Strategic Capital
Business Plan

April 2016

Heathrow
Making every journey better

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Introduction and context

1   Foreword

2015 has been a great year for Heathrow as we achieved our highest ever ASQ (Airport Service Quality) score. We have won a range of awards including the "best major airport in Europe" at the ACI awards in Prague which confirmed that we achieved our previous vision of being Europe's Hub of Choice. That gives us confidence that we are on track to achieve our new vision: "to give passengers the best airport service in the world".

Safety and wellbeing remain Heathrow's first priority and is at the heart of everything we do. Our aim is that everyone goes home or gets to their destination safe and well every day. We continued our great safety record on site as our safety performance in Development has improved from 2014.

Heathrow's 2015 investments have resulted in many new improvements in operational performance, airport resilience and passenger experience. We have completed the new code F routes to both the Bravo and Sierra taxiways; the new T3 temporary flight connections centre was opened; the first two of four new enhanced Instrument Landing Systems (eILS) were implemented; and new border force e-gates were introduced in T5. Heathrow operated successfully during its busiest ever days over the summer and the Airport Operations Centre (APOC) celebrated its first anniversary in November. We continue bringing into service and optimising the T3 Integrated Baggage facility. We are continuing to work with our airlines and business partners to transform passenger service and to achieve our vision.

The Airport Commission's recommendation that our third runway is the best option was extremely positive news. Following the government response, we will focus on demonstrating that an expanded Heathrow can be the most environmentally responsible hub airport in the world.

I look forward to building upon our joint successes to ensure continued safe and efficient delivery of our Q6 Capital Portfolio, working together to give our passengers the best airport service in the world.

John Holland-Kaye
CEO, Heathrow Airport

Introduction and context

2 Introduction and context

2.1 Purpose

Heathrow Airport's Strategic Capital Business Plan (SCBP) is delivered annually in accordance with the Capital Investment Protocol.

The SCBP will look at the Quinquennium 6 (hereafter known as Q6) regulatory period April 2014 to December 2018, to inform the Airport Community of Heathrow's Capital Investment Plan and to facilitate consultation and engagement.

This report covers the period from January 2015 to December 2015 with a look ahead to 2016.

The content of the SCBP is as set out in the Capital Investment Protocol agreed with the Airline Community, and was published on the 30th September 2014.

Where airlines require further information to understand proposed investments, Heathrow will respond to these requests.

The SCBP 2016 is a document for consultation; therefore Heathrow encourages the Airline Community and other stakeholders to submit their views on the Strategic Capital Business Plan by 1st June 2016 to Development development@heathrow.com

Heathrow would like to thank the Airline Community for their responses to the SCBP 2015, which we have considered in developing this document.

3 Strategy and vision

3.1 Heathrow's vision, priorities and service propositions

Our Q6 plans were developed in line with the joint airline and Heathrow vision to be 'The UK's direct connection to the world and Europe's Hub of choice by making every journey better'.

Heathrow and the Airline Community developed four specific joint priorities for Q6: Passenger Experience, Hub Capacity and Resilience, Efficient Airline operations and a competitive cost of operation, through Constructive Engagement. These continue to shape and guide our thinking.
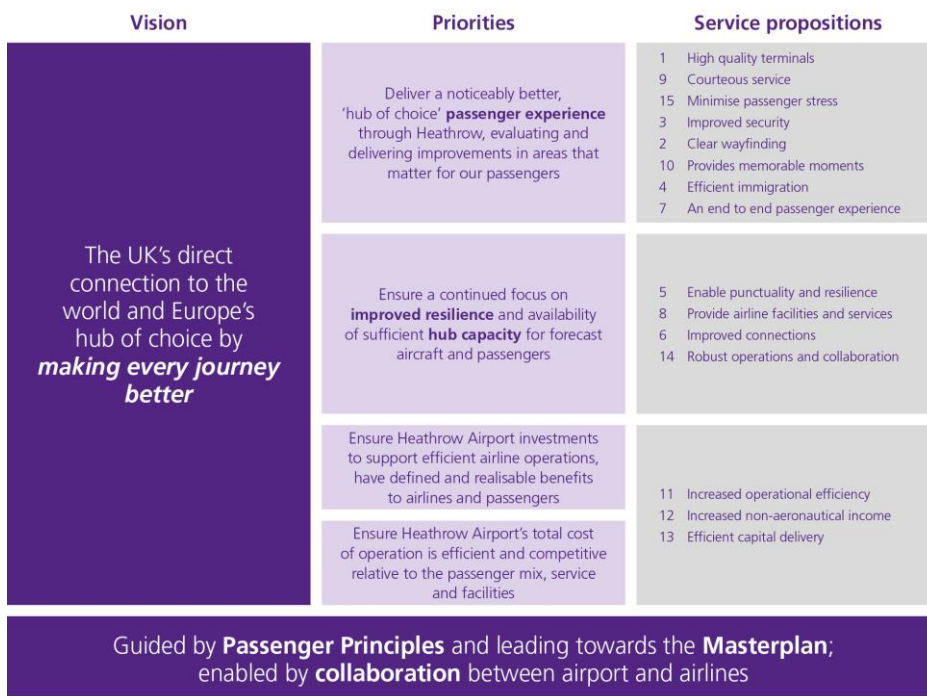

Vision	Priorities	Service propositions
The UK's direct connection to the world and Europe's hub of choice by *making every journey better*	Deliver a noticeably better, 'hub of choice' **passenger experience** through Heathrow, evaluating and delivering improvements in areas that matter for our passengers	1 High quality terminals 9 Courteous service 15 Minimise passenger stress 3 Improved security 2 Clear wayfinding 10 Provides memorable moments 4 Efficient immigration 7 An end to end passenger experience
	Ensure a continued focus on **improved resilience** and availability of sufficient **hub capacity** for forecast aircraft and passengers	5 Enable punctuality and resilience 8 Provide airline facilities and services 6 Improved connections 14 Robust operations and collaboration
	Ensure Heathrow Airport investments to support efficient airline operations, have defined and realisable benefits to airlines and passengers	11 Increased operational efficiency 12 Increased non-aeronautical income 13 Efficient capital delivery
	Ensure Heathrow Airport's total cost of operation is efficient and competitive relative to the passenger mix, service and facilities	

Guided by **Passenger Principles** and leading towards the **Masterplan**; enabled by **collaboration** between airport and airlines

Figure 3.1 Heathrow's joint Vision, Priorities and Service Propositions

Heathrow recognises that, in an industry dominated by global airline groups and alliances, Heathrow can compete for passengers' business with airports globally by giving the best airport service in the world. Consequently we expanded Heathrow's long term ambition, and in 2014 revised our vision:

> **"To give passengers the best airport service in the world"**

Our new vision places the passenger at the heart of what we do and reflects our heightened ambition to deliver a level of service competitive with the best hubs in the world. However, it does not represent a fundamental change in direction for Q6. Our Q6 plans prioritise passenger experience and resilience and thus deliver improvements which are critical in our journey towards the best airport service in the world.

As part of the Portfolio approach we continue to refine and develop the Q6 Capital plan as described in this document. The new vision will inform our long-term plans over time but is not expected to have a material impact on the Q6 Portfolio given the consistent focus on passenger experience.

4 Heathrow short-term plan

4.1 Transforming Customer Service

Heathrow delivered its best ever passenger service in 2015 and 81% of passengers surveyed rated their overall experience as 'Excellent' or 'Very Good' (2014: 78%). For eight successive quarters Heathrow has achieved a service quality score above 4.00 culminating in its highest ever quarterly score of 4.13 in the fourth quarter of 2015.

Heathrow is first among major European hub airports for service quality, as measured in the independent Airport Service Quality survey directed by Airports Council International (ACI). The high service standards have resulted in Heathrow being named 'Best Airport in Western Europe' for the first time at the Skytrax World Airport Awards. The award, voted for globally by passengers, came in addition to Terminal 5 being voted the world's 'Best Airport Terminal' for the fourth year in a row and Heathrow being voted 'Best Airport for Shopping' for the sixth consecutive year. Heathrow was also awarded ACI Europe's prestigious Best Airport Award for the second time.
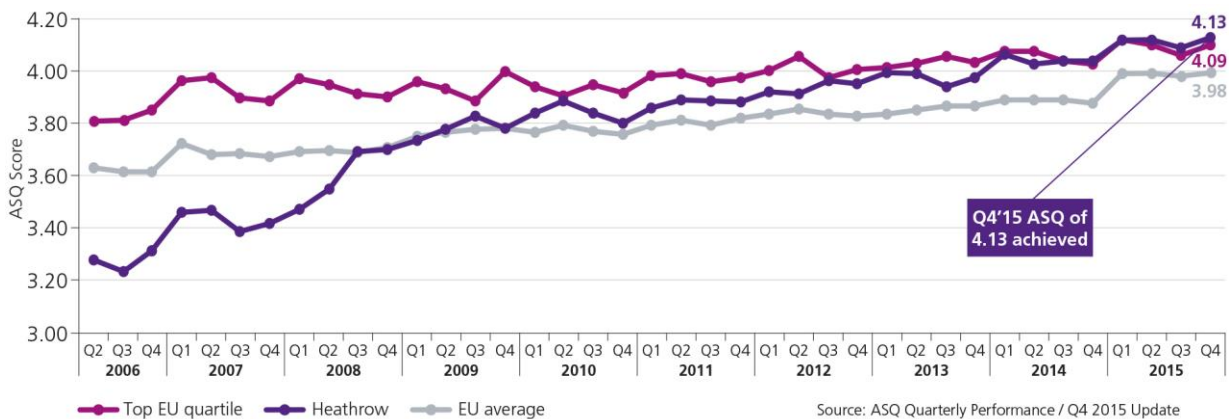

Figure 4.1 Overall passenger satisfaction with Heathrow – ASQ trend Q2 2006 – Q4 2015

Improvements have been made to ease passengers' journeys through the airport with significant capital investment in security and baggage to facilitate the flow of passengers and ensure seamless transfers between terminals. In immigration, 15 new generation biometric electronic passport gates have been installed in Terminal 5, enabling a more efficient and secure clearance through Border Control. Passengers passed through central security within the five minute period prescribed under the Service Quality Rebate scheme 97.4% of the time (2014: 96.1%) compared with a 95% service standard and the service quality regime penalty threshold was not triggered in 2015.

As part of the focus on increasing the resilience of operations, the first two of four new enhanced Instrument Landing Systems (eILS) were implemented at Heathrow. The eILS is based on new navigation technology and provides Heathrow with the capability to increase the number of aircraft that can land in low visibility giving improved safety, resilience and punctuality to airfield operations.

Heathrow is also the world's first airport to introduce a system to separate arriving aircraft by time rather than distance. This system allows more landings on windy days and has enabled delivery of a more complete schedule, better punctuality and fewer disrupted passengers. On the airfield, improvements have been made to meet increased airline demand for operating A380 aircraft at Heathrow. Further taxiways were widened and opened to A380 aircraft, driving improvement in taxi times and reducing emissions and congestion.

