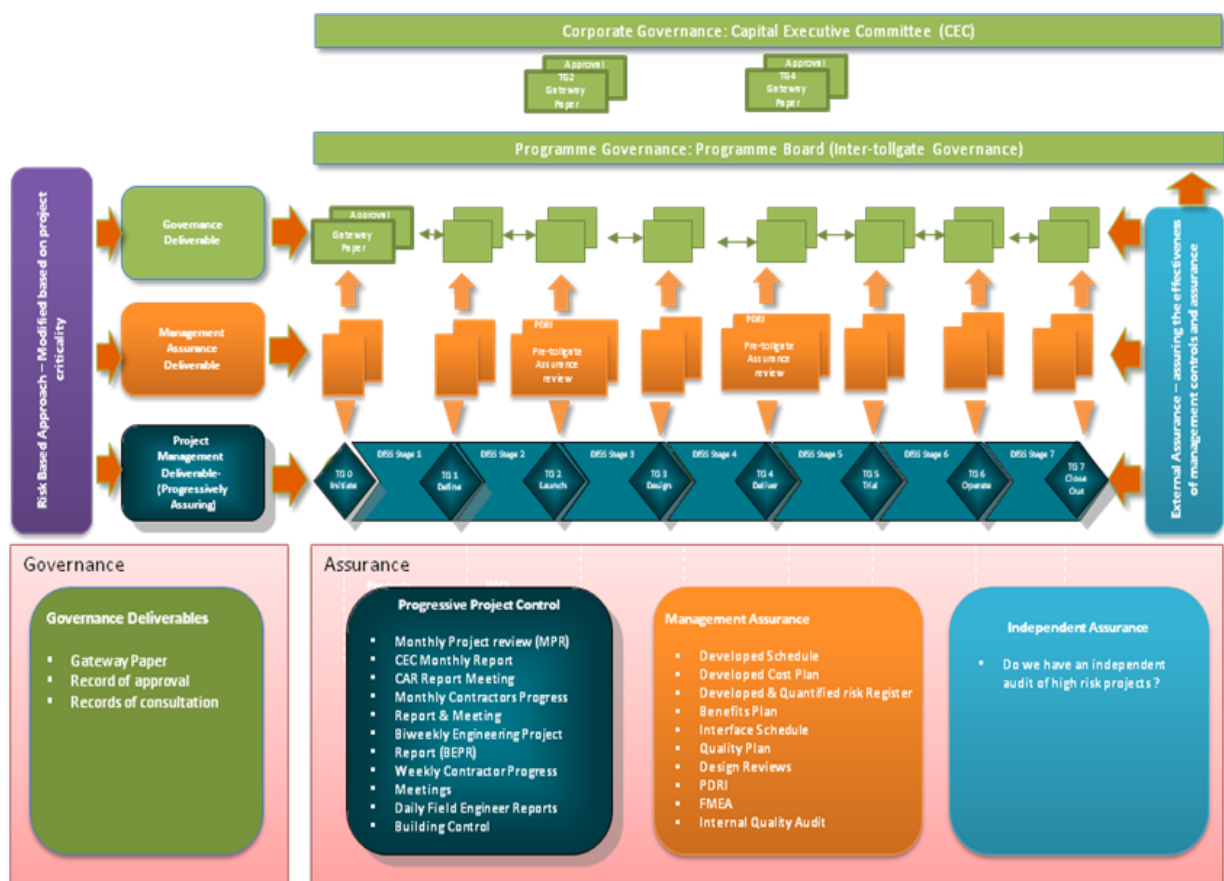


Figure 4.3 Initial Assessment of Procurement Model

### 4.1.3 Governance Assurance Process

Gatwick Airport Limited has established a project and programme governance process that enables authority to be delegated to the individuals accountable and responsible for delivery of the business case and project/programme execution. As the business transitions into the next Capital Development period, these processes will be subject to review and enhancement to ensure greater benefits are derived from their application on the R2 programme.

The following diagram illustrates the proposed Programme Governance and Assurance process framework that will be utilised for the R2 programme, aligned to Gatwick Airport's existing DFSS Tollgate process:



**Figure 4.4** Programme Governance and Assurance process

### 4.1.4 Budget & Cost Controls

The a central function of the Programme Management Organisation (PMO) will have the overall control of funding and on-going control of work streams in accordance with a defined delegation of financial authority. The following principles will be followed to ensure effective control the programme.

#### Baseline Preparation

A Cost Plan has been created for this submission and this forms the basis of the initial baseline cost.

However, there are 5 discrete elements to a baseline:

- Cost
- Scope
- Schedule
- Execution Plan
- Contract Terms and Conditions

Scope, schedule, execution plan, contract terms and conditions all have an influence on costs. Therefore to ensure alignment of all 5 elements of the baseline, an intense baseline review will take place immediately upon programme commencement. Any amendments to the current conceptual estimate will be incorporated and approvals sought before performing an estimate-to-budget conversion. This translates the estimate in to the various codes of account that will be used to manage the programme going forward.

### **Cost Accounts**

While the cost estimate structure included in the submission forms the initial baseline it is insufficient to manage the programme. However, such a structure allows slicing and analysis of the data in one dimension – that of the Work Breakdown Structure (WBS). The PMO's approach will be to add further dimensions to this – primarily an Organisational Breakdown Structure, or OBS. Where the WBS and OBS intersect becomes a control account. In this way a roll up costs becomes straightforward, either by scope (WBS) or by responsibility (OBS), or, indeed, by a further dimension (e.g. geographically – a location breakdown structure). Notwithstanding this, it is also important to recognize that the level of sophistication the structure needs to be appropriate to the level of effort that is expected to be deployed.

Within each control account, a coding structure will be adopted such that similar commodities can be analysed, compared and benchmarked. Such a coding structure may be industry-standard (e.g. CSI Masterformat®), Gatwick's own Standard Code of Accounts, amongst others.

Getting the system set up in this way from the start of the programme pays dividends during execution, where fast access to correctly categorized data is essential in order to process change, assess claims, estimate new scope and forecast outturn costs.

### **Forecast Preparation and Trends**

Forecasts, updates to the baseline, are undertaken periodically and seek to capture such things as: new and updated information; scope changes; contingency re-assessments; design development; and changes to other assumptions made in prior forecasts or the baseline.

While the techniques adopted in preparing project forecasts are similar to other areas of estimating, the key is in the reconciliation – understanding and documenting what has changed. Comprehensive reconciliation between forecasts provides clarity to all project stakeholders, allowing everybody to recognize the changes and adapt accordingly. A key enabler of robust forecast preparation is to use a structured Trend Programme.

A Trend Programme is an early warning and change processing system that makes a real difference in managing outturn costs. A trend is simply a “container” for a potential change to any of the 4 baseline elements – scope, schedule, execution strategy, or contract terms and conditions, that impact the 5th – cost.

Once a trend is raised, it is logged, estimated (order-of-magnitude) and then forms part of a regular trend meeting. Here, mitigating actions are agreed to either mitigate the cost of positive cost Trends, maximize the benefit from negative cost Trends, and firm up the value of the Trend. Alternatively, if the Trend is discretionary (for example, preferential new scope), it may be approved or rejected.

Only when mitigation actions have been implemented would a trend be approved, giving authorization for the responsible organisation to execute the work. This rigorous, structured approach to cost management sits at the heart of an advanced Cost Control programme.

### **Estimates for Bid Comparison**

During package tendering it is important to establish a benchmark position with which to base the tender analysis on. The preparation of estimates priced on the same Bills Of Quantities (BOQs) that the tenderers work to is essential. Bid tabs can be used for this purpose, wherein the individual lines of each bidder’s BOQ are aligned on one table, and analysed side-by-side.

The detailed bid estimates can then be used to understand the basis of the numbers, such that deviations between tenders can be analysed objectively during the evaluation period. Further, ratio analysis of the various parts of the bid is considered, to determine any significant shifting of, or omission of, cost, which may be an indicator of problems during execution. The aim is to resolve such issues prior to award.

### **Progress Measurement and Earned Value Management (EVM)**

The PMO will measure actual progress and expenditure based on installed quantities, expended job hours, equipment utilised and materials consumed. By relating these parameters by account code actual progress and performance can be compared to the budget.

The PMO’s Earned Value Management (EVM) system will produce timely and periodic reports based on the physical per cent achieved measured against the baseline budgeted cost.

### **Cost Reports – Bringing It All Together**

The PMO will use an integrated cost control system brings the various parts together in a Cost Report. Typical summary data in a report will include the following, by WBS, OBS or both:

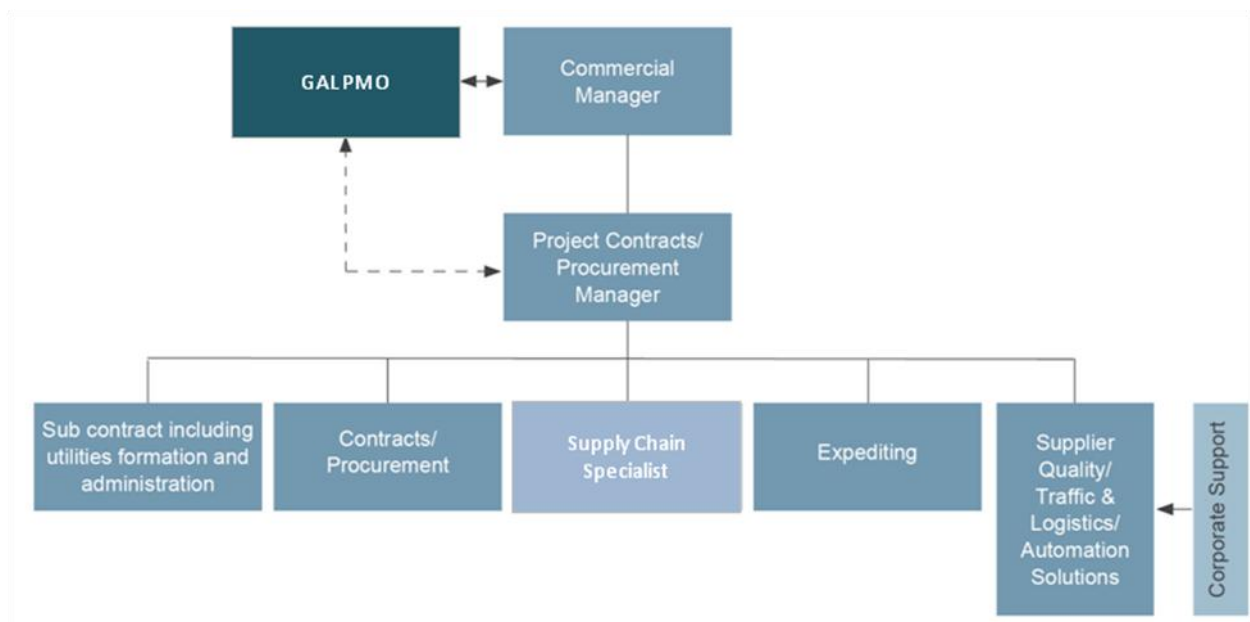
- Original Budget (OB),
- Current Budget (CB): OB plus all new scope authorized,
- Current Forecast (CF): CB plus all approved Trends,
- Trend Forecast (TF): CF plus all unapproved Trends,
- Current Commitment: (CC) Value of all contractual commitments made,
- Actual Cost (AC): value of all payments certified,
- Earned Value (EV): value of earned progress,
- Contingency usage, retentions, and current status.

Because of the hierarchical nature of the Control Accounts and the consistent Code of Accounts, drilling down and summarizing up information is simple and quick, allowing more time for analysis.

## **4.1.2 Procurement Execution strategy**

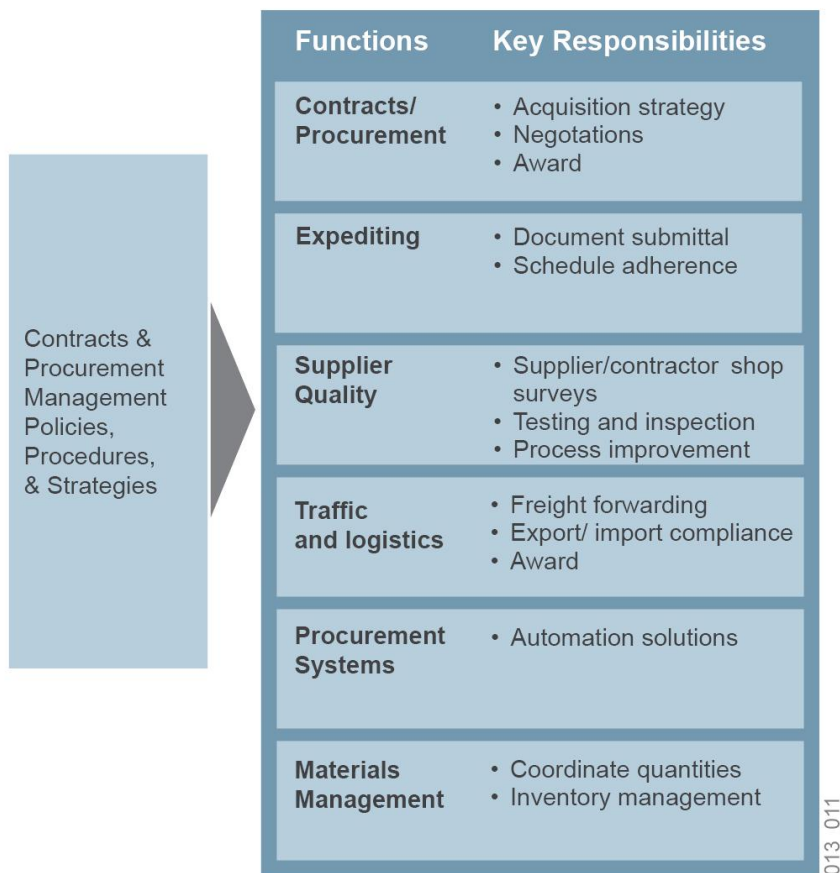
### **4.1.2.1 Organisation and responsibilities**

An integrated Contracts and Procurement team will be formed to use resources from within its specialist areas to best support the management of the supply chain. The team will combine project-based individuals and support from Gatwick's procurement function, as and when required to meet the project needs. A typical high level overview of the team is shown below in Figure 4.51 below.