Heathrow short-term plan

Heathrow has had its busiest days ever in 2015 and achieved strong levels of service, with departure punctuality (the proportion of aircraft departing within 15 minutes of schedule) at 78.1% (2014: 78.2%) and a baggage misconnect rate of 17 per 1,000 passengers (2014: 19). Despite challenges to punctuality due to significant restrictions and delays in European airspace throughout the year, overall levels of punctuality steadily improved through the second half of the year. The improvements reflected a programme of operational initiatives delivered in close collaboration with NATS, a key strategic partner.

Further to the awards mentioned above Heathrow was successful in a number of other areas. These include:

- Terminal 2 won Project of the Year at The Royal Institute of Chartered Surveyors Award, alongside the Network Project of the Year for network integration. This award focuses on the contribution of individuals, projects, organisations and technologies that have excelled in the use, development and deployment of IT in the past 12 months.

- Heathrow has also been successful at various ceremonies for the lighting scheme used in Terminal 2. Awards have been received from the Lighting Design Awards 2015, World Interiors News and Lux Awards.

- Heathrow was the winner of the IT project of the year at the APM award for the Terminal 3 Integrated Baggage facility.

- Heathrow also won the Fire Safety Initiative of the Year at the New Civil Engineer Tunnelling and Underground Space Award. The award recognised the work undertaken by the Development and Engineering teams, alongside Atkins for introducing a simple, yet effective solution to improving existing ventilation in road tunnels.

- Heathrow won the Client of the Year at the South East region Constructing Excellence Awards. This award recognises the very best companies, collaborations and projects sharing best practice and inspiring others to adopt new and better ways of working that deliver outstanding results.
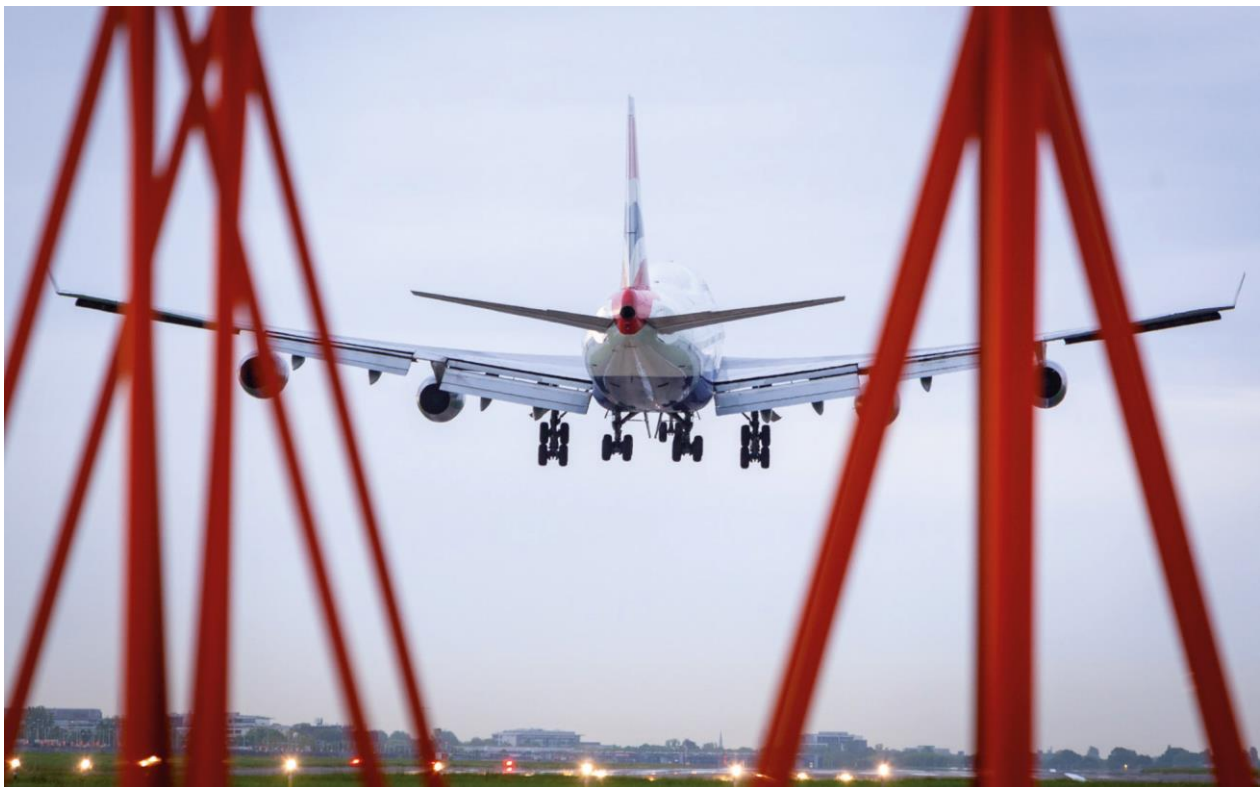
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4.2   Status of Capital Portfolio

In last year's Strategic Capital Business Plan the planned Q6 capital investment was forecast to be £2.6bn, and it was noted that this could increase up to £3.3b, subject to further scoping of remaining projects and corresponding approvals of the business cases.   Now that we are a third of the way through Q6, there is greater certainty about the plans and the planned investment is currently forecast to be £2.9bn.

The main differential between the £3.3bn allowed for in the settlement and Heathrow's current view of £2.9bn is due to the uncertainty that exists around whether the next phase of expansion is based on the 2 runway or 3 runway masterplan. The differences are detailed further in the following programme sections.

The portfolio will continue to evolve over Q6 to meet the needs of passengers and airlines. Heathrow will invest above £2.9bn in Q6 where strong business cases exist including essential asset replacement, resilience projects, capacity projects and projects which deliver good returns. We will continue to work with all the relevant parties to achieve successful outcomes.

Heathrow short-term plan

4.3 Annual status of business cases by programme

4.3.1 Passenger Experience

The Passenger Experience Programme's objectives are to 'Improve passenger experience, grow commercial revenue and realise operational cost efficiencies'. Passenger Experience outcomes will be tracked and measured through aligned business KPIs and indicators.

Business Case	Description	Settlement Baseline (£m)	Dec 15 Baseline (£m)	Dec 15 EAC (£m)
B008 Crossrail	Allowance - Heathrow must ensure that Crossrail services are able to operate on Heathrow infrastructure.	5.5	5.5	5.5
B009 Northern Perimeter	Estimate - increased capacity to the car parking estate to satisfy passenger demand. Solutions are focused on opportunities to improve the T5 campus and create opportunity for incremental growth in car parking revenue. Half of the project has been delivered.	9.7	9.7	11.7
B010 CTA Redevelopment	Allowance - for Phase 1 of the CTA Masterplan targeted at enhancing the experience of passengers using the CTA and to complement the quality of the new Terminal 2.	14.2	9.2	9.2
B014 Wayfinding	Allowance - investment to allow Heathrow to keep pace with competitor airports and rising passenger expectations for dynamic and real time information. Builds on improvements to Wayfinding in Q5.	10.7	10.7	10.7
B018 T5 Security Capacity	Estimate - to provide a new route via escalator to south security, and additional lanes.	23.5	38.9	38.9
B020 Commercial IT and Telecoms	Allowance - targeted investment in income generating Commercial IT & Telecoms to enable the continued development of products that keep pace with technology advancements, and the needs of the Airport community and passengers.	15.0	15.0	15.0
B023 Ebusiness Development for Heathrow	Allowance - scope includes a number of initiatives that build on Q5 success to launch and develop a multi-channel communication strategy. Digital channels enable greater personalised service making it easier for passengers to use Heathrow and generating additional revenue through new ways of marketing Heathrow's commercial offering.	8.3	8.3	8.3
B024 Commercial Advertising and Sponsorship	Estimate - refresh and enhance the media estate in Q6. Scope is a mix of asset enhancements, end of life replacements, and new infrastructure to protect income and drive incremental revenue from direct advertising & sponsorship of 'assets'.	34.2	34.2	34.2
B025 Premium Passenger Products & Services	Allowance - differential investment in support of lead passenger segments (Premium & UK Business). The objective is to identify and generate incremental revenue streams which also enhance the premium passenger experience.	6.6	6.6	6.6
B026 Security Fixed Post Modernisation	Estimate - targeted initiatives that maximise the efficiency of the security operation through deployed technology. Capital investment is necessary to reduce the reliance on fixed post security officers to protect passenger routes and boundaries and deliver cost savings.	10.2	10.2	10.2
B030 T1 Closure	Estimate - phased closure of Terminal 1 (excluding the baggage system which is required to support T2).	8.4	8.0	8.0

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Business Case	Description	Settlement Baseline (£m)	Dec 15 Baseline (£m)	Dec 15 EAC (£m)
B036 VIP Strategy - Commercial and Facility	Estimate – to maintain existing suites.	7.4	7.4	7.4
B037 Airline Moves	Estimate - Terminal 1's airlines will be relocated to other Terminals per the agreed move sequence.	23.6	23.6	23.6
B038 Ops Efficiency and Continuous Improvement	Allowance - set of workforce initiatives focused on continuous improvement and reducing the operational cost base.	6.0	6.0	6.0
B041 Commercial BAU fund	Allowance - high volume, low value (capex) investments, invested tactically over the Q as opportunity or need arises. Supports Retail, Commercial Passenger Services and Property teams.	32.8	32.9	32.9
B044 Commercial Systems Replacement and Upgrades	Estimate - investment in retail concessions systems providing real time sales data. The solution facilitates improved decision-making and the accuracy of concession fee payments through the transition to automatic sales reporting. The system has been installed in Terminal 2. This investment extends the system to all retailers in Terminals 3, 4 and 5.	2.8	2.8	2.8
B045 Enhanced Terminal Facilities for Passengers	Allowance - investment in hosting facilities to meet the growing expectations of passengers (in particular connections) that do not have access to airline lounges.	20.6	20.6	20.6
B059 Visitor Centre	Estimate - provision of a public facility for visitors to encourage active interest in the history and operation of the airport.	0.2	0.2	0.2
B068 Security SQR Harmonisation	Estimate - the CAA License Condition includes a harmonised security waiting time standard for direct and transfer passengers of 99% of passengers waiting less than 10 minutes. The technology to enable per passenger queue measurement will be implemented in all Heathrow terminals.	3.8	3.8	3.8
B081 T4 IDL Masterplan Phase 4 and Enhancements	Estimate - final element of the redevelopment of the T4 Independent Departure Lounge solution commenced in 2012. Drives commercial income through the creation of additional retail space and new merchandising opportunities.	8.2	7.5	7.5
B082 T5 CIP Expansion	Allowance - the capacity of existing CIP Lounge space in T5A is at capacity at peak. Facilities are not well placed to support British Airways' growth and lounge product strategy in their current configuration.	5.4	5.4	5.4
B092 UKBF Accommodation	Estimate - investment is required to bring holding rooms up to a consistent standard in line with UKBF's national standards.	5.2	5.2	5.2
B094 Crossrail Contribution	Allowance - Heathrow's contribution to Crossrail is as determined by the CAA.	86.7	86.7	86.7
B116 T3 Security Capacity	Estimate - expansion of transfer security capacity.	39.9	74.0	77.3
B129 Automation of the Passenger Journey	Estimate - replacement of CUSS Kiosks.	9.7	2.0	2.0
B156 Surface Access Development Fund	Allowance - to protect Heathrow's interests during the consultation and planning for Southern Rail access and development of other Surface Access initiatives.	2.0	2.0	2.0

Heathrow short-term plan

Business Case	Description	Settlement Baseline (£m)	Dec 15 Baseline (£m)	Dec 15 EAC (£m)
B204 Passenger Experience Programme Rollover	Rollover - items include T3 CIP Lounge, T3 Refurbishment, Premium security Fast Track, T4 Independent Departures Lounge and T5 Gate Luxury & T5 concessions.	23.2	36.6	35.9
B316 T3 Refurbishment and Enhancement	Estimate - scope includes improvements to Zones B-G Façade, International Departure Lounge, HEX tunnel.	47.0	47.0	47.0
B329 Automation of the Passenger Journey	Allowance - aligned to aviation industry led initiatives to deliver a simplified and streamlined end-to-end journey. Automated solutions being considered are self-service bag drop and self-boarding.	58.3	58.3	58.3
B356 Western Rail Access & High Speed 2 Interface & Assurance	Allowance - to protect Heathrow's interests during the consultation and planning for Southern Rail access and development of other Surface Access initiatives.	6.6	6.6	6.6
B400 T4 CSA Expansion	Estimate – expansion of security capacity.	--	5.9	5.9
B247 Security Scanners	Estimate – additional security equipment to meet new requirements.	--	6.5	6.9
B429 E-Gates	Estimate – installation of additional e-gate in T3, T4 and T5.	--	7.7	7.7

Key assumptions in the Heathrow £2.9bn portfolio view which differ from the above business cases

We do not have a bottom up plan of how we could invest the £58.3m currently allocated to B329 Automation of the Passenger Journey. Heathrow has further work to do to create a compelling business case for investment.

If Heathrow Expansion goes ahead, T3 could have a longer life than assumed in the 2 runway masterplan and additional investment over and above that contained in B316 T3 Refurbishment & enhancement could be required.

The telecoms world has evolved rapidly since the Q6 portfolio was first developed and it is likely that additional investment will be required for 4G services to meet the rising needs of both passengers and airlines.

We have not utilised the allowance in B014 Wayfinding so far in Q6 and with record ASQ satisfaction scores it may now not be required. Another business case allowance - B356 Western Rail Access & High Speed 2 Interface & Assurance - may not be required.

Key activities in 2016

- **Improvements to security**
  The work to roll out the final body scanners to support the new DfT requirements is expected to complete early in 2016. In Terminal 5 the completion of the escalator installation from flight connections is expected by the end of March providing an improvement to the experience of connecting passengers. The demolition of the old flight connections centre in T3 is due to complete in September enabling the construction of the new facility. The expanded facility is expected to be brought into operational use in early 2018.

- **Immigration hall improvements**
  During the year the detention and holding room facilities in Terminals 3 and 4 will be upgraded and expanded. Following the successful roll out in Terminal 5 in 2015, additional e-gates will also be installed in both Terminals which will increase capacity for EU travellers and those enrolled in the UK Registered Traveller scheme.

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- **Commercial advertising and sponsorship**
  The upgrade of the digital advertising offer within Terminals 3, 4 and 5 will complete in 2016 securing this significant revenue stream and creating new income opportunities. The main media site at the entrance to the CTA after the main tunnel will also be replaced in the year with a new digital screen and enhanced landscaping.

- **T3 Refurbishment and Modernisation**
  Work on the main T3 IDL improvements is expected to start on site in late September. This is supported by the completion of a new toilet block (enabling works due to commence in February) which will be handed over to Operations in November. This has been aligned with the new flight connections centre and signifies the start of the delivery of increased seating capacity to T3 IDL along with an expanded retail offering. The discussions around the needs of the many airlines in check-in are expected to conclude by mid-year and the Programme can then provide the necessary interventions to allow the high performance of T3 check-in to be maintained.

- **Hotel development across the campus**
  A new hotel adjacent to Terminal 4 is now being constructed by a third party developer and construction to redevelop part of the Terminal 3 East Wing into a hotel will commence during 2016. Proposals to build a hotel adjacent to Terminal 2 are being developed and commercial negotiations with a developer are underway.

- **T4 IDL Masterplan**
  Throughout the year, the commercial offer in the Terminal 4 departure lounge will be enhanced. This project creates 3 distinct retail zones (luxury, affordable and essential) and comprises of the relocation of 12 retail and 2 food and beverage units, the creation of 2 new retail units and improvements to the luxury unit fascias.

- **Key commercial projects**
  There are a wide variety of commercial projects being delivered across the airport to drive incremental revenue. These include the provision of new passenger catering facilities within Terminal 5, the introduction of further airline and independent lounge facilities across the terminals, a number of new shops and the replacement and enhancement of car parking at Terminal 3 and 5.

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4.3.2 Airport Resilience

The Programme vision is to provide 'A resilient airport with capability to meet demand and recover quickly'.

This Programme will achieve its vision through a series of objectives. The cumulative effect of meeting these will provide more headroom for the operation. The objectives are as follows:

- Create headroom with efficient use of technology, enhanced processes and airport infrastructure

- Accommodate future demand for new generation wide bodied aircraft

- Build resilience to adverse weather and other events, enabling a quick & safe recovery of the operation

- Drive resilience, safety and efficiency improvements in the operation (facilities and processes), whilst maintaining a safe airport.

The Airport Resilience Programme is made up of the Business Cases shown in the table below:

Business Case	Description	Settlement Baseline (£m)	Dec 15 Baseline (£m)	Dec 15 EAC (£m)
B015 Operational Systems Critical Asset Replacement	Estimate - to rationalise, update and optimize the IT estate. Protect the operational use and functions of the seven critical IT systems utilised by HAL and the airport community e.g. IDAHO.	22.6	22.6	22.6
B033 Additional Fuel Infrastructure	Allowance - the CAA determination of Capex. To increase fuel resilience at Heathrow.	160.3	100.3	100.3
B035 Aircraft De-Icing Infrastructure & Process	Allowance - for enhancing deicing capabilities.	54.9	54.9	54.9
B039 Noise Compliance	Estimate - to provide an improved and automated system for the management of aircraft noise data, which will enable automatic aircraft noise reporting, an increased horizon, near live data, ground movement monitoring, monitor/analyse Time Based Separation, and directly supports airspace changes.	2.5	2.5	2.5
B043 APOC	Rollover - for completion of APOC.	10.0	10.9	10.4
B062 Cargo Centre Southside	Estimate - support the cargo community with improved access to the airfield and cargo facilities, by redesigning the control post infrastructure and operational controls in the cargo area.	16.1	16.1	16.1
B073 Air Quality - Vehicle Charging	Allowance - provision of vehicle charging infrastructure enabling HAL and 3rd parties to utilise alternative fuels.	5.3	5.3	5.3
B098 Kilo Taxilane and Stands 234/5	Estimate - removal of Europier and existing stands, construct the kilo taxilane and stands 234/5 along with safeguarded tunnels infrastructure below.	113.3	113.3	113.3
B111 Enabling New Generation of Wide Body Aircraft - Airfield	Estimate - stand 255, Northern CTA taxiways, Sierra A and Sierra C taxiways.	85.0	91.7	104.7
B112 Airfield Efficiency and Resilience	Allowance - to enable consistent and cost effective delivery of the forecast aircraft schedule (including next generation aircraft) by operating to plan, increased precision of arrivals and maintaining departures punctuality. Work includes: Time Based Separation, airspace changes, independent arrivals, and new approach aids.	32.0	32.0	32.0

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Business Case	Description	Settlement Baseline (£m)	Dec 15 Baseline (£m)	Dec 15 EAC (£m)
B117 T4 Infrastructure Improvement	Estimate - provision of additional Code F stands, and joining of reclaim belts 7A and 7B.	26.7	25.9	24.3
B134 T4 Infrastructure Improvement - HV and Arrivals – PCA	Allowance - provision and installation of pre-conditioned air units for long haul stands that do not currently have the facility. Scope has been consolidated here from B334 and B317.	2.1	20.9	22.3
B206 Airport Resilience Programme Rollover	Rollover - includes T4 baggage reclaim hall, T5 TTS Enhancement, T3 and T4 loading bay, and Airside Operations Facility.	28.1	46.9	45.0
B211 AGL Control System and Primary Cabling	Estimate - replacement of airfield lighting control system.	--	50.3	50.3
B311 Enabling New Generation of Wide Body Aircraft - Airfield	Estimate - removal of Cranford (RAT, Noise wall), 4 additional RETS, CTA remote stands, FEGP provision for new aircraft types.	111.4	103.9	103.9
B312 Airfield Efficiency and Resilience	Allowance - in addition to B112.	19.4	19.4	19.4
B317 T4 Infrastructure Improvement	Allowance - provision and installation of new high voltage electrical infrastructure in T4. This also includes improvements to T4 arrivals forecourt.	20.0	4.5	4.5
B409 MSCP4	Estimate – to alleviate short term congestion issues.	--	0.3	0.4
B415 A320 Sharklet Strategy	Estimate - modification to stand infrastructure to accommodate larger wingspans.	0.1	0.1	0.1
B421 Airport Efficiency and Performance	Estimate – further works in APOC to improve operational performance.	--	2.0	2.3
B433 T2 DTS	Estimate – change of priority from domestic to international operations.	--	0.3	0.3

Key assumptions in the Heathrow £2.9bn portfolio view which differ from the above business cases

There are a number of business cases which are impacted by the differing investment paths which would occur in a 2 runway or 3 runway development plan. These include the increase in Aviation fuel storage, the decision to safeguard facilities under Kilo taxiway, and works on the northern runway RETS.

Construction work on additional deicing pads is nearing completion and it appears unlikely that the full allowance of £55m will be required for additional elements in Q6. Another element where there may be savings in Q6 is against the business case for replacing the AGL primary cabling. These works involve complex activities on the airfield and some elements could rollover into H7.

The £2m in the portfolio for B421 Airport Efficiency and Performance is to move the T2 control centre into APOC. Another four workstreams are being developed to improve operational resilience and HAL's efficiency, and further funds will be required.

Key activities in 2016

- **Additional code F taxiway routes are under construction**
  The southern runway's crossings will be reduced by the end of the year when Sierra A provides A380 access to

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the southern runway from T4 for 'full length departures'. To the north of the CTA, work continues on the permanent Code F route along Bravo which will become operational in 2017. Work will start on connecting the two Kilo cul-de-sacs to create a through Taxilane in the summer, with demolition works to Europier.

- **Code F stand capacity is increasing**
  Pier 4 will be demolished by October to allow the creation of four code F and one code E stand on the site of the current T1 stands. The first two stands will be delivered in August 2017.

- **The T4 baggage reclaim belt capacity is being increased**
  Works will commence on creating a larger baggage reclaim belt by joining two of the existing smaller belts. This is expected to be operational in the first half of 2017.

- **Resilience of the airfield operation will improve**
  The final two new enhanced instrument landing systems installed in 2015 will be commissioned and bought on line. The demand capacity balancing tool will go on line in September to improve punctuality and reduce stack times.