**Figure 4.5** Contracts & Procurement organisation chart with integrated team

The involvement of each function is required to execute a project from the beginning to its completion and close out. The functions perform specific tasks and are interdependent throughout the lifecycle of the project, and the key activities are shown in Figure 4.6 below.



**Figure 4.6** Functions and key responsibilities within Contracts and Procurement

#### **4.1.2.2 Procurement KPIs and Milestones**

The Gatwick R2 team's approach to providing measureable and auditable information to satisfy its own and external procurement requirements will be to report a mixture of standard performance metrics within each function and those specific to the project requirements. These metrics will build on traditional procurement measures, adding those specific to R2 including local employment and procurement, apprenticeship schemes, sustainable travel etc. The frequency and reporting format will be agreed prior to the start of the project, and some examples of areas that could be covered are listed below:

- Progress of Contractor and/or Supplier agreements,
- Delivery of key equipment/completion of key subcontracts,
- Supplier/Contractor prequalification and audits,
- Standard metrics such as negotiated and eAuction savings, on-time delivery, quality and management safety issues,
- Ethical sourcing,
- Fair employment, - refer to Housing & Employment Strategy
- Apprenticeship Schemes – Link to Mitigation Strategy



- Supplier participation in the Diversity Works for London scheme,
- Welfare provision for the workforce,
- Benefits to the community Including local employment
- Contractor access methods – refer to the Surface Access Strategy

#### **4.1.2.3 Information Sharing**

Reporting and sharing of information are essential to the success of any project. A typical communication structure, which enables open and frequent dialogue with key stakeholders, is shown in Figure 4.7 below.



**Figure 4.7** Examples and benefits of data flow between Gatwick and key stakeholders

#### **4.1.2.4 Tools, processes and procedures**

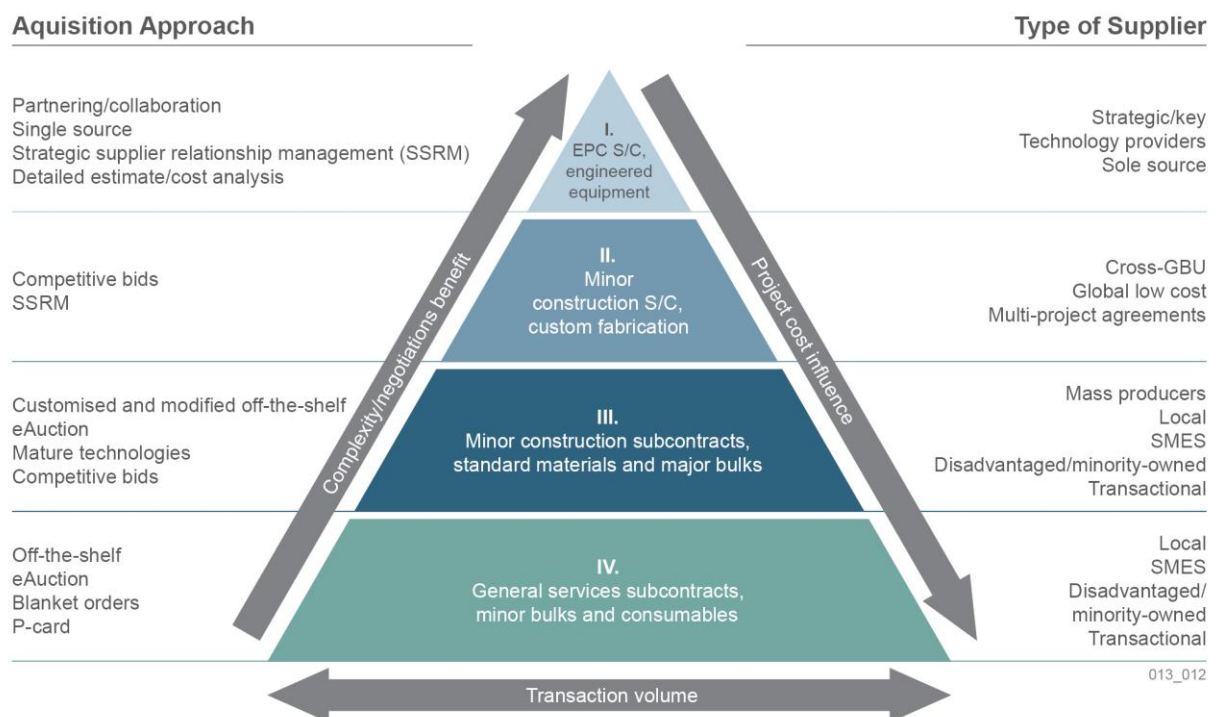
There are extensive tools available in typically used procurement system to gather large amounts of performance data. These systems provide integrated automation tools for supply chain optimisation and materials management tailored for the engineering and construction industry. Its functionality spans from materials requirements planning through the issuance of material to construction in the field and it plays an important role in eProcurement capability.

The strength is to use these standard tools, policies, procedures and processes as a basis and customising them to meet the specific requirements of each customer and project. Each project is

unique however, this underlying standardisation improves quality, consistency, security of data and timely development of project-specific supply chain procedures to support rapid project mobilisation.

The R2 project will employ competitive procurement where possible, to source goods and services at the right prices, quality and schedule while also encouraging the use of local, small and medium sized enterprises (SMEs), disadvantaged and minority-owned businesses to foster a diverse supply base.

Gatwick R2 team's acquisition approach will apply the most appropriate strategy to each type of equipment or services. This approach is applicable across all industries and flowed down to each project. The typical categorisation and differing approaches are shown in Figure 4.8 below.



**Figure 4.8** Categorisation of goods/services with applicable acquisition approaches

#### 4.1.2.5 Responsible Procurement (RP)

Gatwick's supply chain procurement policy is to act ethically and treat all parties fairly and equally and procure in a sustainable and environmentally friendly manner.

The team will incorporate these requirements into its functional management plans, as well as its Contracts and Procurement policies and procedures. All necessary requirements will be incorporated into supplier and contractor enquiry and award documentation and reports will regularly provided on performance against the Responsible Procurement targets. As a matter of

policy, Gatwick will look to procure locally where possible, in order to proactively support district businesses and communities.

A Responsible Procurement (RP) Manager will be appointed for this project, and the cross functional nature of the issues included under RP requires them to work closely with other functional leads e.g. HR/IR and Training, Contracts and Procurement, Environment and Sustainability, and Construction as they develop specific plans to deliver the requirements stated above; develop pro-forma documents (including prequalification questionnaires), Invitation To Tender (ITT) and evaluation assessments, monitor implementation and report performance against Key Performance Indicators (KPI). The RP Manager will also work closely with the Communications Manager and Community Relations Manager to disseminate project opportunities and develop a project outreach (including education activities) and communication programme including forums and workshops in targeted communities.

#### **4.1.2.6 Deliverables**

The project RP requirements will include the need to implement and issue specific policies and procedures, prepare detailed plans, undertake project assessments and compliance audits and measure a number of specific RP KPI's.

A project specific RP Plan will be issued for the project setting out a plan of action and outlining how RP is to be undertaken. The RP Plan will identify the key goals, responsibilities and compliance processes that will be followed to collectively achieve the Employer's policy requirements and expectations. The plan will also provide the basis for an outreach programme for engaging with other Industry Partners, Contractors and Suppliers in delivering the our vision for RP. The Plan will be regularly reviewed and updated throughout the life of the project, in order to ensure that it remains current.

The RP Plan will also include reference to other plans that may be required to be developed under the RP project requirements e.g. Strategic Equality and Diversity Plan including Training Plan and Equality Impact Assessments (EqIA) for people in managerial roles; Supplier Diversity Plan (to include underprivileged groups and SMEs and reporting requirements); registration with Diversity Works for London; Initial Strategic Labour Needs and Training Plan (SLNT) plus implementation Plan Communications Plan and Community Social Investment Plan.

We will use an inclusive process to engage with appropriate project stakeholders and the supply chain. The key focus of this work will be compliance with the policy on RP, and we will adopt an approach that will provide the Contractors and Suppliers with an equal opportunity to register an interest to work on the project. This will be achieved through mechanisms such as 'CompeteFor' system and events such as "Local Meet the Buyer".

## **4.2 Alignment to phasing**

The Gatwick R2 team recognises the multiple inputs which affect supplier management and will utilise long-established strategies, tools, techniques and processes to optimise influence and gain maximum performance from the supply chain. As can be seen in the Construction Programme and

Risk Profile report related to programme phasing, it is essential that the procurement of services and contractors is aligned with the delivery needs and as part of this strategy the following elements will require early review.

- Scope and profile of programme or works,
- Clients business objectives, project drivers and priorities,
- Capability and capacity of the supply chain within the region & internationally,
- Extent of supply chain client is seeking to influence (local & international),
- Option for developing strategic supplier relationships with key vendors,
- Requirement to engage local suppliers and indigenous labour,
- Client's attitude to risk and positioning of risk with supply chain,
- Positioning and management of key contract risks and liabilities,
- Opportunity and desire to incentivise supplier performance,
- Funding of projects/programme (i.e. scope to aggregate and award on programme basis),
- Project /programme phasing,
- Client in-house capability to procure and manage vendor/supplier relationships,
- Opportunity/requirements to aggregate demand to drive volume efficiencies,
- Familiarity with standard contract terms (client team and vendors),
- 3<sup>rd</sup> Party funder and other stakeholder/mandatory requirements,
- Operations and maintenance strategy,
- Performance warranty/guarantee requirements,
- Client ability to clearly define scope and requirements,
- Insurance risks,
- Logistics management and expediting,
- Governance of procurement and contract management processes,

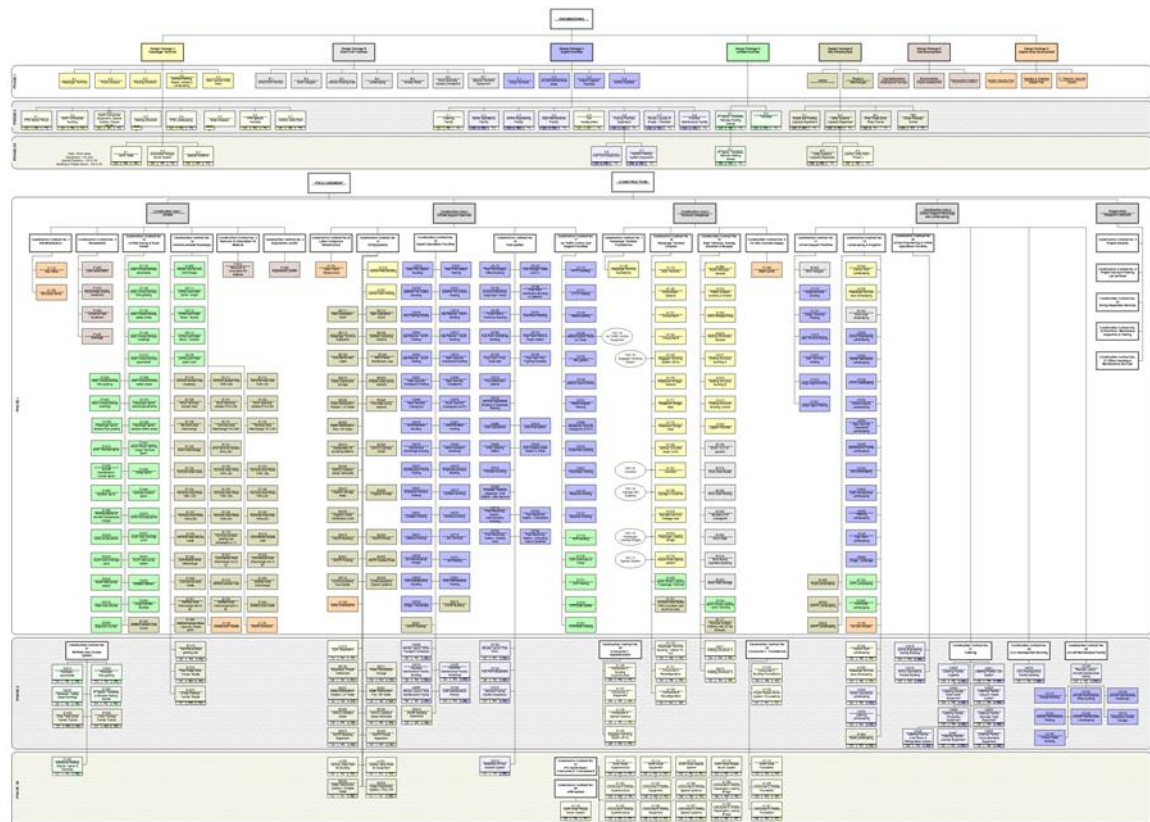
### **4.3 High level package breakdown**

Once the physical planning is well understood, planning for the implementation of the project will be to review the Master Plan, define all program elements and partition design work into discrete packages. These packages will include one or several systems, facilities, or activities that are interrelated and can be optimised, detailed, drawn, specified and phased. They will also be broken down by disciplines such as civil, structural, mechanical, electrical and architectural and/or by facilities and a contract packaging plan will be developed.

Contract packaging and tendering processes are designed to execute a complete contracting programme. The process includes methodology for:

- Identifying logical packaging of the works
- Preparing project specific contracting forms
- Identifying and prequalifying potential bidders
- Conducting tendering and selection
- Preparing finalised contracts for execution.

For a major airport infrastructure capital works programmes, such as Gatwick's R2 Programme, typical order of magnitude contract packages to be expected, hundreds of minor contracts and tens of major contracts, as schematically shown below;



**Figure 4.9** Typical major capital works contract packaging breakdown structure

The PMO's contract services will design, defining interfaces among contract packages, establishing bid and award schedules, and developing contractual terms and conditions.