- **De-icing capabilities are being enhanced**
  The two de-icing pads in the Eastern Apron will complete in the spring.

- **Aviation fuel resilience**
  Single points of failure will be removed or reduced to an acceptable risk level by the end of the year.

- **Sustainability**
  Electric Vehicle charging points will be deployed throughout the year to encourage the adoption of zero emission vehicles and ramp equipment airside. The efficiency of the pre-conditioned air (PCA) units will be improved through the selection and deployment of a new delivery system.

4.3.3 Asset Management

The objective of the Programme is to deliver assets at the lowest possible cost whilst optimising risk and performance. This will be done for each of the Engineering, IT and Rail parts of our business.

The objectives include:

- Meet 100% of our licensing and legislative requirements

- Reduce total expenditure (Opex, Capex) over the long term by optimising cost, risk and performance, working towards the 'Asset Management Blueprint'

- Enable the flight schedule to be fully complete every day

- Understand and manage asset-related risks so that we continuously improve operational resilience

- Understand, define and meet the performance that our customers (colleagues, passengers and airlines) want from our assets, making sure there are no surprises.

The Asset Management Programme is made up of the Business Cases shown in the table below:

Business Case	Description	Settlement Baseline (£m)	Dec 15 Baseline (£m)	Dec 15 EAC (£m)
B028 Metering & Energy Demand Management	Allowance - provide improved energy consumption analytics for HAL Engineering to reduce costs and achieve the target set for carbon emissions reduction. This will be enabled through automatic meter reading technology installation across Heathrow. Delivery of a range of projects to reduce energy consumption through introduction of new technology, on-demand assets and optimisation of set point controls.	14.0	15.0	15.0
B047 Consolidated HAL landside Ops/Eng facility	Estimate - to consolidate multiple buildings to enable the full benefits of the engineering change programme.	5.5	5.5	5.5
B066 Energy and Utilities Management – Supply	Estimate - to convert the CTA heat exchangers from High Temperature Hot Water to Low Temperature Hot Water, and associated work to the district heating pipework.	21.6	48.3	48.3
B090 Lakeside	Estimate -installation of connecting infrastructure from Heathrow's Power distribution systems to the Lakeside facility enabling power to be imported from the energy from waste facility. This delivers sustainability, resilience, and efficiency targets.	5.3	5.3	6.7
B101 Engineering Asset Replacement	Estimate - asset replacement or refurbishment aligned to the principal Asset Management objectives to reduce opex and optimise for risk and performance.	595.0	495.1	495.1
B102 Rail Asset Replacement	Estimate - refurbish and replace key rail operating and infrastructure assets. This will be done to sustain current operational performance levels, to deliver Heathrow Express service throughout Q6 and ensure assets are fit for purpose when Crossrail commences.	52.8	52.8	52.8
B103 IT Asset Replacement	Estimate - provide Heathrow with a reliable and performing IT estate that will continue to efficiently support, at minimum operating cost, the operations of the airlines and the wider airport community.	81.3	81.3	88.8
B127 Surface Water Management Infrastructure	Estimate - improve the performance of the surface water pollution control system across the Eastern catchment.	16.1	16.1	16.1

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Business Case	Description	Settlement Baseline (£m)	Dec 15 Baseline (£m)	Dec 15 EAC (£m)
B131 CTA & Cargo Tunnels	Rollover - tunnels compliant with appropriate legislation and best practice, this includes: refurbishing and replacing the main tunnel systems; ventilation system; fixed fire suppression; structural fire protection; lighting; electrical and water systems; and, emergency sign and closure systems.	117.3	129.9	130.4
B165 Waste Management Infrastructure	Allowance - provide compliant waste management processes and infrastructure for HAL Operations and 3rd parties to enable the effective segregation and recycling for cost recovery from the waste stream.	5.5	5.5	5.5
B169 Asset Management Programme	Estimate - to embed good practice asset management capability throughout our business, by introducing a management system for the asset base built on industry best practice; process changes; and, organisational change.	12.1	12.3	12.3
B207 Asset Management Programme Rollover	Rollover - main items include runway rehabilitation, core electrical distribution upgrades, sweeper tip, T3 roof works, and replacement of HV intake cables.	36.5	46.8	44.2
B303 IT Asset Replacement	Allowance - provide Heathrow with a reliable and performing IT estate that will continue to efficiently support, at minimum operating cost, the operations of the airlines and the wider airport community.	25.9	25.9	25.9
B327 Surface Water Management Infrastructure	Estimate - improve the performance of the surface water pollution control system across the Southern catchment.	7.8	2.8	2.8
B401 Rapid Goods Screening Relocation	Estimate - relocation of RGS from southside to Colnbrook Logistics Centre.	--	2.8	2.8
B439 Perimeter Fence	Estimate – upgrade of perimeter fence.	--	2.2	2.3

Key assumptions in the Heathrow £2.9bn portfolio view which differ from the above business cases

Given the change in approach to environmental subsidies it is likely that the business case for B090 Lakeside will no longer be viable. It is currently predicted that a part of the allowance against B303 IT Asset Replacement will not be required.

Key activities in 2016

- **B131 CTA and Cargo Tunnels**
  Night time works will continue throughout the year with the main works scheduled to complete in Q4.

- **B101 Engineering Asset Replacement**
  Of the four key projects, two will start on site in Q1 this year: T3 life safety system, and T3 air-bridges. The remaining two will go through investment decision in Q3: Fire Main and T4 Low Voltage replacement.

- **B066 Energy Supply Management**
  Having downgraded the CTA boilers in 2015 from High Temperature Hot Water to Low Temperature Hot Water, work will continue to convert the Terminal 3 equipment and implement repairs and replacement to the Service Subways and the equipment contained within.

Heathrow short-term plan

- **B028 Energy Demand Management**
  The initial scope of works will complete this year having exceeded expectations for benefits realisation.

- **B102 Rail Asset Replacement**
  The statutory mechanical overhaul of the Heathrow Express Class 332 rolling stock will continue throughout the year.

- **B127 Surface Water Management**
  Investment decision for the new Eastern Balancing Pond water treatment plant is schedule for Q3 this year.

Heathrow short-term plan

4.3.4 Baggage

The vision for the Baggage Programme is, 'to deliver leading end-to-end baggage performance amongst European Hubs, at a competitive cost, by working safely together as a community'.

The Baggage Programme's objectives are:

- To comply with Department for Transport hold baggage screening requirements
- To reduce the baggage misconnect rate
- To simplify and consolidate systems to deliver efficiencies
- To reduce the rate of injuries associated with baggage operations
- To enable growth in passenger numbers.

The Baggage Programme is made up of the Business Cases shown in the table below:

Business Case	Description	Settlement Baseline (£m)	Dec 15 Baseline (£m)	Dec 15 EAC (£m)
B006 Improved Baggage Capacity and Resilience	Estimate - a number of elements are being considered, including: T5 Early Bag Store; T5C ULD storage (power); T5 dual off load; T5 sorter to/from reclaim; and T5 bag check units.	38.9	38.9	58.7
B051 T3IB Rollover	Rollover - for completion of T3IB.	92.3	87.5	129.4
B097 T1 Baggage Resilience	Allowance - to provide a transfer break and pre-sort facility close to the T1 baggage system with sufficient capacity to handle the T1&T2 inbound transfer traffic during contingency.	11.8	11.8	11.8
B099 T3 Baggage Enhancements	Estimate - additional loop will provide resilience to baggage operations. The arrivals road will also be upgraded to current standards.	9.1	8.7	8.7
B205 Baggage Programme Rollover	Rollover - includes HIBS (T5WBU moved to B238).	17.3	20.0	19.1
B216 Combined Baggage Standard 3 and Asset Replacement	Estimate - targeted asset replacement or refurbishment aligned to the principal Asset Management objectives and installation of new standard 3 HBS machines.	508.4	455.2	455.2
B238 Western Baggage Upgrade	Estimate – replacement high level control	--	20.7	20.7
B423 Baggage Resilience	Allowance – to respond to the finding of the baggage review and to improve resilience.	--	2.4	2.4

Key assumptions in the Heathrow £2.9bn portfolio view which differ from the above business cases

The initial allowance above for B423 Baggage Resilience is expected to increase considerably as the scope of works matures.

Key activities in 2016

- **T3IB**
  With T3IB now in operational use, our main focus is to complete the final phases of connecting the Check-in zones to the system and close the project down.

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- **T5 Western Baggage Upgrade**
  The T5 Baggage Control System will be upgraded through the first half of 2016.

- **HBS Standard 3 & Asset Replacement**
  Our major focus is on taking the Standard 3 Screening machines/asset replacement business case (B216) through G3 Investment Decision this summer. The delivery teams are installing Early Proving lines in T2 & T5, allowing us to test the end-to-end process and be certain about cost and scheduling before we install them on a larger scale.

- **T5 Early Bag Store**
  The Baggage Programme will work with stakeholders to further enhance the scope and phasing of the amendments to the Early Bag Store to enable the earliest possible start on site. The project is focused on introducing increased capacity to enable more efficient working and an improved passenger experience.

- **T1 Baggage Resilience**
  The project will work with the stakeholders to progress scope to Gateway 3 in the second half of the year. The project will deliver an improved, operationally efficient and resilient T2 baggage system.

- **Baggage Resilience**
  We have finished defining the strategy for this business case. Throughout the early part of the year, we will also complete a detailed scope definition for the baggage recovery facility in T5, improve Baggage IT resilience and progress a number of smaller projects.

Heathrow short-term plan

4.3.5 Terminal 2

The objective of this programme is to complete the works commenced in Q5 on Terminal 2. The opening of T2 has enabled us to improve the overall Heathrow passenger experience.

An allowance has been made to start with the planning application and enabling works for the expansion of Terminal 2 in future regulatory periods.

The Terminal 2 Programme is made up of the Business Cases shown in the table below:

Business Case	Description	Settlement Baseline (£m)	Dec 15 Baseline (£m)	Dec 15 EAC (£m)
B150 Terminal 2 Phase 1 Completion	Rollover - for completion of T2 phase 1 and moving in of airlines.	64.9	93.4	97.2
B154 T2A Phase 2 and T2C	Allowance - for design and enabling works for the extension of T2A and the construction of T2C.	4.8	4.8	4.8
B354 T2A Phase 2 and T2C	Allowance - for design and enabling works for the extension of T2A and the construction of T2C.	180.0	180.0	180.0

Key assumptions in the Heathrow £2.9bn portfolio view which differ from the above business cases

The works on T2A Phase 2 and T2C are currently in abeyance until after a Government decision on further runway capacity in the south east of England.

4.3.6 Q6 Realisation Programme

The Objective of the Programme is to 'Integrate and optimise Heathrow's plan to deliver the settlement and our vision'.

The programme seeks to achieve this objective through continuously aligning our strategy with our portfolio, to achieve our vision.