## 4.4 Alignment to IUK – Early Contractor Involvement (ECI)

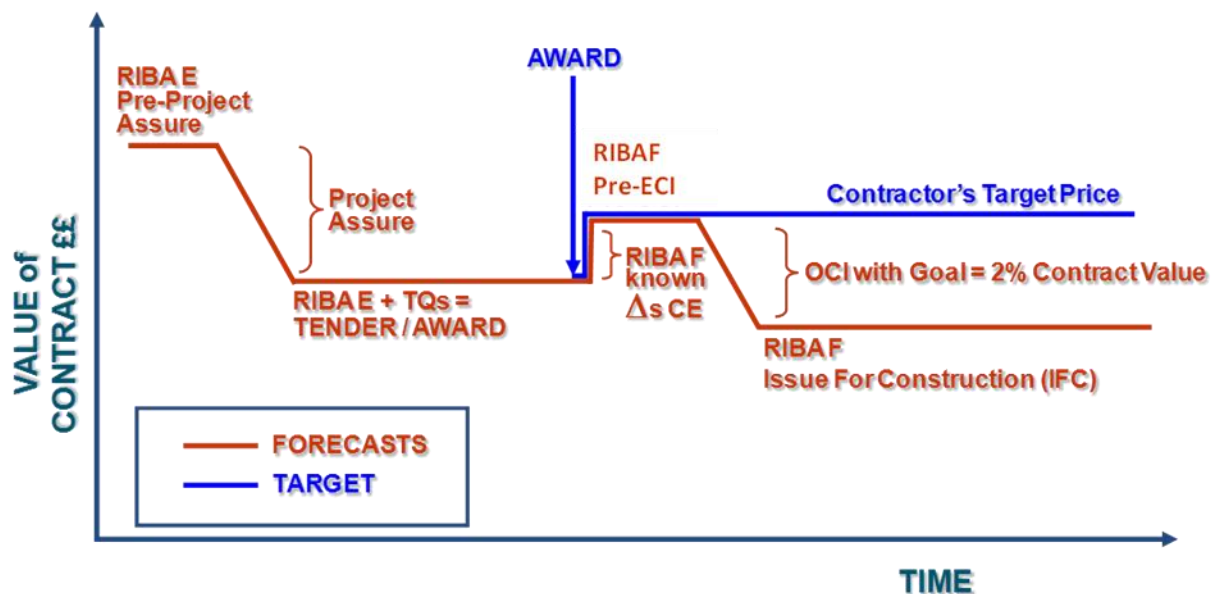
### 4.4.1 Key Principles & Objectives

The key principles of Early Contractor Involvement (ECI) are to:

- Obtain the Contractor's acknowledgement that the Employer's design is buildable,
- Identify opportunities for the reference design to be modified to allow for a safer and more cost-effective construction,
- Coordinate the basis and detailed design for construction temporary works with the consultant/designers,
- Promote a better understanding by all parties of the contract scope, and
- Promote a better understanding by all parties of the potential risks to allow targeted elimination and mitigation of risk.

ECI has also the potential to accelerate progress on early contract activities. Other benefits include increased teamwork, collaboration and fewer variations during construction as both the "client" and "contractor" are on the same page with respect to the work to be done.

Cost reduction is an important ECI objective and the easiest to measure, and at the outset of this process targets (as a % of contract award value) will be set, and the timeline in Figure 4.10 below provides an indicative overview of cost before and resulting from the ECI process.



**Figure 4.10** Indicative overview of cost, before and resulting from, the ECI process

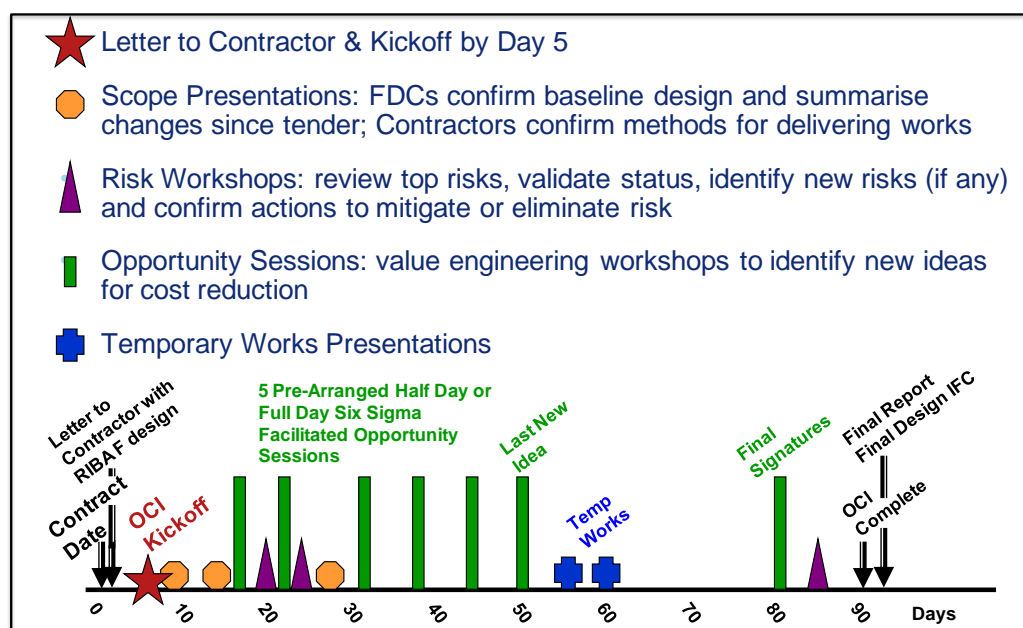
Contractor acknowledgement that the design is buildable is another important objective. Full formal acknowledgement awaits issue of Issued For Construction (IFC) drawings however implicit acknowledgement for key elements of the design has been part of the constructability reviews held during ECI.



#### 4.4.2 ECI Methods

The principle ECI methods involve structured workshops and focused working groups. In the example below, a total of 5 formal workshops are held, but this will be tailored depending on the size and complexity of the works, and the number of specialist workshops required. These workshops are structured to fulfil the specific objectives aligned with the 5 key principles of ECI set out above. They need to be carefully planned, professionally facilitated and attended by invitation only, to ensure desired outcomes are achieved.

The generic categories of these workshops include: scope, design, risk, temporary works, logistics and mobilisation. The chart below in Figure 4.11 is indicative of the spread of workshops during ECI.



**Figure 4.11** Indicative schedule of ECI workshops

In addition to formal workshops, separate working groups may be established early on to provide a smaller more focused forums in which to resolve issues and progress opportunities. These groups can prove efficient and effective in working through details and reaching decisions quickly, without needing to invest too many job hours.

#### 4.4.3 Opportunity Development and Evaluation

Following the scope workshops, a series of design workshops can be held in which cost saving ideas are identified. These ideas will then be assessed to see which would yield the greatest improvement for the smallest effort and prioritised accordingly – often this is undertaken using Six Sigma tools. Many ideas may have to be dropped at this stage; either due to insufficient time, ideas that are technically too difficult, or are too resource hungry and some ideas will be deferred



for development after the ECI period, as they either do not require a design change or the works they impact are not scheduled immediately.

Ideas that are selected for development during ECI became formal opportunities and will be developed via the working groups. Detailed proposals for each opportunity are then submitted for evaluation and formally entered into an ECI database (a bespoke database created for use during ECI) for evaluation. Each proposal will describe its impact on cost, programme, safety, risk, technical, quality and logistics. Once entered into the database the opportunity will be reviewed by the team, evaluated by answering a standard set of questions and then provided with an overall grade: red, amber or green. Finally, once all evaluators had completed their evaluation the opportunity will be either approved or rejected.

This method of creating and evaluating opportunities proves to be robust, comprehensive and objective; ensuring approval of opportunities only if they improved cost or schedule, without detriment to other aspects of delivery.

## **5.0 Technical Governance**

### **5.1 Structure and Reporting**

Gatwick operates a Development Engineering team which includes industry experts on Life Safety Systems, Airfield Design, Passenger Moving Equipment, Mechanical & Electrical plant and equipment. These specialists work with the project teams to ensure the designs are to the Gatwick standards and align with best practice and current technologies. Through their roles within the project teams, project boards and tender evaluation panels they are able to apply technical governance ensuring the application of best practice design. The project teams will also include Project Engineers who manage the design process, work with the technical experts and report monthly against agreed deliverables. The process and procedures for managing design and reporting design progress are part of Gatwick's suite of procedures which are certified to ISO 9001.

### **5.2 Standards**

Gatwick has a suite of Technical Standards, Standard Operating Procedures and Managing Directors Instructions. These are used to ensure consistency across the various projects being delivered. These Technical Standards etc. would be reviewed for suitability on the R2 project and applied to the design through the work of the Project Engineers.

An existing process is in place for challenge to Technical Standards where projects are unable to comply. Projects are required to apply for a concession to vary the design from the requirements of the Technical Standard. The concession document is reviewed by the relevant technical expert who will decide based on the evidence provided.

Technical Standards are reviewed at regular intervals based on the numbers of concessions received, changes to industry practice and advancements in technology.

The process for design approval and issue escalation will be defined the by Technical Governance group to ensure timely approvals are given and the programme to deliver by 2025 is maintained and will reference the existing design approvals processes at Gatwick.

## **6.0 Stakeholder Management, Public Engagement and Construction Interface Management**

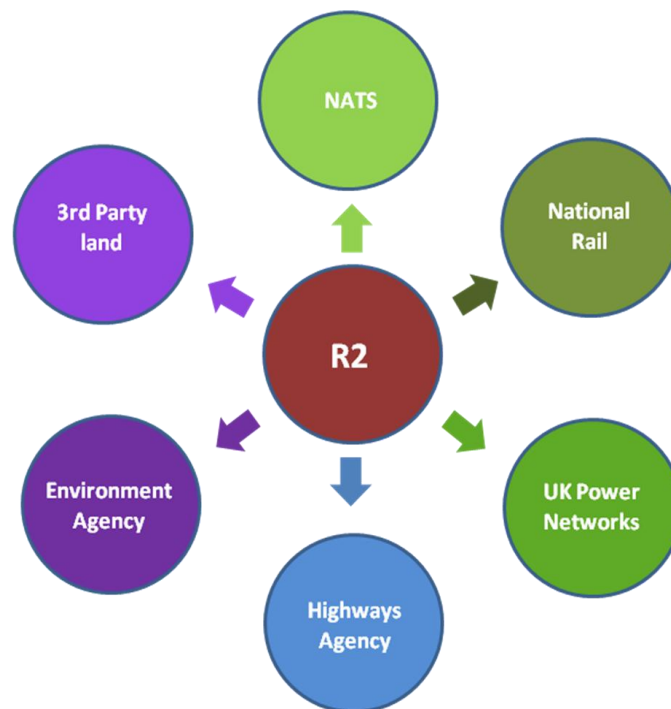
### **6.1 Stakeholder Management**

The engagement and support of the vast numbers of businesses, authorities and stakeholders (functional and operational) interfacing Gatwick is an important factor in the success of the R2 project.

Use the existing Gatwick Project Communications Procedure to develop a suitable communications plan for managing and informing the interfaces with existing external stakeholders.

To ensure this, a dedicated stakeholder engagement function will be included in the programme management organisation which will remain accountable for creating and managing the programme's Stakeholder Engagement Management Plan.

The following highlights some of the key strategic stakeholders that the Gatwick R2 PMO will interface with during the course of the development; each requiring different approaches to engagement and management:



**Figure 6.1** Key Strategic Stakeholders

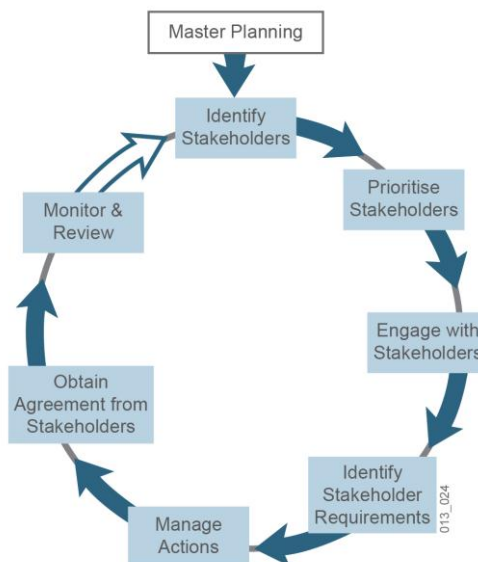
The external stakeholders will include, but not be limited to, the following entities:

- CAA, NATS,
- West Sussex County Council, Surrey County Council,
- Crawley Borough Council, Reigate & Banstead Borough Council,
- Charlwood Parish Council,

- Passenger Advisory Group,
- Gatwick Diamond,
- Airlines ACC/AOC,
- Health & Safety Executive,
- Department for Transport,
- Highways Agency,
- Network Rail,
- Environment Agency,
- West Sussex Constabulary,
- UK Border Force,
- Fire Brigade,
- Ambulance Service,
- UK Power Networks,
- Gatwick Airport Supply and Hydrant Company,
- Thames Water,
- BT Open Reach,
- Southern Gas Networks,
- Handling Agents,
- Train and Bus/Coach Operators
- Car Park Operators,
- 3rd Party Tenants.
- Building Control,

### **6.1.1 Key Steps in Stakeholder Engagement**

The key steps in a successful stakeholder engagement are shown below;



**Figure 6.2** Key Steps to successful Stakeholder Engagement

**Identification:** Stakeholder engagement was started during the Master Planning stage where the stakeholders are identified; these include Government, industry, Contractors/Design Consultants and Community stakeholders.

**Analysis and Positioning:** This part involves the need to understand the project context and cosent factors, and from this a stakeholder map can be drawn, with an assessment of the stakeholder key personnel and the appropriate level in the organisation. The issues likely to be raised or apparent with the stakeholder are reviewed and analysed and also prioritized at this stage in order to create an action plan.

**Engagement:** The action plan developed includes the terms of reference and the proposed means of engagement. A single point of contact (SPOC) is created for each stakeholder group, and the information to share with the stakeholder is prepared and reviewed prior to release.

**Action:** It is important that the information flow and decision making process is well defined for stakeholder management, with a clealry defined grievance mechanism for conflict situations, as they arise. A register of commitments should be set up, and monitoring of performance against the plan will be a KPI to measure stakeholders engaged, commitments executed and the programme's effectiveness (e.g. number of complaints).

### **6.1.2 Gatwick experience**

From our previous collaborations we have learned that there are certain key attributes that contribute to effective relationship management. We will employ these attributes in identifying and managing the key relationships for programme success:

- the strategy and relationship model must be established and agreed by all concerned,
- each party must commit to the selection of the correct people to manage the relationship,
- people must be motivated to manage the relationship to meet the programme's values and objectives,
- communication and protocol must be agreed and observed, and
- all parties must understand and acknowledge that relationships evolve and change over time,

In our current capital expansion programme delivering £1.1B of projects, many of these relationships have already been built between Gatwick, its stakeholders and suppliers, and we are therefore in a unique position to quickly understand and align the various stakeholders' aims and objectives towards the common programme's goals.

## **6.2 Public Engagement**

Gatwick has prepared a separate “Engagement Strategy Report”, which details its active engagement with all key stakeholders in regard to proposals for future runway capacity at Gatwick Airport. The purpose of this engagement has been to share information and keep the stakeholders informed of progress; to share study approaches and methodologies we use and to seek agreement on how economic, environmental and social matters are considered; discuss plans for consultation and engagement; and to identify possible areas of common ground.

Also, Gatwick has created an Engagement Charter which sets out how we will engage with existing owners and occupiers of land that will be affected by our proposal for a second runway at Gatwick Airport. This Engagement Charter has been designed to provide engagement by Gatwick that is appropriate, regular and consistent whilst ensuring that any impact the second runway proposal might have on local property markets is mitigated in both the short and longer term.

Gatwick understands that the communities around us will have many questions about what a second runway would mean for them and we want to provide an opportunity to influence our submission to the Airports Commission, including the detail of the options as well as providing them with all the relevant information to allow them to reach a firm decision on which option they prefer. For this reason, Gatwick has undertaken a comprehensive six-week public consultation programme on our three runway options which began 4 April and closed 16 May 2014.

In the event that the Government support the principle of expansion at Gatwick Airport, it anticipates bringing forward a Development Consent Order (DCO) application under the Planning Act 2008 as amended by the Localism Act 2011.

As part of that process, Gatwick would undertake an extensive and robust programme of public engagement. This would seek to:

- Comply with formal consultation guidelines as prescribed in Sections 42 and 47 of the Planning Act 2008,
- Inform and consult with the local community, statutory consultees and other interested parties on the project,
- Gain feedback from these communities and stakeholders, including any queries or concerns that they might have,
- Shape the form and design of the DCO application, Environmental Impact Assessment and development scheme accordingly, and
- Identify any issues and impacts that should be considered along with suggestions for any necessary mitigation.

Gatwick will continue to engage with local companies and local stakeholders before, during and after the construction of a potential second runway. In addition to our on-going engagement, we will offer regular site tours that are open to the public, visit local schools and send out community newsletters with updates on the construction progress.

Following the successful completion of a second runway at the airport, Gatwick will continue to engage with local residents, campaign groups, MPs and local businesses about our operations. It

is vital that these groups continue to gain maximum advantage from the airport's growth. Also, Gatwick wants to maintain our reputation as a responsible neighbour to our local communities and demonstrate best practice in our stewardship of the environment.

A separate "Engagement Strategy Report" has been prepared in response to Airports Commission Appendix B Section Master Plans page 117-118, Mitigation page 121 – 124, Development Strategies page 124-126.

## 6.3 Construction Interface Management

### 6.3.1 Philosophy

Recent challenges in the timely, within-budget delivery of large , multi-contractor projects has caused the construction industry to review how best to manage the planning and execution of these developments in terms of effective contracting, coordination, risk allocation, and conflict resolution. The industry has determined that interface management, meaning the proactive avoidance or mitigation of project issues, including design conflicts, installation clashes etc. improves the chance of successful delivery.

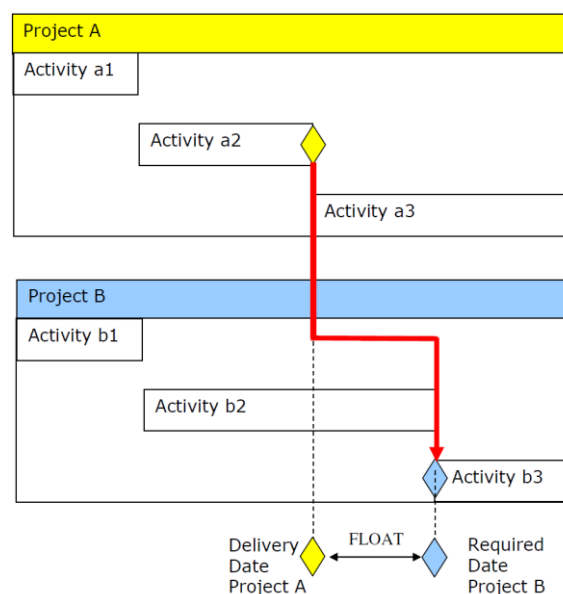
### 6.3.2 Planning the Work

The Gatwick R2 project will conduct a detailed project assessment, clearly defining the scope of work and identifying critical interfaces, particularly “give” and “get” dates. Project teams will need to anticipate how to mitigate interfaces through an effective evaluation of project tie-in points, identifying tasks that cut across team boundaries and considering how various activities impact each other. The projects will establish an interface management philosophy early in project planning, during concept development and selection, and will need to further understand and distinguish both internal and external interfaces.

Detailed directives and scoping within the tendering documents will avoid costly change orders and delays because of any misunderstanding or lack of clarification.

### 6.3.1 Interface Management Methodology

Central to the interface management methodology will be the Programme Interface Register, which will extract and compare the interface dates within the programme and provide a traffic light report of the key issues for appropriate escalation and management. The Interface Management methodology for each component project is summarised in Figure 6.3 below:



**Figure 6.3** Activity link in project interface schedule



This principle will be applied across the whole programme creating a register of interfaces which will then be tracked on a monthly basis from updated schedules, allowing the programme team to create a traffic light report to highlight those relationships with little or negative float.

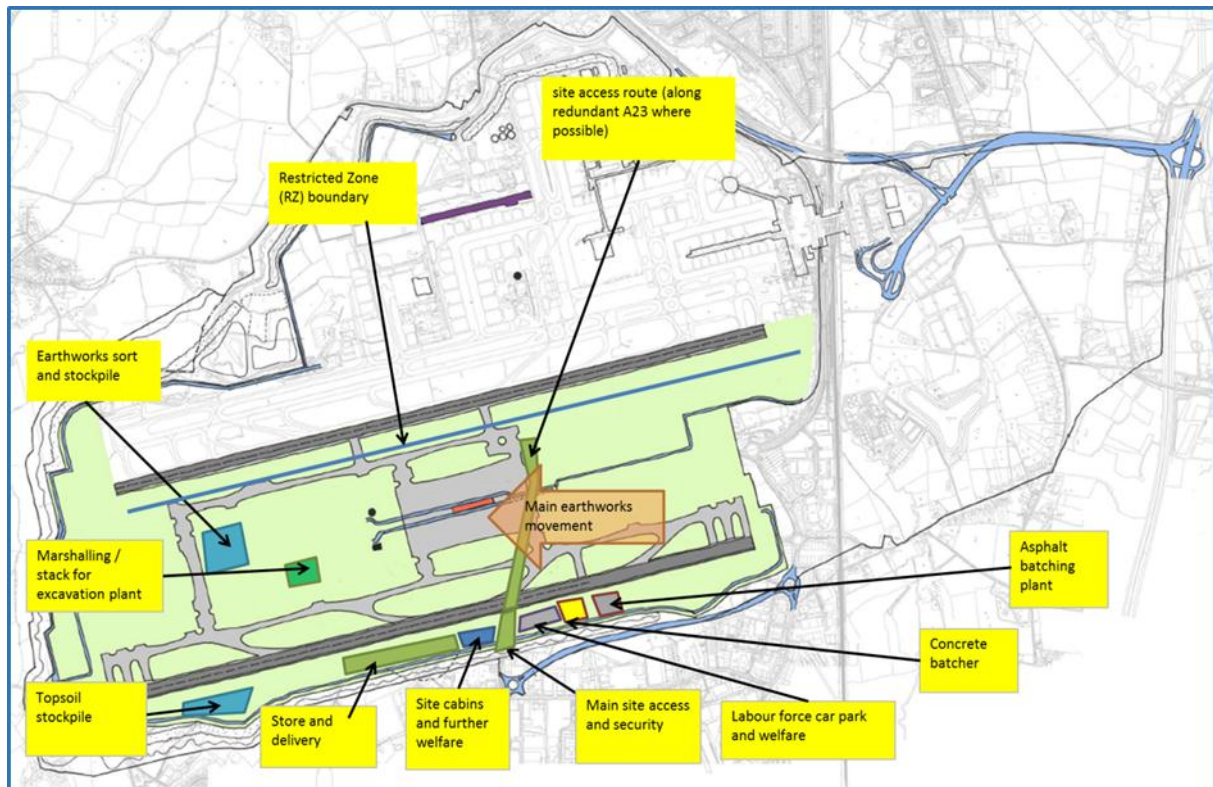
## **7.0 Programme Phasing**

The proposed Gatwick phased programme for R2 demonstrates that it can be delivered within the timeframe specified in the Appraisal Framework and will better the requirement to have the equivalent overall capacity of one new runway operational by 2030.

The new wide-spaced/independent 3.4km runway will be fully operational by 2025, allowing accelerated growth in capacity of the airport.

Gatwick has high levels of confidence in delivery at this stage of the process driven by the benefits of having a safeguarded site to build within and no major existing infrastructure to reconfigure. The new facilities, including the terminal and piers will be constructed in a landside site, without impacting the existing airport operations. Equally the existing airport operation will not impact progress of the construction activities.

### **7.1 Runway Opening Phase - 2025**

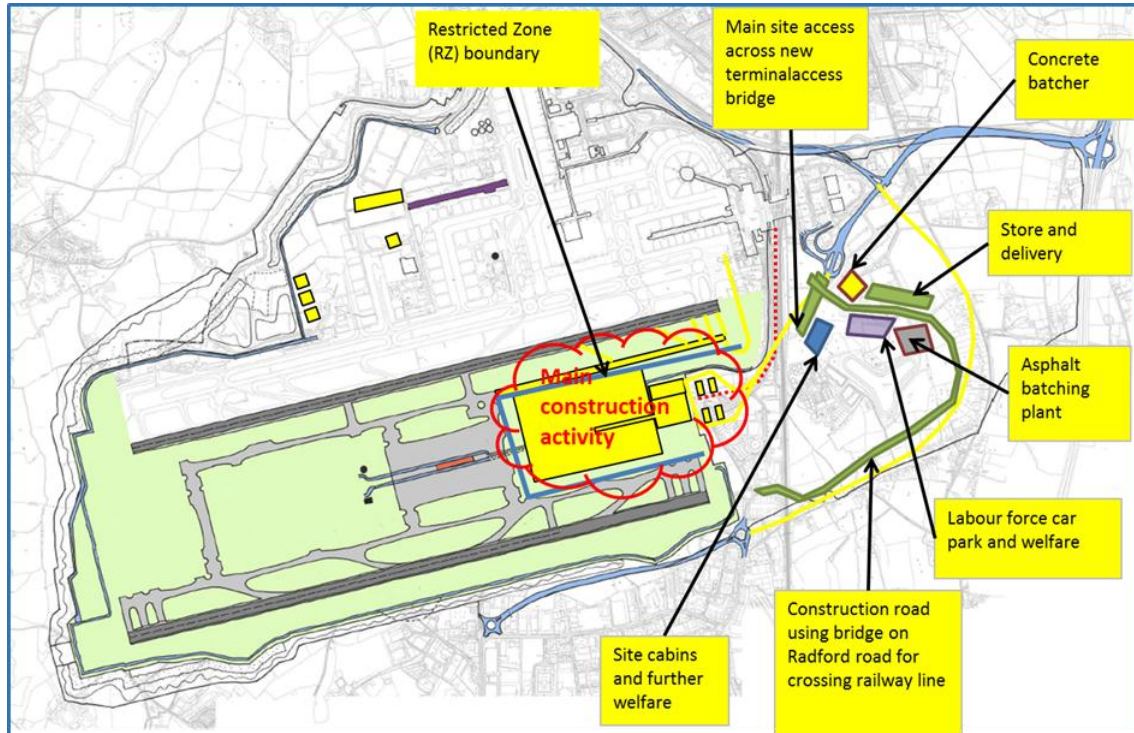


**Figure 7.1 Runway Complete – 2025**

This runway would primarily be utilised by short haul narrow bodied aircraft with wide-bodied aircraft continuing to use the existing runway. New midfield stands with a remote pier would be opened to provide increased stand capacity. These stands would be served from the existing terminals via a bussing operation. A modest reconfiguration of space within the existing terminals would be required to allow the extra passengers to be processed. Construction of the new runway would require partial realignment of the A23.

Construction of the New Terminal will have commenced but this initial phase allows opening of the runway and consequential increase in capacity before completion of the New Terminal.