The Q6 Realisation Programme is made up of the Business Cases shown in the table below:

Business Case	Description	Settlement Baseline (£m)	Dec 15 Baseline (£m)	Dec 15 EAC (£m)
B058 Innovation, Research and Trials	Allowance - this business case will be used to fund new ideas and very early concept work, as the Portfolio evolves during the Quinquennium.	5.2	5.2	5.2
B077 Hillingdon Community Trust	Estimate - this reflects commitments made as part of the planning processes for T5 and T2.	2.8	2.8	2.8
B078 LACC Project Manager	Estimate - provision of Project Management services to aid with airline community engagement and consultation.	0.6	0.6	0.6
B164 Back Office IT	Estimate - provide Heathrow with a reliable and performing IT estate that will continue to efficiently support, at minimum operating cost, the operations of the airlines and the wider airport community. In addition, as a result of the refresh activity, the IT estate will have been further rationalised, optimised and updated.	31.8	31.8	31.8
B176 Funds for Independent Funds Surveyor	Allowance - this business case will facilitate the implementation of Gardiner and Theobald as the IFS.	3.2	3.2	3.2
B208 Q6 Realisation Programme Rollover	Rollover - includes CCTV work; document management; and, treasury accounting.	3.4	4.6	4.6
B241 Portfolio Balance	Allowance – holding business case.	--	11.7	11.7
B376 Funds for Independent Funds Surveyor	Allowance - this business case will facilitate additional implementation of Gardiner and Theobald as the IFS.	3.5	3.5	3.5

Key assumptions in the Heathrow £2.9bn portfolio view which differ from the above business cases

In the predicted £2.9bn portfolio HAL has made an increased allowance against B241 Portfolio Balance. This is with the expectation that there will be increased investment across a number of baggage business cases, as well as just B423 Baggage Resilience. There will also be funds required for a number of items in T2 such as check in improvements, additional baggage enquiry desks, and Gate baggage chutes. There also is an emerging workstream to look at improving the connections product offering which may require capital investment.

Key activities in 2016

Further work is planned to progress back office IT.

4.4   Independent Fund Surveyor update

The objective of the Independent Fund Surveyor (IFS) is to provide an on-going assessment of the reasonableness of all key decisions made on key projects and to ensure that capital is being used effectively to deliver the outcomes determined by the Business Case. The IFS is not a responsible party in the delivery of the projects.

In 2013, Heathrow and the Airline Community agreed the terms of IFS appointment as a joint appointment by Heathrow AOC Limited and Heathrow Airport.

Gardiner & Theobald (G&T) have been appointed to provide the IFS services.

The IFS are reporting at Gateways and on a monthly basis during the development and delivery phases of the projects. They present a summary of their monthly reports at the Capital Portfolio Board (CPB).

The key benefits of the IFS are to:

- Focus on the processes being followed, the assumptions being made and the overall appreciation of the risks being managed

- Enhance the current system by providing real time reviews / reporting through the gateway lifecycle process

- Add value to the delivery of the Q6 portfolio by providing an increased level of confidence to all parties

- Significantly simplify regulatory capex efficiency reviews.

The IFS has so far been deployed to monitor 20 key projects and will be engaged on additional projects, throughout the remainder of Q6.

4.5   Updated list of key projects, triggers and IFS deployment

The list of projects which are either key, triggered or monitored by the IFS is below. This list has been updated during 2015 following consultation with the Airline Community.

Key Projects / Business Cases	Trigger(s)	Trigger Scope	IFS	IFS Scope
B117 T4 Infrastructure Improvement	**1 - Trigger complete**	Q6 rollover trigger complete (stand 410).	Y	T4 Code F Stands (410, 411, 412) - **Complete**
B207 Asset Management Programme Rollover	**1 - Trigger complete**	Q6 rollover trigger complete (Northern runway)	Y	Northern Runway
B018 T5 Security Capacity	1 -Trigger defined - project on site	Transfers security escalator	Y	T5 Transfer Security Capacity
B031 CTA & Cargo Tunnels	1 -Trigger defined - project on site	Q6 rollover trigger agreed (Main tunnel)	Y	Main and Cargo Tunnel
B051 T3IB Q5 Rollover	1 -Trigger defined - project on site	Q6 rollover trigger agreed (Cut-ins complete and system operational)	Y	T3IB Rollover spend
B101 Engineering Asset Replacement - Airbridges, FEGP, PCA	1 -Trigger defined - project on site	T3 Airbridge Replacement - to be reviewed	Y	T3 Airbridge Replacement
B101 Engineering Asset Replacement - Life Safety systems	1 -Trigger defined - project on site	T3 Pier 7 roof triggered instead of T3 Life Safety System	Y	T3 Life Safety Systems

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B111 Enabling New Generation of Wide Body Aircraft - Airfield	1 -Trigger defined - project on site	Bravo North taxiway	Y	Alpha Bravo taxiways
				Sierra C taxiway
				Sierra A taxiway
B116 T3 Security Capacity	1 -Trigger defined - project on site	T3 Security Capacity	Y	T3 Security Capacity
B006 Improved baggage capacity and resilience	1 - project pre G3	T5 Early Bag Store	Y	T5 Early Bag Store
B033 Additional Fuel Infrastructure	1 - project pre G3	To be defined	Y	To be defined
B035 Aircraft De-Icing Infrastructure & Process	1 - project pre G3	To be defined	N	-
B098 Kilo taxilane and stands 234/5	1 - project pre G3	To be defined	Y	Kilo taxilane
B101 Engineering Asset Replacement Electrical Power Infrastructure	1 - project pre G3	T4 LV Electrical Infrastructure - to be reviewed in 2016	Y	T4 LV Electrical Infrastructure
B101 Engineering Asset Replacement - Life Safety systems	1 - project pre G3	To be reviewed in 2016	Y	Fire main replacement/ pressure reduction
B112 Airfield Efficiency and Resilience	1 - project pre G3	To be defined	Y	To be defined
B216 Combined Baggage Standard 3 and Asset Replacement	4 - project pre G3	4 x Std3 HBS (T1/2/4/5). T4 trigger post 2018	Y	4 x Std3 HBS & Asset Replacement scope related to Std3 HBS
B311 Enabling New Generation of Wide Body Aircraft - RAT, RETs, Remote Stands and FEGP	1 - project pre G3	CTA Remote Stands	Y	CTA Remote Stands
B317 T4 Infrastructure Improvement - HV and Arrivals	1 - project pre G3	T4 HV	Y	T4 HV
B329 Automation of the Passenger Journey	1 - project pre G3	To be defined	Y	Scope to be defined
B354 T2A Phase 2 and T2C - enabling	1 - project pre G3	To be reviewed in 2016	Y	To be reviewed in 2016
B037 Airline Moves	N/A	-	Y	Review of El Al T4 move G3 cost only - Completed
B238 Western Baggage Upgrade	N/A	-	Y	WBU
B150 Terminal 2 Phase 1 Completion	N/A	-	N	-
B030 T1 Closure	N/A	-	N	-
B312 Airfield Efficiency and Resilience	N/A	-	N	-
B316 - T3 Refurbishment and Enhancement - Facades, IDL, and Arrivals Concourse	N/A	-	N	-

4.6 Portfolio concept list

A number of new ideas have been identified since the start of the Q for consideration by the Capital Portfolio Board. During 2015 new ideas were categorised under three themes:

i) Passenger Experience - ideas having an impact on the passenger experience

ii) Baggage - ideas relating to the baggage infrastructure

iii) Terminal Occupancy - ideas which were put on hold pending the outcome of the Terminal Occupancy review in November 2015.

During the final quarter of 2015 a prioritised list of new ideas relating to T2 was agreed with the T2 community and endorsed by the Capital Portfolio Board with the delivery of those projects being progressed during 2016.

Examples of new concepts introduced into the portfolio include:

- B415 A320 Sharklet Strategy. These works enabled a new aircraft variant to successfully operate from T5.   This was completed in April 2015

- B429 E-Gates. New e-gates have been installed in T5 with further ones to be deployed in T3 and T4

- B433 T2 Domestics to South (DtS). Following the cessation of Little Red flights, a project was undertaken to reconfigure some gates from domestic to international.

The on-going development of the concept list has been discussed at the relevant stakeholder groups. It is expected that the Baggage and Connections workstreams will generate the most activity.

4.7 Development and Core Capex, and relationship to airport charges

The Development and Core spend in 2015 was £590m. Aeronautical charges for 2015 were based on £768m (2015 prices) as per the Q6 settlement. The difference in return will be included in the 2017 Aeronautical Charges consultation.

The cumulative value of Core capital approved by the Capital Portfolio Board by the end of 2015 was £1.16bn.

4.8 Q6 portfolio, programme and project process

This methodology recognises that the Portfolio is a balance between strategic benefits, the resources invested, and the business risks. The objectives of the Portfolio are fully aligned to the four priorities for Q6 – passenger experience; Hub capacity and resilience; efficient airline operations and total cost of operation.

While the emphasis has switched in 2015 from Portfolio Definition to Portfolio Delivery, the Portfolio is still reviewed on a regular basis, to ensure the Portfolio is optimised. New ideas and concepts can be introduced in this manner, as well as capturing changes in the existing base plan.

The Q6 portfolio comprises of business cases aligned to the four priorities. These have been allocated to Heathrow's Strategic Programmes.

The Strategic Programmes approach has continued into Q6 via four main programmes:

- Passenger Experience
- Airport Resilience
- Asset Management
- Baggage

Programmes provide the structural framework to ensure that the business cases are delivered within defined time, cost and quality parameters. Also they deliver the outputs required to enable the Programme to deliver its agreed outcome and benefits for passengers and airlines.
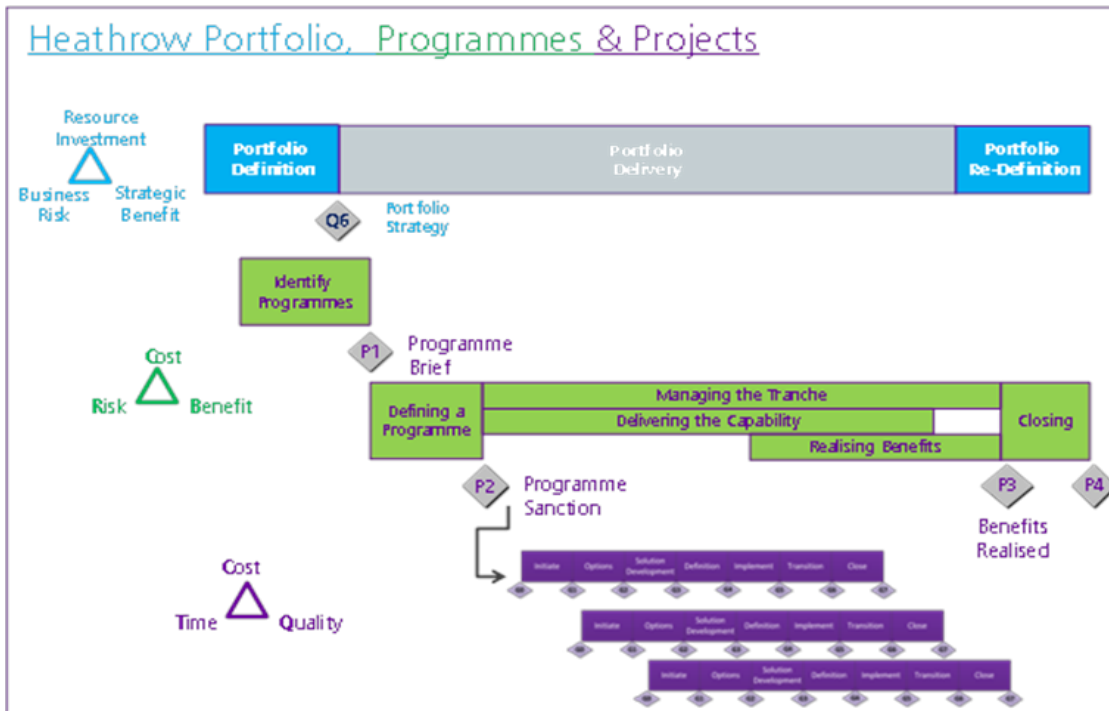