## **7.2 Phase 1 – 2030**

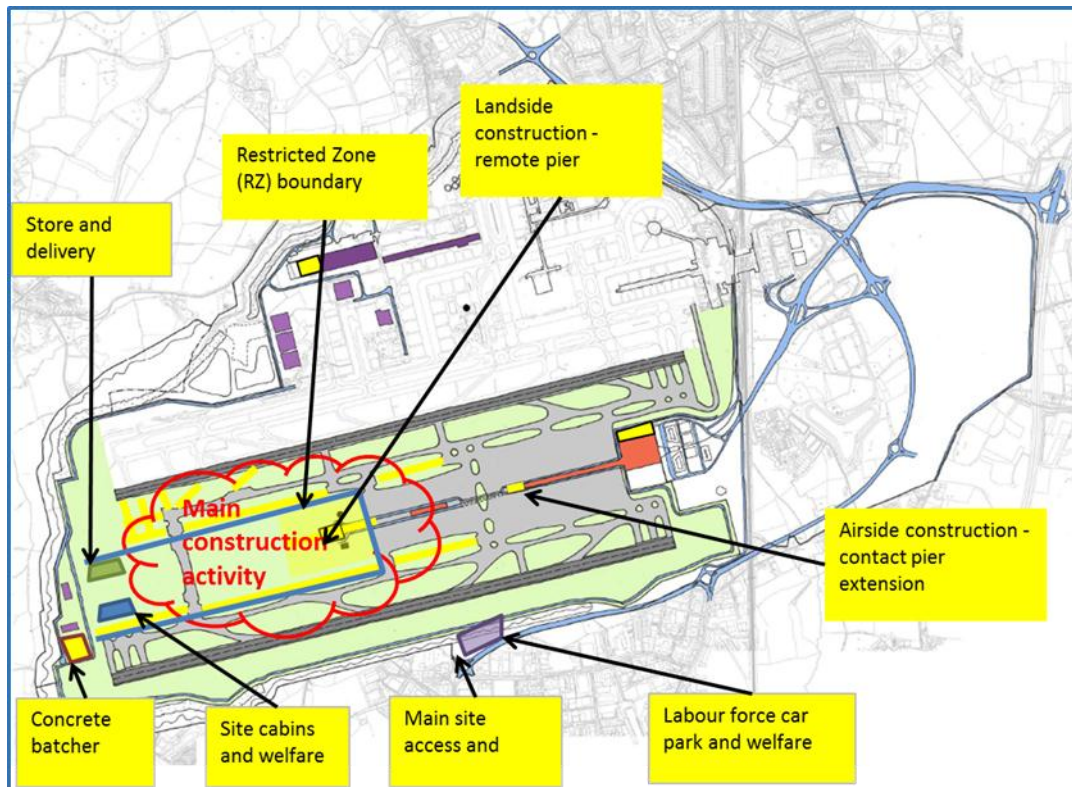


**Figure 7.2 Phase 1 Complete – 2030**

Phase 1 includes the opening of the New Terminal along with the adjacent pier and Code C apron. The Terminal in its phase 1 form would have a capacity of 20mppa and generally use the new second runway. The new terminal would be supported by the landside automated people mover which would connect the new terminal to the railway station, the north and south terminals. An additional 8 mppa of terminal capacity would be constructed but not fitted out at this stage allowing for expansion at later stages of the development.

The second section of A23 diversion works would be complete in preparation for the construction of the full length runway in Phase 2. The initial phase midfield apron and remote pier would continue to operate through Phase 1.

### **7.3 Phase 2 – 2035**

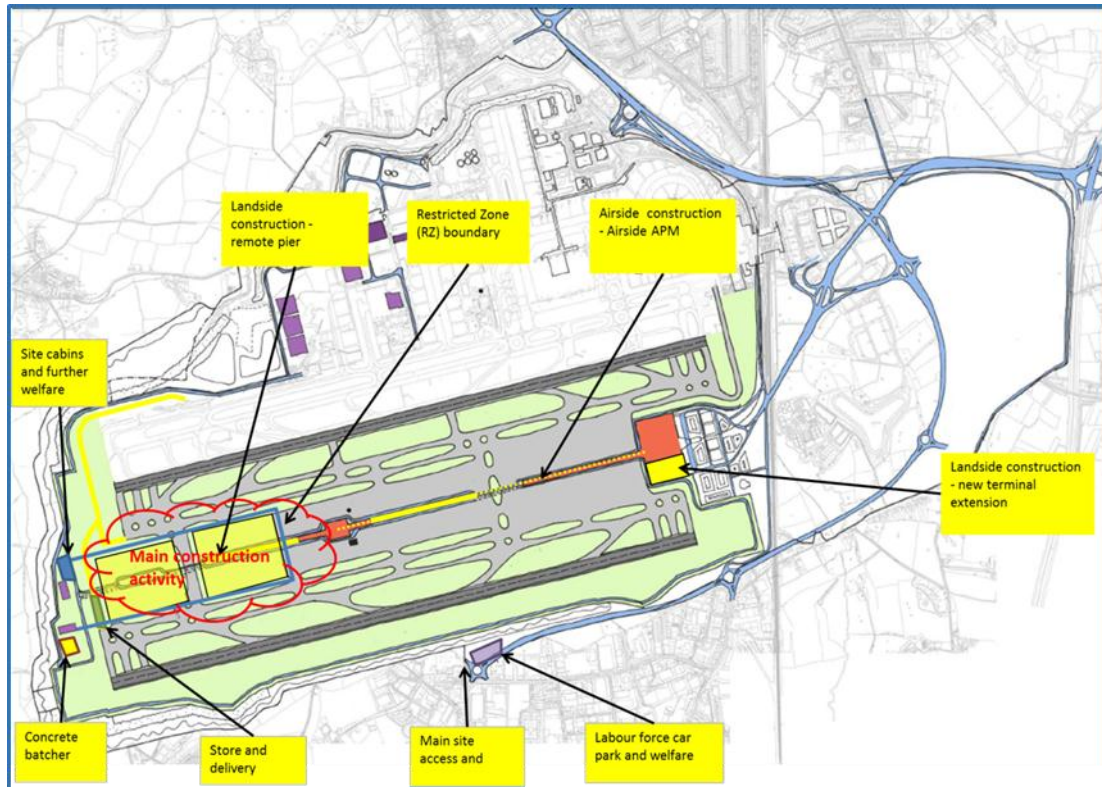


**Figure 7.3 Phase 2 Complete – 2035**

By the end of Phase 2, the New Terminal will have been increased in size to support approximately 20mppa and the contact pier and short haul aircraft apron extended. Construction of the remote pier would also begin at this stage with this initially supporting a demand of 12.5 mppa..



## **7.4 Phase 3 – 2040**



**Figure 7.4 Phase 3 Complete – 2040**

Phase 3 comprises the full build out of the midfield apron and New Terminal area with the New Terminal further expanded, the Remote Pier connected by an airside people mover and replacing the initial phase apron layout. All midfield apron gates will be served from the New Terminal, with the airside people mover also being completed in this phase.

For full details related to construction programme, please refer to Construction Programme & Risk Profile report.

## **8.0 Risk Management**

Risk Management is the systematic process of identifying, analysing and responding to risk, maximising benefits and minimising threats. The risk management framework adopted by GAL allows for the understanding of the potential downside and upside of all those factors which could affect the runway expansion project. The implementation of the framework by GAL will increase the probability of success of the project, as well as reducing both the probability of failure and the uncertainty of achieving the projects overall objectives. Risk Management is a fundamental process for GAL's project delivery and its management of uncertainty, which will apply at every stage of the project lifecycle.

The benefits to GAL for the adoption of a good risk management practice are detailed below;

- Realistic risk schedule and budgets for project delivery;
- Evaluation of uncertainty affecting the expansion project;
- A robust contingency fund that is calculated against identified risk; and
- Increased confidence in project delivery by focusing GAL Management attention towards the proactive management of risk throughout the project lifecycle from start to finish.

As part of our work establishing a robust cost, schedule and risk position to support our submission to the Commission we have undertaken a review of our risks, identified mitigation strategies and a timeline for risk retirement.

This gives the programme a strong foundation to establish effective risk management in the Delivery phases, safeguarding our budget and driving value for money

Building the Contingency Profile

The overall risk profile for the project has been built up by considering the areas of uncertainty within the cost estimate (Estimating Uncertainty) and identifying potential threats (Risk) both within Gatwick’s control and out with Gatwick’s control, that could impact delivery of the project.

The diagram below outlines this approach and illustrates how estimating uncertainty and risk are treated as discrete elements before being combined to provide an estimate of the overall contingency that the project might require.

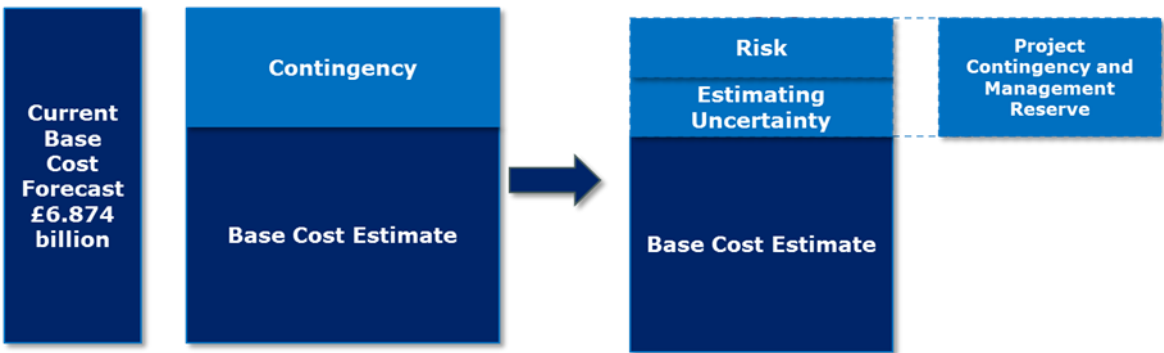


Figure 8.1 Building the contingency profile

Once identified both estimating uncertainty items and risks are quantified and modelled using statistical modelling tools that enable consideration of a range of confidence levels.

Initial mitigation plans have been developed by Gatwick for the current top 20 Risks. Further mitigation planning will take place during the next phase of the project which will help to increase confidence levels that the scheme will be delivered on time and to budget in line with the targets set out in the diagram below.

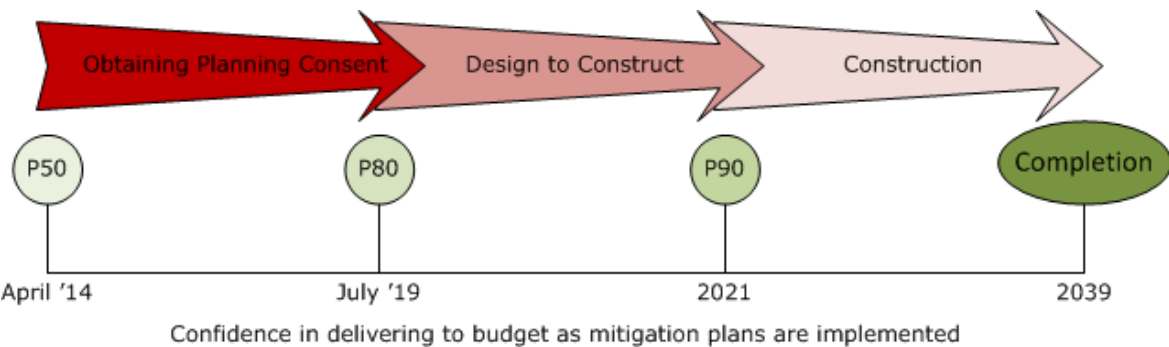
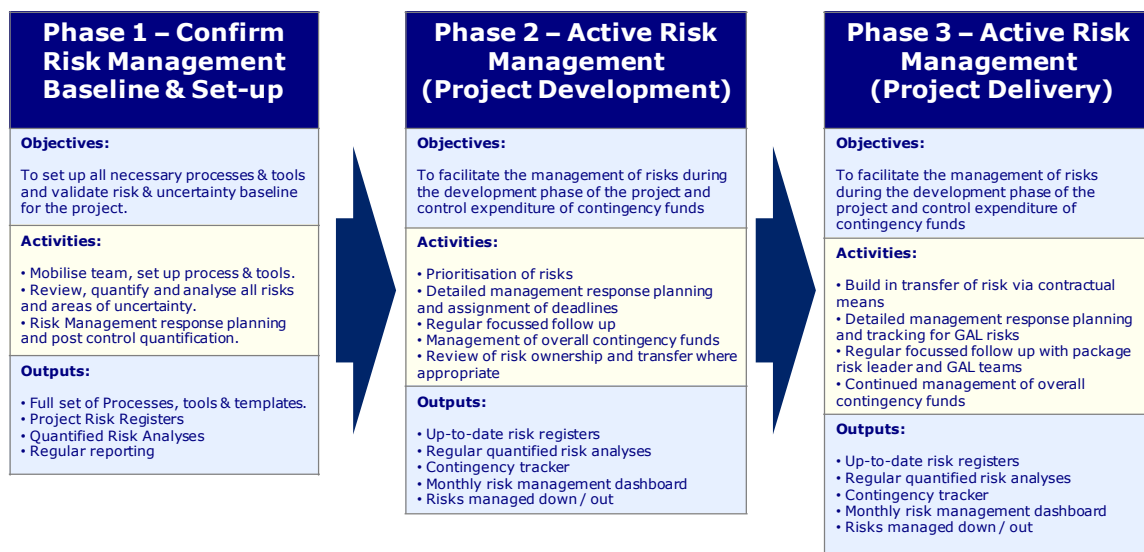


Figure 8.2 Confidence levels with further mitigation

The work carried out to date has focused on providing a robust view of the level of risk and uncertainty faced by the project. A baseline has been established and assessed against the original budget and will provide the basis from which all risk management activity will develop.

Proactive mitigation and management to drive down exposure and therefore increase the likelihood of completing the project on time and within the original budget will remain a focus of the project team throughout the determination period. Once the Airport's Commission have made their recommendation the level of risk management activity will step-up in line with the approach outlined in the diagram below.