Figure 4.1 Heathrow Portfolio, Programme & Project Process

It is intended that all business cases and projects within should progress at the appropriate pace through the Gateway Lifecycle process.
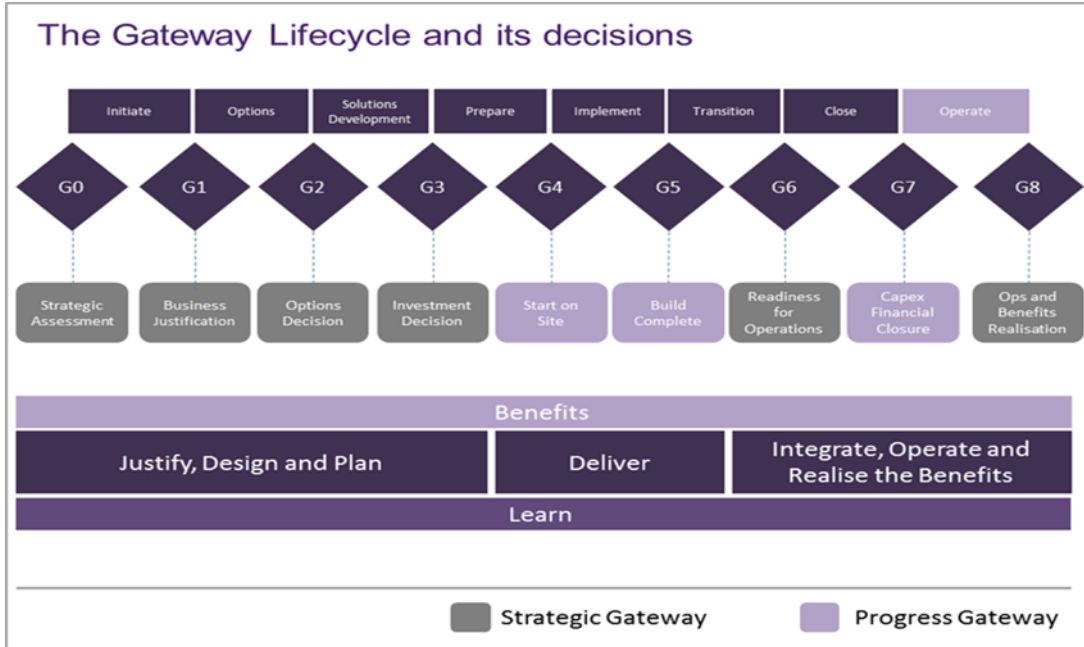
Heathrow short-term plan

Figure 4.2 Heathrow Gateway Lifecycle

Gateway 0 to Gateway 3 is known as the Development Stage. Development Capital Expenditure (Capex) projects will have a lower definition of scope, schedule, risk and cost than Core Capex projects (post Gateway 3), and may not necessarily have a clearly understood method of delivery.

Gateway 3 is the critical investment decision point, as at this point in the lifecycle, it may be jointly agreed between Heathrow and the Airline Community for the Business Case not to go ahead, as there now may not be a requirement for the investment. In this scenario, any investment money not spent may either be given back to the Airline Community via a rebate, or, the money may be spent on a new Business Case.

In addition;

- It is the transition point at which Capex passes from Development to Core, via the Capital Portfolio Board

- It is the point of transition where the Business Case goes from the Programme, into Delivery. For this to take place there should be confidence in the schedule, cost and risks prior to awarding a contract to the Delivery Integrator

It is the point at which Regulatory Triggers are set (if required).

Heathrow medium-term plan

5 Heathrow medium-term plan

5.1 H7 Portfolio

As at the end of December 2015 no decisions have occurred as to potential business cases for H7. Some rollover into H7 for baggage asset replacement and screening is probable. We have developed a better understanding of Pre Conditioned Air and associated infrastructure and it is expected that this work will continue into H7. Aviation Fuel is in a similar situation with any works likely to take place over multiple Quinquennia.

Developing the H7 portfolio will be a focus during 2016, taking guidance from the CAA's "Strategic Themes for the review of Heathrow Airport Limited's charges (H7)", published in March 2016.

5.2 Heathrow's traffic forecast

Ensuring an accurate forecast is hugely important and benefits the whole Heathrow community, enabling businesses to plan their activities and tailor their resources in accordance with the expected demand.

5.2.1 Settlement traffic forecast

The table below shows the CAA's Q6 forecast of 347.7 million passengers, using the econometric model.

Reg. Year	Total (Millions)	Short Haul (Millions)	Long Haul (Millions)	Q6 Total (Millions)
2014 (Apr - Dec)	55.4	27.0	28.4	
2015	72.0	34.9	37.1	
2016	72.7	34.9	37.8	347.7
2017	73.4	35.0	38.4	
2018	74.2	35.1	39.1	

Table: Passenger forecast (millions) based on CAA's Q6 Settlement

Heathrow's current traffic Forecast

The table below shows Heathrow's current traffic forecast, where 2014 and 2015 are the actual outturn.

Reg. Year	Total (Millions)	Short Haul (Millions)	Long Haul (Millions)	Q6 Total (Millions)
2014 (Apr - Dec)	57.3	28.1	29.2	
2015	75.0	37.0	38.0	
2016	75.7	37.3	38.5	358.8
2017	75.4	36.4	39.0	
2018	76.0	36.4	39.7	

*2014 and 2015 are actuals, 2017 onwards are shocked forecasts

Table: Heathrow's current passenger forecast (millions)

The passenger traffic for the Regulatory year 1st January 2015 - 31st December 2015 was 75.0 million passengers, an increase of 4.1% on the settlement forecast.

For short-term planning, forecasts do not include shock events, which is consistent with Heathrow's approach to traffic forecasting. Medium or long-term forecasts, in this case 2017 onwards, make an allowance for potential shocks given that historically they have impacted Heathrow's traffic by an average of close to 1.2%.

Heathrow medium-term plan

5.2.2 Risks and assumptions

Risks

Our forecast values come with some risks; aviation is a cyclical industry, exposed to both the overall business cycle and aviation-specific events. The key assets, namely aircraft, are mobile and deployed in a global context for Heathrow's airlines.

We have reflected this uncertainty in the numbers discussed above. However, this does not account for dramatic changes to core assumptions. These might include:

- Fleet upgrade plans - most of the growth for Q6 comes from airline fleet upgrades. Therefore, there are risks – for example that A380 fleet upgrades could be delayed.

- Economic crises – our forecasts are occurring at a time of great uncertainty in the world economy. Growth assumptions and the stability of growth cannot be assumed, with impacts on demand and airline investment decisions.

- Fares - oil price and carbon impacts on fares have the potential to diverge dramatically from what currently appears to be a reasonable range. This can be seen in historical in the oil price.

- Security - forecasts are at risk from major changes in the overall level of security in global aviation and security screening rules.

Assumptions

Airport capacity constraints

This plan assumes that the annual cap of 480,000 ATMs at Heathrow will continue throughout Q6 and that any use of tactical measures will not lead to an increase in capacity, but rather improves resilience of the airport.

This plan is based on a two runway airport.

Heathrow medium-term plan

5.3 Asset Disposals

The Capital Investment Protocol requires that any asset disposals in the current regulatory period are included in the Strategic Capital Business Plan.

No such asset disposals are currently planned. However, long term leases are being utilised for the development of hotels. The commercial structure for these deals is typically that Heathrow grants a long ground lease of up to 150 years to a third party developer or operator, who funds and operates the hotel. The ground leases would be structured to provide for annual ground rent payments to Heathrow, channelled through the single till.

We have completed such a contract on a site at T4 with the Arora Group.   They plan to operate two hotels (Holiday Inn Express and Crowne Plaza) within the same structure, offering c750 rooms. The hotels are targeted to open in late 2017. On this project, the Heathrow enabling works (site clearance and service provision) are being undertaken at the developers cost.

At an earlier stage there are plans for a mid-scale hotel of c250-300 rooms in the vicinity of T2. Airline Community consultation has commenced and will be closed out in 2016 when full scheme design/costs for the HAL elements are available.

The T3 (Boiler House) hotel site is much earlier in its project life with developer selection, planning consent and airline consultation still to be achieved.

Figure 5.1 T4 Hotel

Figure 5.2 T2 Hotel

Heathrow medium-term plan

5.4 Responsible Heathrow

Achieving Heathrow's vision to "give passengers the best airport service in the world" relies on running the airport responsibly. Responsible Heathrow 2020 is our commitment to supporting economic growth and investing in our local communities, managing our environmental responsibilities and looking after passengers and our people. It is helping us achieve our ambition to be one of the most responsible airports in the world. From designing efficiencies into our development projects at the earliest stage and developing the talent to help us deliver the business strategy, to minimising risk and harnessing opportunities through our supply chain, Responsible Heathrow is built into every element of our business plan.

Several sustainability awards have been won and show our commitment to the environment:

- We have been awarded the Eco-innovation award at the ACI EUROPE Awards. This award is given to the airport that has demonstrated outstanding environmental performance and in particular, an innovative approach to environmental management

- We have won the Biodiversity benchmark award at the Wildlife Trust Awards. It is the first recognised scheme to award continual biodiversity improvement of land.

- We have also won the Private sector fleet of the year award at Green Fleet Awards. This is awarded to the UK private sector organisation with a fleet of more than 250 vehicles that can demonstrate a reduction in CO2 and other pollutants through fuel efficiency programmes, green fleet management and driver awareness training.

Figure 5.3 Responsible Heathrow – our 2020 goals

Heathrow medium-term plan

Responsible Heathrow sets out our top 10 sustainability goals, supported by further commitments that bring together the big issues affecting Heathrow, our community and our stakeholders. In 2016 we will be looking to agree and publish more ambitious goals. Our detailed strategies and action plans, including the Noise Action Plan, Air Quality, Waste, Energy and Water Strategies and Sustainable Transport Plan[1] , sit behind Responsible Heathrow to ensure its delivery.

Our plans for Q6 to support the delivery of Responsible Heathrow include:

- Safeguarding the wellbeing of our people, partners, passengers and members of the public through the Heathrow Safety Roadmap Safety Charter

- A noise programme that complies with Heathrow's noise abatement procedures and planning conditions, which aims to demonstrate that we are doing all that is reasonably practicable to manage aircraft noise impacts. In 2016 we will focus on delivering the steps outlined in our "blueprint for noise reduction"

- Improve the efficiency of aircraft ground movements, leading to reduced delay and congestion that cut fuel costs and lower emissions

- Reduce air emissions in line with our objective to play our part in meeting EU limits set out in air quality regulations, and including facilities for zero and low emission vehicles, ground support equipment airside and continued investment in pre-conditioned air

- Reduce Heathrow's total electricity use by investing in energy demand management improvements and closing old and inefficient infrastructure, whilst curbing any additional growth in demand from new infrastructure by driving energy efficiency in all Q6 projects

- Creation of a fit for purpose, efficient and low carbon energy supply and heat network that is linked to Heathrow's long term energy supply strategy.