**Figure 8.3 Risk management activities**

Please refer to the Programme Risk Management Report for full details of methodology, current status and mitigation plans.



## **9.0 Transition Planning & Airport Operational Readiness (AOR)**

### **9.1 Management framework for transition planning**

Transition plans from current operations to the future infrastructure, as defined by Gatwick's phasing programme, do not foresee disruptions, either in terms of the current runway Air Traffic Service (ATS) operations or impacts to other airports in the London airport system, for the following reasons:

- Gatwick's development programme has been purposefully phased for smooth transitioning, in order to mitigate risks associated with any 'big-bang' effects.
- Geographical separation and independence between the new airport airside infrastructure, including: the new runway, taxiways and aprons; New Terminal, remote pier and new airport perimeter, as temporary barriers will be erected to isolate construction and non-operational areas and assure safety.
- Extensive coordination with the CAA and NATS, to ensure all international and national standards are satisfied. Timely airspace change approvals, familiarisation and training, given that initial discussions with NATS have indicated that the phased timelines can be met. Although, NATS has indicated that further detailed analysis and simulation will be required to confirm the new congestion control to flow management operations to neighbouring airports - due to the additional potential interacts between traffic on the arrival & departure routes. Safety cases have been accounted for within the Aerodrome Licensing process with sufficient time and resources attributed for approval.
- Extensive coordination with the Highways Agency and local councils to ensure continuous and safe traffic flow management around the enhanced road network.
- Road projects associated with surface access infrastructure are committed and will be operational before R2 2025 opening.

The Gatwick R2 scheme has a 'natural' advantage, in terms of enhancement to the overall network resilience reducing the impact of localised incidents on the capability of the overall network.

This section details the management framework used for Transition Planning, from the completion of project construction through to normal operations, in line with the phased construction delivery programme. A detailed Airport Operational Readiness (AOR) Plan, produced in accordance with Gatwick's Airport Operational Readiness procedure and supported by a staff training plan will be developed to suit the handover to operations. This will be progressively developed as the design is developed and integrated into the construction contractor's contract requirements.

The AOR Plan will identify the critical paths of the construction delivery programme milestone Opening Days (OD), and structure the execution of project contracts to support these key objectives. Planning back from OD, entails identifying the key activities, tests, approvals, certifications and work prerequisites - the timely execution of which are necessary for a smooth transition through OD. These tasks would include: Trial Operations activities, aerodrome licensing, approvals by authorities to occupy opening day facilities, airline and ground handling

familiarisation, human resourcing, training and many other factors, all of which must be preceded by project works completion, testing and commissioning.

## **9.2 Airport Operational Readiness (AOR) Plan**

An Airport Operational Readiness Team, in close cooperation with Stakeholders and End-Users, will facilitate the process of developing a coordinated program for moving to the new airport facilities. Key areas of focus will include:

- Aerodrome licensing, including: UK Civil Aviation Authority (CAA) requirements and inspections, evidence for Safety Cases, Aeronautical Information Publication (AIP) documentation updates, AIRAC cycle,
- Airside Operations, including: aircraft manoeuvring of runway, taxiways and stands; docking, push-back, bussing, ground handling, vehicular circulation,
- Terminal Operations, including: passenger movement between terminals and piers, screening of passengers, security and surveillance, baggage handling,
- Systems Migration, including: baggage handling, IT operational systems, wired and wireless telecommunication systems, building services, utilities, Automated People Mover, apron services,
- Human Resources & Training plans, including: employment programme, Operator & End-User Familiarisation plans,
- Airport Transfer plans, including: asset and equipment transfer and re-locations, decant and logistics operations, End-User communications.

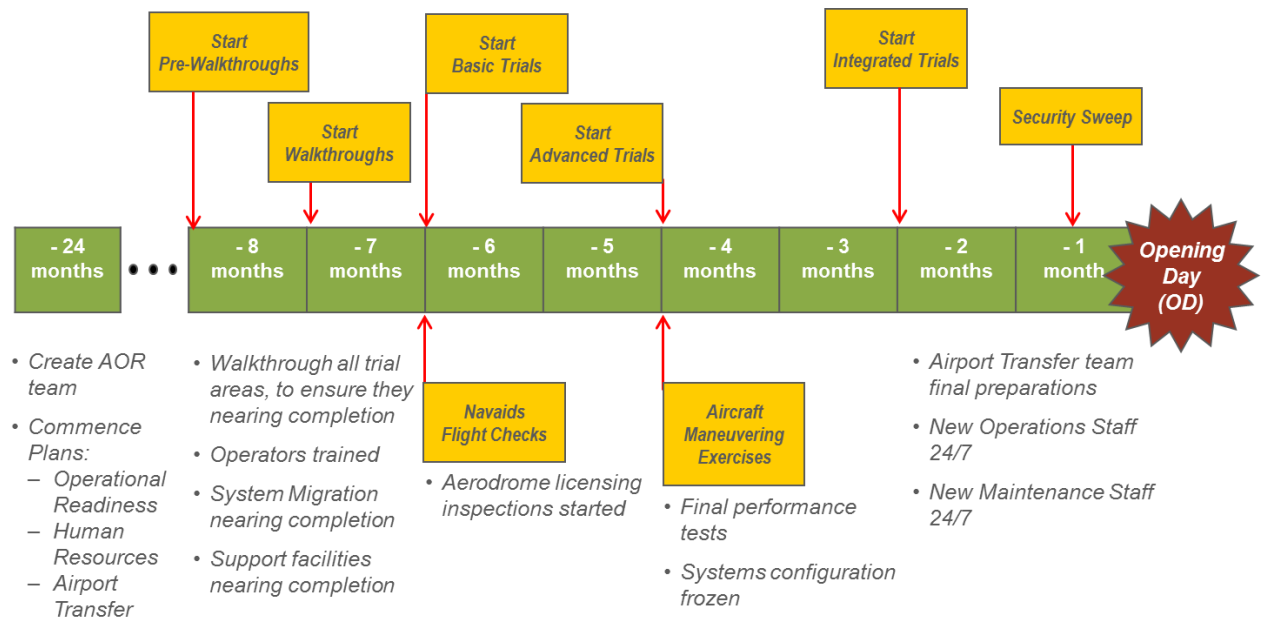
Approximately 24 months prior to OD, the Airport Operational Readiness (AOR) Team will have been established, to develop the process and procedures for building up the coordinated programme to support the transfer to the new airport facilities.

In order to transfer to the new facilities a number of elements comprising AOR must be completed.

Key elements enabling this include:

- **Standard Operating Procedures (SOPs)** – will be based on Concepts of Operation (CONOPS), predicated upon ‘Operational Efficiency’ precepts. New SOP’s for airside and landside operations will be established; what entity will be responsible for what operational activities; what are the new roles and responsibilities of the airport stakeholders, and other operational concepts must be identified prior to moving forward with the AOR Plan. The AOR team will manage the development of detailed SOP’s for operating the passenger & cargo complexes, maintenance & support facilities, aerodrome and special airport systems.
- **Air Traffic Services (ATS)** – completion of new ATS related facilities, particularly the new Air Traffic Control (ATC) tower, Air Traffic Management (ATM) equipment & NAVAIDS, will require extensive coordination with the CAA and NATS, to ensure all international and national standards are satisfied. Also, airspace change approvals, ATCO familiarisation and training

- **Facilities & Asset Management Concepts** – similar to SOPs, new facilities, equipment and systems require a revised maintenance program. Decisions on what entity will be responsible for maintaining facilities and systems must be determined, in part as a strategic business plan. What are the new roles and responsibilities of the airport stakeholders, what maintenance services will be performed in-house, what services will be outsourced and what services will be transferred to third parties must be defined early in the AOR programme as well. Facilities and Asset Management Services will be delivered on a framework based upon Reliability Centred Maintenance (RCM) and Condition Based Monitoring principals, as framework enablers for ‘Operational Efficiency’.
- **Aerodrome Operations Manual** – once the operational and maintenance concepts have been established, the development of the Aerodrome Operations Manual must be performed. New policies and procedures must be developed based on the new facilities and the business plan.
- **AOR Procurement Programme** – the Gatwick R2 Project Team will develop new airport facilities. However, the facilities in many instances will not be rendered operational without the separate procurement of many ancillary equipment and items. A good example is the possible requirement for additional Aircraft Rescue and Fire Fighting (ARFF) vehicles and equipment. Early identification and timely procurement of these items is essential.
- **Trial Operations Programme** – based on the policy and procedures established in the Aerodrome Operations Manual, the Airport Trial Operations Programme provides operational scenario simulations of core and support processes, contingency and emergency plans. For an airport development similar to the Gatwick R2 Project scope, the Trial Operations Programme should typically extend for not less than six (no. 6) months and would include 40-50 scenarios, one scenario per day, two days per week over the six month period. The Trial Operations programme will be undertaken in a step-wise manner, in order to progressively increase the complexity of trial scenarios in terms of volume of passengers, baggage and aircraft movements. The first step Basic Trials will focus on core operational processes relatively independently from one another, then through Advanced Trials that integrate core operational processes (e.g. passenger terminal, airside and cargo operations, etc.), leading to Integrated Trials that incorporate other complexities such as: fire fighting response, passenger terminal emergency evacuations, power black-out, and other airside incidents.
- **Tenant Fit-Out**– the Gatwick Project Team will provide several types of “shell and core spaces” for retail, concession and tenant areas. Gatwick will develop a contracting strategy, negotiate leases and allow for these stakeholders to “fit-out” their spaces prior to OD.



**Figure 9.1 Typical Operational Readiness Timelines & Tasks**

### 9.3 Aerodrome licensing

For the licensing of the new aerodrome, the Gatwick AOR and Project Teams will address all regulatory requirements, including CAA's: CAP 168 - Licensing of Aerodrome, CAP 760 - Guidance on the Conduct of Hazard Identification, Risk Assessment and the Production of Safety Cases, CAP 670 - Air Traffic Services Safety Requirements, amongst others:

- **The Aerodrome Manual**, amendment to the contents,
- **Runway Visual Range (RVR)** assessment using human observers, contents of the aerodrome operations manual relating to RVR observations and log,
- **Aerodrome Physical Characteristics**, including: aerodrome (runway) reference code, runways, runway strips, Runway End Safety Areas (RESA), the siting of aids to navigation within runway strips, taxiways, stopways, clearways, aprons and stands, aerodrome surface conditions, movement area bearing strength, declared distances, runway surfaces – technical details, temporary obstacles within runway strips, the use of runway, stopway and clearway – performance aspects, national snow plan including procedures for dealing with winter contamination of aerodrome surfaces, aerodrome movement areas – clearance of Foreign Objects And Debris (FOD), maintenance equipment (sweepers, etc.), airside aerodrome pavement maintenance and inspection procedures, care of pavements during winter conditions – improving surface friction by removal of contaminants,
- **Assessment and Treatment of Obstacles**, including: take-off climb surface, approach surface, transitional surface, inner horizontal surface, conical surface, outer horizontal surface, Obstacle Free Zone (OFZ), restriction and removal of obstacles, shielding of obstacles, aerodrome safeguarding, marking and lighting of obstacles and unserviceable surface areas,

- **Bird Strike Hazard Management**, in accordance to Guidance on current best practice for all aspects of bird control is detailed in CAP 772 Birdstrike Risk Management for Aerodromes,
- **Aeronautical Ground Lighting (AGL)**, including: AGL characteristics, aerodrome beacon, approach lighting and circling guidance lights, approach slope indicators, runway and stopway lighting, taxiway lighting, apron lighting and visual docking guidance systems, obstacle lighting, control of AGL luminous intensity, alternate input power supply for AGL systems, control and monitoring of AGL, maintenance of AGL systems, installation of AGL systems, PAPI: siting and setting angles, procedure for the routine flight inspection of approach and runway lights, procedure for the flight inspection of PAPI
- **Aerodrome Signals, Signs and Markings**, including: taxi guidance signs style and proportion of characters, sign layout and face size, form and proportions of runway designator marking, form and proportions of pavement information marking – taxiways and aprons, illuminated wind sleeves
- **Rescue and Fire Fighting Service (RFFS)**, including: minimum scale of services to be provided, remission, temporary depletion of RFFS, extinguishing agents, principal and complementary extinguishing agents, complementary extinguishing agents, discharge rates for complementary extinguishing agents, response objective, appliances/vehicles, criteria for selection of personnel, qualifications, minimum number of RFF personnel and staffing of appliances, training, specifications for rescue and fire fighting vehicles, medical equipment, personal protective equipment, radio communications, inspection and testing of equipment and appliances, development of operational procedures to maintain response capability, development of existing and new aerodrome fire stations, provision of additional water supplies for use in fire fighting operations following an aircraft accident, availability of extinguishing agents, test specification for a performance test for dry powders, RFF facilities at RFF category special, one & two aerodromes,
- **Emergency Planning**, including: aerodrome emergency objectives, emergency planning committee, drawing up emergency orders, emergencies or incidents, unlawful acts, off-aerodrome accidents, command and control, exercises, testing, assessment of the aerodrome emergency plan, emergency planning committee formation, notes for guidance in making emergency arrangements at aerodromes, Rendezvous point signs,
- **Aeronautical Information**, including: information to be available, all survey data complete to WGS 84 standard and aeronautical survey, information centre, AIRAC cycle cut-off date,
- **Evidence for Safety Cases**, including: unit safety cases for ATM equipment and NAVAIDS, AGL, flight checks, updates to Safety Management System (SMS) manual, airside drivers manual, airside procedures (incl. SOP Low Visibility),
- **Fuelling and other third party operations**, including: Air Navigation Order, Article 211 obligations and responsibility for monitoring third parties operating within the boundaries of licensed aerodromes, inspection and standards of cleanliness, grit and spoil.

## **9.4 Airside operations**

The focus of Airside - Trial – Operations for AOR will include the: new runway, taxiways south of the existing runway, new midfield aprons, midfield service roads, new Rescue Fire Fighting Station (RFFS), new proposed ATC tower, ancillary facilities such as flight catering, new airport perimeter and associated security access control, NAVAIDs, Airfield Ground Lighting (AGL) and other Air Traffic Management (ATM) systems:

- **Basic Trials** to simulate – basic aircraft movements around southern runway & taxiway system, MAG sign familiarisation, push back, docking (incl. VDGS, Passenger Loading Bridges [PLBs] and apron-stand utility services) ground handling, service road circulations, fuelling, new ATC tower Visual Control Room (VCR) equipment, airline personnel familiarisation, Ground Handlers familiarisation, ATC personnel familiarisation, Catering personnel familiarisation, bussing operations, follow-me and marshalling services,
- **Advanced Trials** encompassing: night trials with AGL / AGLCMS and A-SMGCS, low visibility procedures, vehicular movements, emergency response, non-emergency incidents,
- **Integrated Trials** involving: apron control and management SOPs, Low Visibility Procedures, Contingencies & Emergency Situations, Cargo Trials.

Within the airside operations phase, ground handlers will need to actively participate in the trial activities. Involvement will be according to individual business focus as well as by their estimated handling volume requirements. Also, fully trained personnel - as well as new or actual equipment, are to be used. It requires the provision of materials like stocks for boarding passes and bag tags for the trial flights. The involvement requested from each ground handlers per trial session will generally not exceed 20 % of the estimated handling volume of the weekly peak day of the given flight schedule. The parties will need to participate actively in planning sessions and in assessment meetings for all these trial operations. In addition it is also required to configure the flights for trial operations in the appropriate airline host or DCS.

For the proposed phases, a more detailed breakdown of the areas to be included in the AOR Plan relating to Airside Operations are included below:

### **Runway Opening Complete 2025**

- The new runway and taxiway system aircraft manoeuvring exercises, including: AGL, ATM equipment, ATC tower, Visual Control Room (VCR). Airside trial operations will not impact the current runway operations, as temporary isolation barriers will be erected to separate non-operational areas and assuring safety,
- Remote Pier stand and gate operations, including: from buses to aircraft via gate rooms, from aircraft to buses, waste away, service road signage, emergency evacuation, life safety systems, utility capacities,
- Stands, including: AGL, high mast lighting, fuelling, provisioning, waste away, loading and unloading baggage, loading and unloading of passengers, push back, stand entry guidance,

- Bussing from South Terminal to the Remote Pier and return,
- RFFS and other emergency response exercises,
- It is assumed that the new CAA airspace design will have been completed, in order to facilitate the new Air Traffic System procedures for aerodrome control services,
- Airside security, including: perimeter detection systems, CCTV, security sweep, security posts.

**Phase 1 Complete 2030**

- New Terminal, aprons, stands and associated taxiways, including: aircraft manoeuvring exercises, AGL, high mast lighting, fuelling, waste away, loading and unloading baggage, push back, docking & stand entry guidance,
- Landside automated people mover (APM) from South Terminal to the New Terminal
- Bussing from the New Terminal to the Remote Pier

**Phase 2 Complete 2035**

- Additional New Terminal stands, including: lighting, fuelling, provisioning, waste away, loading and unloading baggage, push back, docking & stand entry guidance,
- Bussing from New Terminal to existing Remote Pier and the new phase of Remote Pier,
- New Phase of Remote Pier, including from buses to aircraft via gate rooms, from aircraft to buses, signage, emergency evacuation, life safety systems, utility capacities.

**Phase 3 Complete 2040**

- Final Phase Extension to New Terminal gate operations, including: MARs stand MARS and multi-choice stand arrangements to allow flexibility of stand use at different times of the day, ground handling and vehicular movements,
- Remote Pier completion, signage, emergency evacuation, life safety systems, utility capacities, stands and taxiways, including: lighting, fuelling, provisioning, waste away, loading and unloading baggage, push back, stand entry guidance.

## **9.5 Terminal operations**

The focus on passenger and baggage handling processes for Terminal - Trial – Operations and will include: check in, security search, departure lounge provisioning, operation and waste away, departure lounge to gate room, boarding and disembarking of aircraft, immigration control, baggage reclaim, provisioning of retail, waste away from retail, emergency evacuation, life safety systems, IT operational systems, utility capacities, baggage handling system, drop off and pick up zones, short stay car parking. The Terminal Operations team structure will be reviewed, supplemented and re-trained prior to any operational trials commencing. The training will include management of Operational Risk, where the addition of R2 has altered the risk profile, levels of resilience and the mitigation responses.



The Terminal Operational trials will be carried out at 3 different levels;

- **Basic Trials** to simulate passenger and baggage handling processes, including the following scenarios: arrivals and departures domestic, international, international/domestic and transfer. A special focus will be given to scenarios involving: Minimum Connection Times, security and surveillance services, immigration and customs services, and baggage handling processing times. In the basic trial operations phase each individual core process will have its own trial session. Passenger handling and baggage handling processes will be integrated as soon as possible,
- **Advanced Trials** to simulate grouped processes incrementally tested in terms of volume and capacity - up to their respective design limits. Terminal operations will be combined with airside operations, in the later stages, to include: arrival and departure flights to PLB contact stands, remote stands, aircraft towing, fuelling and ground handling operations. Also, processes involving: baggage requiring special handling (e.g. Out Of Gauge (OOG), wheelchair, live-animal, glass, etc.), air cargo and mail transport, group check-in, porter services, information and announcement services, flight delays, landside access, parking, staff entry and screening, amongst other,
- **Integrated Trials** to simulate processes and procedures involving contingency and emergency plans will be the main focus of this trial operations stage, including: fire fighting response, passenger terminal emergency evacuations, operational systems failure, power black-out, other airside incidents, medical emergencies, amongst other.

For the proposed phases, a more detailed breakdown of the areas to be included in the AOR plan relating to Terminal Operations are included below:

#### **Runway Opening Complete 2025**

- Remote Pier, provisioning of retail, waste away from retail, signage, emergency evacuation, life safety systems, IT operational systems, utility capacities.

#### **Phase 1 Complete 2030**

- First Phase New Terminal including check in, security search, departure lounge provisioning, operation and waste away, departure lounge to gate room, boarding and disembarking of aircraft, immigration control, baggage reclaim, provisioning of retail, waste away from retail, emergency evacuation, life safety systems, utility capacities, baggage handling system, drop off and pick up zones, short stay car parking,
- Automatic People Mover from South Terminal to the New Terminal.

#### **Phase 2 Complete 2035**

- Fit Out to remainder of Phase 1 Remote Pier and completion of contact pier including additional check in, security search, departure lounge provisioning, operation and waste away, departure lounge to gate room, boarding and disembarking of aircraft, immigration control, baggage reclaim, provisioning of retail, waste away from retail, emergency evacuation, life safety systems, utility capacities, baggage handling system,
- Bussing from New Terminal to Existing Remote Pier and first phase of new Remote Pier,



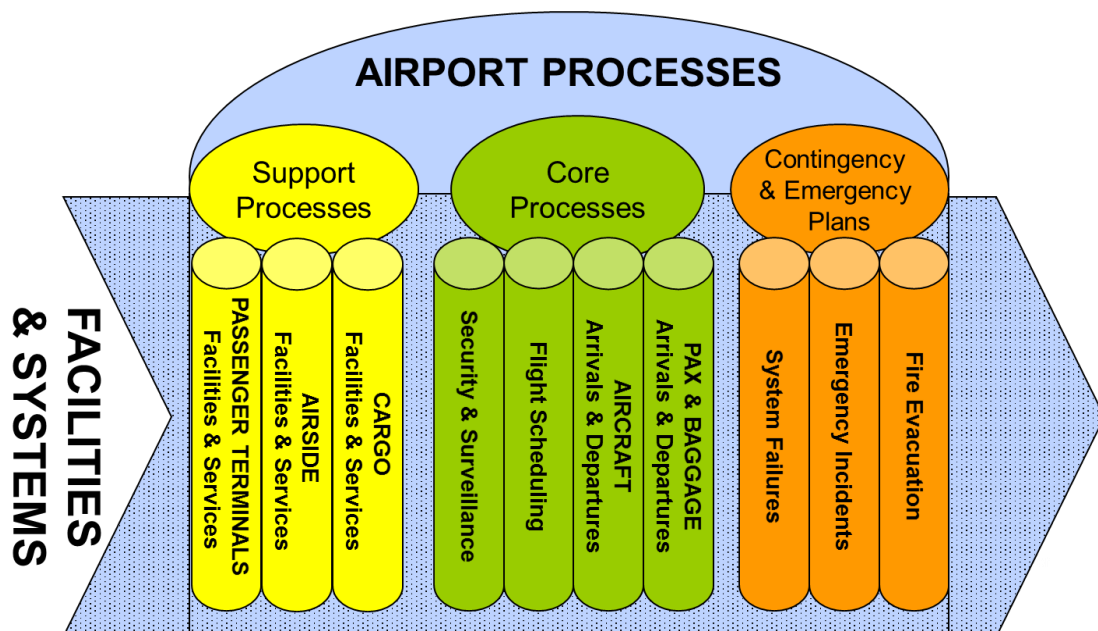
- Phase 1 new Remote Pier, including from buses to aircraft via gate hold rooms, from aircraft to buses, provisioning of retail, waste away from retail, signage, emergency evacuation, life safety systems, utility capacities.

### **Phase 3 Complete 2040**

- Final Phase Extension to New Terminal including check in, security search, departure lounge provisioning, operation and waste away, departure lounge to gate room, boarding and disembarking of aircraft, immigration control, baggage reclaim, provisioning of retail, waste away from retail, emergency evacuation, life safety systems, utility capacities, baggage handling system, changes to drop off & pick up zones and short stay car parking,
- Remote Pier completion, airside people mover connection to the New Terminal, gate rooms, retail, provisioning of retail, waste away from retail, signage, emergency evacuation, life safety systems, utility capacities.

## **9.6 Systems migration**

Migration to the new facilities and systems will be based upon a framework of 'Process Integration', for a smooth transition into the Trial Operations stage. The main aim of the systems migration activities is to demonstrate to the Operator and End-User community that facilities and systems provide the end-to-end functionality required to manage an operational airport. Moreover, Process Integration activities will demonstrate functionality across individual systems and facilities. Testing and commissioning of the facility and the assets will be assumed to have been completed before the start of the AOR period.



**Figure 9.2** Facilities and systems migration of new airport processes

**Support Processes** – These processes have strong facilities focus. In testing the integration of these associated systems, facilities are partitioned into major groups, such as: passenger terminals, airside, cargo, etc. Generally, these tests entail demonstrating the availability of integrated functionality provided by telecommunications, building and/or special systems. The Systems include:

- Air Traffic Management (ATM), Nav aids, etc.,
- Fuel System,
- Airfield Ground Lighting (AGL) and Visual Docking Guidance System (VDGS),
- Passenger Loading Bridges (PLB),
- Apron High Mast Light System (AHL),
- Power Monitoring and Control Systems (PMCS),
- Building Management Systems (BMS),
- Fire Protection, Alarm and Detection Systems,
- Public Announcement and Voice Annunciation (PA/VA).

**Core Processes** – These processes underpin the basic airport operations that service passengers and aircraft. Examples include: aircraft turn-around, Check-in and Security Screening. Core Processes can be notionally considered to rely on Support Processes, which in turn utilise systems and facilities as resources. The Systems include:

- Baggage Handling System (BHS) and Baggage Reconciliation System (BRS),
- Automatic People Mover (APM),
- Airport Operational Database (AODB),
- Flight Information Display System and Baggage Information Display System (FIDS / BIDS),
- CUTE/CUSS,
- Security and Surveillance Systems.

**Contingency and Emergency Plans** – These plans foresee a select number of airport system failures and/or emergencies which require redundancy fall back and/or degraded modes of operation, in order to secure basic services and/or public safety.

## **9.7 Human resources & training plans**

For the human resources and training plans, the AOR Team will review the existing human resources structures and prepare assessment reports on each of the following:

- Roles, staff number, tasks and responsibilities of each department within Gatwick,
- Personal data, position, education and experience of each existing staff,
- Job description/classification, working condition, recruitment and selection processes
- On-the-job training needs, education and training policy for each staff position,
- Future education and training policy.

The AOR Team, in close cooperation with Gatwick operations personnel, will define the human resources plan requirements. It is anticipated that existing Gatwick personnel will be augmented by new staff, in order to reduce the training demands to staff carrying out day-to-day operations. This will be the basis for a coordinated programme to transition staff to the new airport facilities.

The training programme for the new airport facilities and systems will be grounded in the principle of long term benefits. Each programme will be designed to lay a foundation that, first gives participants skills and capacities they can use after construction to become competitive for other jobs and contracts and second, develops processes – training, capacity building, business development, and community involvement – that can be transitioned to airport operations or to relevant government and community institutions.

Training timing and sequencing will be undertaken and made to coincide to the appropriate commissioning test phases, Trial Operations requirements and shift patterns.

The goals for the training programme will be to:

- Train and transfer Contractor technology skills to administrators and operators, who can then be ‘turned over’ and used for permanent operations personnel,
- “Train the trainers” - select Gatwick personnel will learn training methodologies so that they can act as trainers,
- Work to support an engagement strategy that effectively informs the local community about the R2 project, its employment and commercial opportunities.

Special attention will be given to the training coordination effort relating to personnel from the following agencies:

- CAA Air Traffic Controllers (ATCO) Visual Control Room (VCR),
- CAA MET,
- ARFFS,
- Ground Handlers,
- Airline staff,
- Government services, including police, immigration, customs, etc.,
- Facilities Maintenance staff.