- Improvements to the surface water pollution control system across the airport to cope with current and future demand, and meet regulatory requirements

- Continuing to contribute to Crossrail to facilitate sustainable passenger and staff travel

- Using the Employer's Requirements for Sustainability to encourage sustainability innovation and performance tracking

- An economic and community programme that includes supporting local people into work through the Heathrow Academy and the Heathrow Jobs and Careers Fair, and providing opportunities for local businesses to engage with Heathrow's supply chain through the Heathrow Business Summit.

- Delivering the 27 commitments set out in the recently published Surface Access blueprint titled: "Reducing traffic: a new plan for public transport". This is our five point plan to improve public transport in 2015/16.

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[1] All available at http://www.heathrow.com/responsibleheathrow

6 Heathrow long-term plan

6.1 Heathrow Expansion

Heathrow is a national asset and gives Britain a huge competitive advantage to reach far-off markets with frequent and direct flights. As the UK's only hub airport, Heathrow is within range of a direct flight to 95% of the global economy.

Heathrow is the country's biggest port for both passengers and freight. It handles twice as much cargo in value as the UK's two busiest shipping container ports combined. Its role is complementary to the role of all other UK airports. Like its direct competitors in Paris, Frankfurt and Amsterdam, it serves markets that cannot be served by point-to-point airports.

But Heathrow has been full for ten years. In that time, airlines have swapped their domestic connections for more lucrative long haul ones, creating a lost decade of connectivity for British business of all sizes from all corners of the country.

Only Heathrow, the UK's best connected hub, will secure the UK's place in the world as a global aviation hub for the next generation. The Airport Commission's analysis shows the prize for Britain if Heathrow expands is up to £211billion for the economy and up to 180,000 new jobs. And unless the new capacity serves and connects all of the UK, the danger is our economy will remain unbalanced and we will fall behind our European competitors.

By expanding Heathrow, we can create a hub airport at the heart of an integrated transport system with new rail and air connections to every part of the UK. We will help to rebalance the economy beyond London and the South East, making it easier for people to get to Heathrow. And expansion will lead to lower fares thanks to increased airline competition.
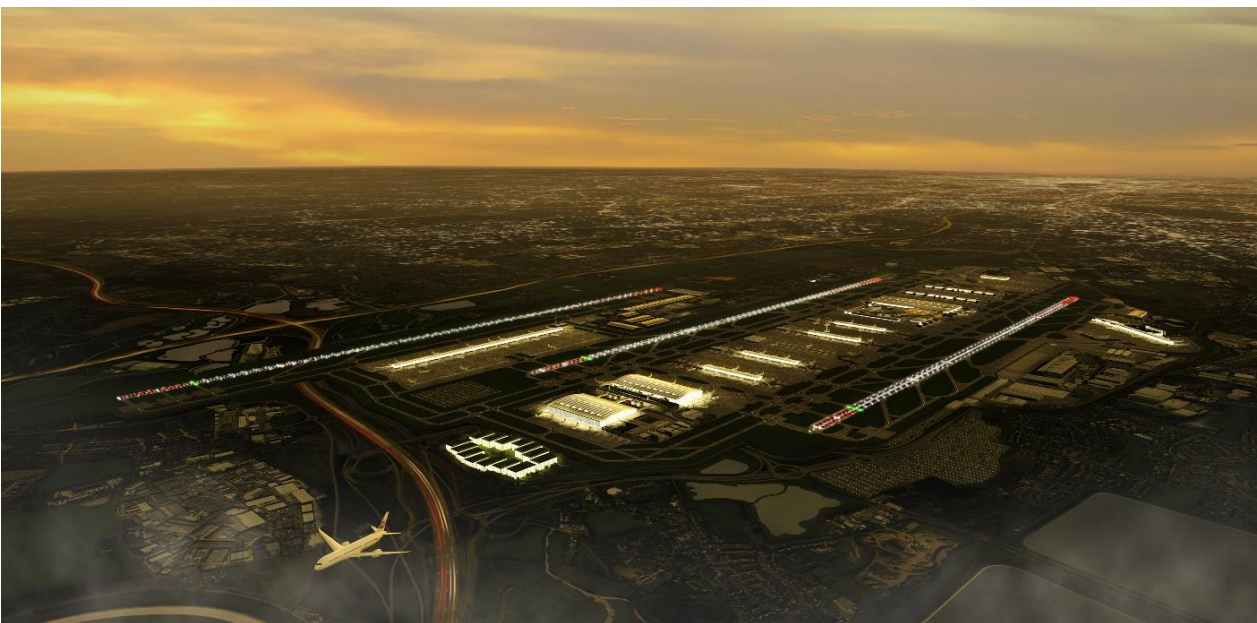
In July 2015, the Airports Commission clearly recommended the building of a third runway at Heathrow. The Commission confirmed that expanding Heathrow would have the biggest economic benefits for the UK and can be done while reducing noise for local communities and within EU air quality limits.

In December 2015, the Government accepted the case for airport expansion in the southeast and the Airport Commission's shortlist of options for expansion. It also identified the most appropriate way of delivering planning capacity for new consents. The Government's next steps will be to undertake a package of further works which will

Heathrow long-term plan

be concluded in summer 2016, such as testing the Airport Commission's air quality analysis and developing the best possible package of measures to mitigate the impacts on local people and the environment.

We believe that a third runway should only go ahead within strict environmental limits, which is why developing Heathrow sustainably is a key objective for us. Feedback from our extensive consultations with stakeholders and communities has seen our plans designed around avoiding impacts on the communities and the natural environment.

Heathrow's plans show that expansion is not a choice between the environment and the economy as expansion at the airport will deliver for both.

Expansion at Heathrow will only be delivered within the UK's carbon targets and air quality limits. Our new plans also mean that fewer people will be affected by noise than today, and there will be no more cars on the road.

We have developed our new approach because we have listened to local communities and those across the country who depend on a truly national hub airport. And it is because of this new approach that the landscape around Heathrow has changed. Today Heathrow expansion is supported by a majority across our local communities and 80,000 people have signed up to support grassroots campaign Back Heathrow.

Heathrow long-term plan

6.2 Heathrow 2 runway masterplan

The Heathrow Masterplan is a long-term vision illustrating the development of Heathrow over a period of time. It provides the basis for the long term vision of transforming the airport layout to improve passenger experience, drive out operational inefficiencies, and enable growth in capacity and enhancing hub operations at the airport.

In May 2013 Heathrow updated the 2 Runway Masterplan Vision, following consultation with the Airline Community to reflect the impact of IAG acquiring bmi. The Masterplan now rationalises passenger processing capacity into two buildings between the runways. It also removes current cul-de-sacs to provide a flow-through taxiway system, more stand frontage and a greater number of stands suitable for accommodating Code F aircraft. This approach brings the following benefits:

- Improved passenger experience, fuel costs and CO_2 emissions by reducing taxi time;

- Improved passenger experience by removing time-expired passenger processing facilities and replacing them with newer, efficient and attractive buildings;

- Increased revenues by increasing passenger throughput as a result of enabling larger aircraft to be used at Heathrow;

- Improved ability to compete as an international Hub airport by reducing transfer times as a result of consolidating alliance partners.

Our long term plans reflect this revised Masterplan phasing approach. During Q6:

- We have delivered a full closure of T1 for passenger operations as demand is moved to other facilities. This will enable a partial demolition of some parts of the terminal infrastructure and a partial reconfiguration of airside apron areas to support T2's operation;

- We are reconfiguring the northern section of the Alpha and Bravo taxiways to accept code F aircraft and improve taxiing patterns for these aircraft types.

In a 2 Runway scenario our view is that the next major step towards delivering the Masterplan should be the second phase of the T2 development, as this provides the:

- Potential to close T3 and process more passengers through newer terminals;

- Replacement of T1/T2 baggage system;

- Reduction in airline operating costs earlier by balancing out demand across the aprons;

- Minimal amount of operational disruption compared to other options.

We will continue to review the phasing strategy as airline demand evolves (e.g. airlines mergers and acquisitions) and we will consult with the Airline Community accordingly.

Heathrow long-term plan

Figure 6.1 Heathrow in 2013

Figure 6.2 May 2013 Master plan: Heathrow in 2012+ approximately 20 years

Heathrow long-term plan

6.3   Cargo

Heathrow's role in the cargo operation is to provide infrastructure that enables airlines and cargo handling companies to operate efficiently and competitively. Cargo facilities such as the Customs' approved Transit Sheds and other cargo warehouses are not owned by Heathrow.

In 2015 Heathrow launched its cargo strategy which sets the 2030 ambition of being Europe's leading large airport for cargo. The strategy was developed over a 12-month period and involved extensive engagement with the cargo industry locally, nationally and internationally. All stakeholders wanted Heathrow to be the best it could be and identified a range of measures and improvements they wanted in order to grow their business and improve their service. Through a number of focus groups, these measures and improvements were prioritised by industry and Heathrow commenced work on the high/medium priorities as part of Q6 Business Case 062 which sits in the Airport Resilience Programme.

Previously Heathrow reported the business case was an opportunity to bring the Other Airside Area (OAA) into the Critical Part of the Security Restricted Area (CPSRA) however following the industry input and coupled with the practicalities of delivering it with the existing site, this is now less of a priority and similar benefits can be achieved with lower capital outlay.

We recognise the importance of cargo to our airlines and will work closely with our business partners – in particular the cargo forwarders and handlers – to make Heathrow a credible airport for cargo again. We take responsibility for our airport and whilst we're neither landlord of the Heathrow Cargo Centre nor provide (or contract for) cargo services, we will play our part.

The volume of cargo moving through Heathrow will continue to grow and we need to ensure there are sufficient facilities to handle that growth so will engage Airport Property Partnership (APP) alongside off-airport commercial property companies to ensure the airport has the capacity it needs.

Heathrow's cargo community have been very supportive during the strategy development and helped to determine the factors that are most important to our stakeholders. The value of cargo to our stakeholders is abundantly clear and Heathrow will continue to engage with the cargo and airline communities to refine plans to address their needs.

Heathrow long-term plan

6.4 Planning policy

The National Airports Policy is contained within the 2013 Aviation Policy Framework. This generally supports operational improvements that make best use of existing capacity, and looks to improve surface access to airports, particularly by rail.

The Airports Commission was established in 2012 to consider the case for an additional runway in the South East. Following extensive consideration and consultation the Commission issued a final recommendation to Government in July 2015 that an additional runway should be located at Heathrow. The Government has now considered this recommendation and in December 2015 announced that it requires a further six months to makes its final decision. Should the Government endorse Heathrow's expansion, it will need to commence the preparation of a National Policy Statement to provide the decision-making framework for a planning application to deliver the expansion.

At the regional level, the London Plan provides the relevant planning policy framework for London and must be in general conformity with national policy. The content and timetable for the review of the London Plan will be known after the Mayoral elections in May 2016.

At the local level, planning policies for Heathrow are contained within the London Borough of Hillingdon Local Plan Part 1 and the Hillingdon Unitary Development Plan, which must also conform to the higher tier regional and national policies.

Local and regional planning policy specific to Heathrow is generally supportive of development which is contained within the limits of growth set down by Government in its decision to permit Terminal 5, and within the defined airport boundary.

The Hillingdon Local Plan Part 1 is supportive of the sustainable operation of the airport within its existing boundaries and the renewal of facilities to improve passenger experience. Hillingdon Council has consulted on Part 2 of the Hillingdon Local Plan which will replace the Unitary Development Plan and provide new detailed policies for guiding development proposals. A public examination of Part 2 will take place during 2016 and an independent Inspector will ultimately determine whether it can be formally adopted.

Heathrow long-term plan

6.5   Airspace

The success of Heathrow's operation depends on the airport's resilience and capacity. This applies across all parts of the passenger journey, from the terminals, over the airfield, and into the airspace. To this end the airport is working with its industry partners (NATS, the Airline Community, CAA, and Eurocontrol) on major UK wide projects such as the Future Airspace Strategy (FAS) and the London Airspace Management Project (LAMP). These projects are working to ensure the airport has sufficient airspace capacity to enable the airport to cope with future demand as well as crisis events while also improving the punctuality of our flights and reducing emissions and noise. These projects will draw on the work being carried out in the Single European Sky ATM Research programme (SESAR) and look to deploy the projects being validated in this Europe-wide project.

The aims of the airspace modernisation project are to:

- Improve capability and resilience by increasing operational 'headroom'

- Seek to reduce the environmental impact of Heathrow's operation

- Improve performance (we will work to improve punctuality, with 80% of flights arriving or departing within 15 minutes of their scheduled time).

These aims will serve to support Heathrow's role as the UK's Hub and its function as a critical lynchpin of the entire Air Traffic Management (ATM) network. Heathrow's performance has a material and significant impact on network performance, for example, the implementation of A-CDM here was widely recognised as fundamental to the ATM performance at a pan-European level.

Progress in these areas will be accomplished in collaboration with NATS, the CAA, and the Airline Community through advances in both policy and technology to ensure better tactical decisions are made and resources are used more efficiently. This includes:

- The real-time measurement and collaborative management of performance

- Addressing the lack of flexibility in the runway infrastructure

- Improving out-dated arrival and departure procedures through airspace change processes and new technology (e.g. LAMP and independent parallel approaches).

Through such measures we aim to reduce the level of Air Traffic Flow Management (ATFM) delay at Heathrow usually attributable to weather disruption such as strong winds or low visibility. For example, one of the key projects out of SESAR that has already been delivered is Time Based Separations (TBS). The Enhanced Instrument Landing System (eILS) project is another example of where Heathrow is seeking to reduce delay related to weather.

This work is vital to support the airport's vision to be 'a resilient airport with the capability to meet demand and recover quickly' while maintaining Heathrow's high levels of operational intensity and decreasing susceptibility to mass disruption or 'red days'. In particular the work will ensure that the increase in wide-bodied aircraft, expected at Heathrow, can be accommodated at the airport and that the short-medium term recommendations of the Airport's Commission on Airport Capacity are implemented. You can see the list of Business Cases supporting this vision in the Airport Resilience Programme, in Section 4.3.2.

These airspace improvements aim to improve Heathrow's operation and will therefore serve to improve the passenger experience by reducing delays as well as by reducing the 'buffers' airlines place in the schedules to compensate for anticipated delays.

Appendix

7   Appendix – Equitable treatment metrics

Comparison of facilities by terminal
The table below sets out metrics related to facilities to allow airlines to make comparisons. Any potential investment decision to make facilities more equitable must also be subject to the usual business case test; including business benefits, financial appraisal, asset life, masterplan progress, cash constraints and agreed investment profiles.

			Measurement	Definition	T1	T2	T3	T4	T5	Notes
1.0	**Traffic**	1.1	MPPA	Million Passengers Per Annum (MPPA) - defined as quantum of total passengers served in each terminal per annum. Calculation based on an annual terminal throughput for last calendar year	0.8	16.7	15.2	9.2	33.0	Data from BOSS 2015. *General Aviation excluded (Flight types 1,3 used)*
		1.2	ATM PA	Air Traffic Movements (ATMs) per annum - defined as quantum of aircraft movements in each terminal per annum. Calculation based on air traffic movements in each terminal for last calendar year	6,754	116,861	76,974	53,357	215,711	Data from BOSS 2015 - *General Aviation excluded (Flight types 1,3 used)*
		1.3	Peak hour departing flow - all pax	Peak Hour Passengers - number of passengers (including transfer passengers) served in each terminal counted as 30th peak hour (clock hour) of the last calendar year	493 (ATD) 514 (STD)	2,624 (ATD) 2,356 (STD)	2,937 (ATD) 2,864 (STD)	2,177 (ATD) 1,932 (STD)	4,800 (ATD) 4,453 (STD)	Data from BOSS 2015 - Clock Hour ATD (Actual Time of Departure) and STD (Scheduled Time of Departure) figures used for 2015, *General Aviation excluded. Stand On/Off time used as ATD.*

2.0	**Terminal area - total**	2.1	Terminal, campus GFA (sqm)	Terminal, campus GFA (Gross Flow Area) - floor area inside the building envelope, including the external walls, and excluding the roof. For terminal or campus it is calculated as a sum of GFAs for all levels and all piers and satellites. In case, there is an external building which process either passengers or baggage for particular terminal, but it is not a part of main terminal or satellite structure, then area of this building should be added to main terminal / campus area.	-	297,900	222,760	132,400	526,000	T3: GFA reduced due to closure of Connections facility & surrounding footprint Rounded to nearest 100m2. T2 includes T2A & T2B (walkway included), T5 includes T5A, B & C (T5 inclusive of escalator area under redevelopment)
3.0	**Passenger Infrastructure**	3.1	Number of check-in desks & bagdrops	For each terminal sum of all check-in desks and bagdrops which have connection to baggage system.	-	116	213	129	150	Due to the T3IB project, T3 will have a variable number of check-in desks through to summer 16 when there could be up to 55 desks out of commission at one time. 213 reflects the number of desks that will be available post T3IB
		3.2	Number of self-service kiosks	For each terminal sum of all self-service units (either check-in or transfer)	-	78	100	39	74	
		3.3	Number of security lanes (machines)	For each terminal sum of all security lanes (departure and transfer) which are used for passengers processing. Security machines dedicated for staff processing are not included.	-	31	29	22	35	

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3.0	**Passenger Infrastructure**	3.4	Number of ticket desks (total existing)		-	44	72	64	26	Data from Property Portfolio Managers, excludes 'Check in desks' that are being used as 'Ticketing/Assistance/Upgrade desks'. Counts individual serving positions, landside only). T4 includes untenanted ticket desks
		3.5	Number of immigration lanes + ACS	For each terminal sum of all immigration lanes and eGates (arrivals and transfer) which are used for passenger processing.	-	46	52	44	47	T3 and T4 will be under construction in 2016 where additional eGate capacity will be provided
		3.6	Published intra-terminal MCT	Published intra-terminal MCT for each terminal. If there is a different MCT for different flows, then separate MCTs should be indicated for each flow.	-	60mins	60mins	60mins	60mins	MCT reflects both passenger and baggage processes. Note the T3 MCT changed to 60min since T3IB became functional
		3.7	Distance to walk unaided from IDL to furthest aircraft gate (m)	Unaided walking distance measured from central security search exit to the furthest aircraft gate either in terminal building or satellite. All aids such as sidewalks, elevators, escalators, people mover systems are excluded. Distance for each terminal should be presented on drawings.	-	915	855	730	450	Rounded to nearest 5m. T5 includes TTS in calculation.
		3.8	Number of CIP Lounges available (total)		-	8	10	7	5	T4 excludes the El Al lounge that does not open until 1/4/2016.
		3.9	Number of CIP Lounges requested		-	1	3	2	2	Includes lounge expansion requests some of which are under construction and will open at various stages of 2016

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4.0	**Baggage Infrastructure**	4.1	Length of reclaim belts	For each terminal sum of re-claim belts' length (in meters) which is presentable to passengers; length of feeds to the belts is excluded; both domestic and international.	-	686	699	712	718	
		4.2	Number of MUPs	Number of MUPs (make-up) positions in each baggage hall (both departures and transfer)	-	204	250 (Once T3IB is in place: 139)	162	345	Only currently usable MUPs have been included, T2 uses T1 facilities
		4.3	ADP (average time to input belt - arrivals)	Arrivals Delivery Performance for departure baggage - measured as average for last bag (LB) and % in target (25,35,45mins)	64%	70%	59%	57%	61%	Figures are 2015 actual performance metrics. Source: 2015 Baggage Performance T1,2,3,4,5
		4.4	ADP (average time to input belt - transfers)	Arrivals Delivery Performance for transfer baggage - measured as average in 25mins	65%	72%	51%	69%	56%	Figures are 2015 actual performance metrics. Source: 2015 Baggage Performance T1,2,3,4,5
5.0	**Aircraft Infrastructure**	5.1	Number of aircraft stands (centrelines)	For each terminal / campus sum of aircraft stands (both contact and remote) which are adjacent to terminal / campus area. MARS'ed (Multi Aircraft Ramp System) stands should be counted as one large stand	-	36	43	34	60	Declared physical stand supply for Summer 2016
		5.2	Number of pier served aircraft stands (centrelines)	For each terminal / pier / satellite sum of aircraft stands which are contact / pier served. MARS'ed (Multi Aircraft Ramp System) stands should be counted as one large stand.	-	28	28	21	45	Physical stand supply for Summer 2016

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6.0	**Terminal access**	6.1	Number of car park spaces	Number of car park spaces in a car park which is adjacent and linked to each terminal.	MSCP 1: 509 MSCP 1a: 1,599	1,468	1,563	901	3,493	T1 MSCP1 closed on 30/06/15. Note T5 MSCP is also utilised by staff
		6.2	Walking distance (m) to check-in area from underground	For each terminal unaided walking distance from the platform to the closest entrance to the terminal building. All aids such as sidewalks, elevators, escalators, people mover systems are excluded. Distance for each terminal should be presented on drawings.	-	565	405	45	140	Rounded to nearest 5m
		6.3	Walking distance (m) to check-in area from HEX	For each terminal unaided walking distance from the platform to the closest entrance to the terminal building. All aids such as sidewalks, elevators, escalators, people mover systems are excluded. Distance for each terminal should be presented on drawings	-	310	185	120	80	Rounded to nearest 5m
		6.4	Walking distance (m) to check-in area from public bus	For each terminal unaided walking distance from the bus stop to the closest entrance to the terminal building. All aids such as sidewalks, elevators, escalators, people mover systems are excluded. Distance for each terminal should be presented on drawings.	-	370	500	125	165	Rounded to nearest 5m

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