## **9.8 Airport transfer plan**

With the completion of new facilities comes the eventual relocation from the existing facilities to the new facilities. Usually, the airport transfer activities begin with smaller moves 1-2 weeks prior to main move on Opening Day (OD), with non-essential items, archive records, etc. being relocated while the existing airport and operations continue. However, due to 24 hour-7 days a week operations of the existing facilities, at some point, much of the move must occur “overnight”. This overnight move will require careful planning and logistics to choreograph a chaotic event into a professional, well-orchestrated exercise. Failure to plan will result in numerous delays and mishaps that will postpone the opening and operation of the new facilities damage the airport reputation and affect its business plan.

The first step will involve development of a detailed Airport Transfer Plan, for each component of the move.

**Detailed planning tasks** will include:

- Prepare relocation briefs for internal departments that are affected by and/or are assigned tasks within the relocation project,
- Document and implement risk management procedures, including system contingency and relocation contingency plans,
- Establish the old and new locations of all equipment,
- Audit equipment relocation requirements and maintenance contracts within the context of the relocation,
- Present a detailed relocation plan for approval by Airport Community Representatives prior to relocation,
- Implementation will be coordinated in accordance with the detailed design.

**Implementation tasks** will include:

- Communication Plan to effectively coordinate amongst Business Units and Stakeholders,
- Create a Transport Plan that will minimise impacts to the communities surrounding the project – this will be applicable during any major OD events such as the activation of the New Terminal,
- Coordinate decant and transfer operations, including the management of specialist support services,
- Update project plans,
- Regression plans and contingencies will be addressed for moves of all critical systems,
- Salvage plans of any remaining equipment from the existing sites.

The **relocation strategy** is based around moving over minor stages prior to the main ‘overnight’ move. A contingency plan will be prepared in case a planned date is missed due to unforeseen delay, industrial action or other unplanned events. The relocation strategy includes the following principles:

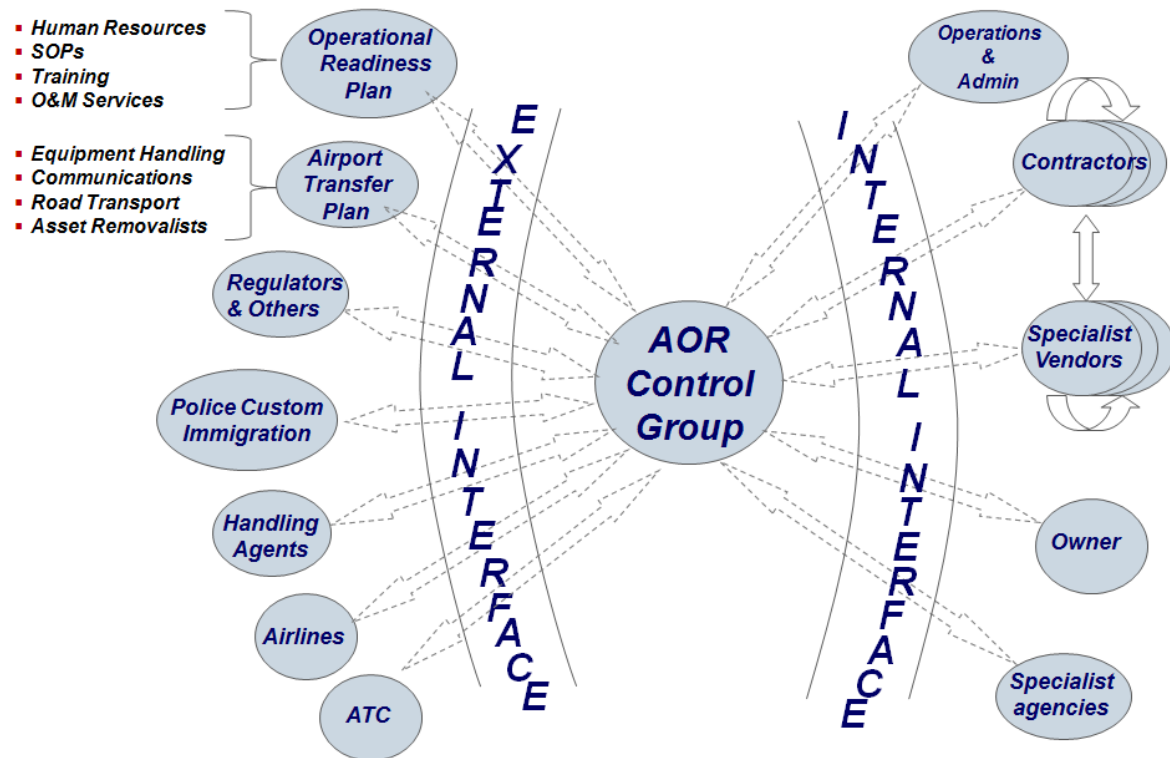
- Maximise equipment to be moved over with the minor stages prior to the main move on OD,
- Pre-move as many services and agencies as possible, prior to the main move,
- Pre-install and finalise supporting infrastructure for the new equipment, prior to the minor move stages, as much as possible.

Three (3) months prior to the relocation, the AOR Team will provide **scheduling details** of the relocation, which will include:

- Department name, cost centre and scheduled relocation date and time,
- Approximate number of personnel to be relocated,
- Current location (site and floor level), where applicable,
- Proposed location (site and floor level).

The AOR Team will coordinate with Airport Community End-Users and Stakeholders, to provide the initial list of equipment to be relocated, and then members of AOR Control Group (see Figure 9.3 below) will verify via audits.

With regard to the transfer resourcing, where possible, staffing will be provided in-house. In other circumstances where specialist knowledge is required or additional assistance due to increased workload, temporary resources will be identified and engaged. These resource requirements will be reviewed to ensure the most appropriate and cost effective solution to resourcing issues are identified and implemented.



**Figure 9.3** Members of AOR Control Group

Regular AOR Control Group meetings will be held with senior Airport Community representatives. The AOR Control Group meetings provide an overview of the groups involved in the project and resolve any issues which may be affecting the budget or the milestones.

Members of the AOR Control Group will be representatives from the following agencies:

- **External Interfaces:** Operational Readiness Team, Government Regulators, police/customs/immigration, handling agents, Airlines, CAA ATS, concessionaires, local authorities, amongst others,
- **Internal Interfaces:** Gatwick operations and administration, R2 Project Team, Gatwick Steering Committee members, other specialist agencies deemed necessary for close coordination.

Detailed planning for the relocation of each system will include regression plans, signed off, prior to each step in the relocation. These regression plans are to be provided by the business unit owners for inclusion in the relocation plans. Depending on the critical importance of individual systems to the business, regression planning may include provision for duplicate hardware

platform availability, multiple backups prior to relocation and on-site engineers (even if not normally required).

A Communications Plan will be developed to coordinate amongst the various Airport Community stakeholders, and establish the reporting channels for the Airport Transfer. The intent is that all correspondence for Airport Transfer is both effective and timely. It is proposed that within the AOR team a group will be setup for the management and planning of the Airport Transfer project. The purpose of this group is to setup the structure, determine the responsibilities for their teams, provide management support and resourcing for the implementation.

After the programme approval, the AOR team will commence the execution process working with all Stakeholders to resolve any transition problems that may arise during programme execution. This approach will become basis for the coordinated programme for moving to the new Airport facilities.

## **10 Response to the Airports Commission's Concerns**

For ease of reference and information purposes only, the following table has been developed which maps the Airport Commission's Concerns, as extracted from the Appraisal Framework (AF), to the appropriate section within this document and/or other separate documents containing Gatwick's response to each concern.

<b>Commission's Concerns</b>		<b>Gatwick's Response</b>	
<b>AF Ref.</b>	<b>Description</b>	<b>Description</b>	<b>Ref.</b>
page 119 Section 16 - Delivery	Objective - To have the equivalent overall capacity of one new runway operational by 2030.	The proposed Gatwick phased programme for R2 demonstrates that the option selected by the Airports Commission can be delivered within the timeframe specified in the Appraisal Framework, to have the equivalent overall capacity of one new runway operational by 2030. Moreover, the delivery of Gatwick's new 3.4km wide-spaced/independent runway will be fully operational by 2025.	Construction Programme & Risk Profile Report. Also, for supplementary information only, please see section 7 – Programme Phasing, herein.
page 119 Section 16 - Delivery	Objective - To actively engage local groups in scheme progression, design and management.	<p>Gatwick has prepared a separate "Engagement Strategy Report", which details its active engagement with all key stakeholders in regard to proposals for future runway capacity at Gatwick Airport. The purpose of this engagement has been to share information and keep the stakeholders informed of progress; to share study approaches and methodologies we use and to seek agreement on how economic, environmental and social matters are considered; discuss plans for consultation and engagement; and to identify possible areas of common ground.</p> <p>Also, Gatwick has created an Engagement Charter which sets out how we will engage with existing owners and occupiers of land that will be affected by our proposal for a second runway at Gatwick Airport. This Engagement Charter has been designed to provide engagement by Gatwick that is appropriate, regular and consistent whilst ensuring that any impact the second runway proposal might have on local property markets is mitigated in both the short and longer term.</p>	<p>Gatwick Airport Engagement Strategy.</p> <p>Also, for supplementary information only, please see - section 6 herein.</p>
page 121 Assessment details, sub- section 16.9	Planning and construction phase – scheme promoters' assumptions regarding the likely timetable, engineering requirements, constraints and impacts for construction of both the airport and surface access infrastructure will be tested to ensure the realism of the timetable and approach proposed.	<p>The proposed Gatwick phased programme for the new runways demonstrates that the option selected by the Airports Commission can be delivered within the timeframe specified in the Appraisal Framework.</p> <p>Also, road projects associated with surface access infrastructure are committed and will be operational before new runway 2025 opening.</p>	Construction Programme & Risk Profile Report. Also, for supplementary information only, please see section 7



			– Programme Phasing, herein.
page 121 Assessment details, sub-section 16.9	Planning and construction phase – ... This will include consideration of key dependencies on the effective delivery of scheme proposals, such as the requirement to undertake airspace redesigns, the delivery of surface access, the requirement to alter other airports' characteristics and/or capacity, and the time required and complexity of detailed safety cases to underpin the new airport's operations (particularly if there are novel approaches to delivery).	<p>Transition plans from current operations to the future infrastructure, as defined by Gatwick's phasing programme herein, do not foresee disruptions, either in terms of current of RWY 08R/26L Air Traffic Service (ATS) operations or impacts to other airports in the London airport system, for the following reasons:</p> <ul style="list-style-type: none"> <li>• Gatwick's development programme has been purposefully phased for smooth transitioning, in order to mitigate risks associated with any 'big-bang' effects.</li> <li>• Geographical separation and therefore independence between the new airport airside infrastructure, including: RWY 08S/26S, taxiways and aprons; new terminal, remote pier and new airport perimeter, as temporary isolation barriers will be erected to isolate construction and non-operational areas and - thus - assure safety.</li> <li>• Extensive coordination with the CAA and NATS, to ensure all international and national standards are satisfied. Also, timely airspace change approvals, ATCO familiarisation and training, given that initial discussions with NATS have indicated that the phased timelines can be met. Although, NATS has indicated that further detailed analysis and simulation will be required to confirm the new congestion control to flow management operations to neighbouring airports - due to the additional potential interacts between traffic on the arrival &amp; departure routes. Safety Cases have been accounted for within the Aerodrome Licensing process with sufficient time and resources attributed for approval.</li> </ul>	Please refer to section 9 – Transition Planning & Airport Operational Readiness (AOR), herein.
page 121 Assessment details, sub-section 16.9	Planning and construction phase – ... The risks of delay arising from other assessments, such as the environmental assessments, will also be considered as part of this work.		Programme Risk Management Report.
page 121 Assessment details, sub-section 16.11	Transition – this assessment will consider the risks associated with transition and the approach to mitigating them. The assessment will also consider the sequencing of events and key dependencies on the effective transition from current operations to the future operations of the new airport infrastructure, ensuring that any impacts during transition are captured and mitigated. Any impacts on other airports in the London airport system will need to be properly understood and considered as part of the transition assessment, including any requirements to close or reduce the capacity of other airports	<p>Transition plans from current operations to the future infrastructure, as defined by Gatwick's phasing programme herein, do not foresee disruptions, either in terms of the current runway Air Traffic Service (ATS) operations or impacts to other airports in the London airport system, for the following reasons:</p> <ul style="list-style-type: none"> <li>• Gatwick's development programme has been purposefully phased for smooth transitioning, in order to mitigate risks associated with any 'big-bang' effects.</li> <li>• Geographical separation and therefore independence between the new airport airside infrastructure, including: RWY 08S/26S, taxiways and aprons; new terminal, remote pier and new airport perimeter, as temporary isolation barriers will be erected to isolate construction and non-operational</li> </ul>	Please refer to section 9 – Transition Planning & Airport Operational Readiness (AOR), herein.

		<p>areas and - thus - assure safety.</p> <ul style="list-style-type: none"> <li>• Extensive coordination with the CAA and NATS, to ensure all international and national standards are satisfied. Also, timely airspace change approvals, ATCO familiarisation and training, given that initial discussions with NATS have indicated that the phased timelines can be met. Although, NATS has indicated that further detailed analysis and simulation will be required to confirm the new congestion control to flow management operations to neighbouring airports - due to the additional potential interacts between traffic on the arrival &amp; departure routes. Safety Cases have been accounted for within the Aerodrome Licensing process with sufficient time and resources attributed for approval.</li> </ul> <p>The Gatwick R2 scheme has a 'natural' advantage, in terms of enhancement to the overall network resilience reducing the impact of localised incidents on the capability of the overall network.</p>	
page 121 Assessment details, sub - section 16.12	Surface access – this assessment will also consider the effective delivery of schemes' surface access strategies. In particular, this assessment will consider the planning, transition and delivery risks associated with surface access requirements	Road projects associated with surface access infrastructure are committed and will be operational before new runway 2025 opening.	Construction Programme & Risk Profile. Also, for supplementary information only, please see section 7 – Programme Phasing, herein.