



**PRELIMINARY INDICATION OF COST  
for**

**HEATHROW EXPANSION Rev A  
MASTER PLAN CONCEPT**

**for**

**RUNWAY INNOVATIONS / HEATHROW HUB LIMITED**

Revision: -  
Issue Date: 19/06/2014



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# HEATHROW EXPANSION Rev A - MASTER PLAN PRELIMINARY INDICATION OF COST EXECUTIVE SUMMARY

Issue Date: 19.06.14

No	Description	Estimate £	Notes
1	AIRPORT	6,860,000,000	
2	M25 DIVERSION / OTHER ROAD WORKS	540,000,000	
	<b>SUB-TOTAL CONSTRUCTION</b>	<b>7,400,000,000</b>	
3	PHASING ALLOWANCE (Say at 2%)	150,000,000	
	<b>SUB-TOTAL Incl. PHASING</b>	<b>7,550,000,000</b>	
4	OTHER DEVELOPMENT COSTS ( Including Land Acquisition )	866,000,000	
	<b>SUB-TOTAL Incl. OTHER DEVELOPMENT</b>	<b>8,416,000,000</b>	
5	FEES (Professional, Planning & Building Control) (15%)	1,132,500,000	
	<b>SUB-TOTAL Incl. FEES</b>	<b>9,548,500,000</b>	
6	CONTINGENCY : <i>Airport</i>	<i>998,000,000</i>	
	<i>M25 Diversion/Other Roads</i>	<i>159,000,000</i>	
	<b>SUB-TOTAL CONTINGENCY</b>	<b>10,710,000,000</b>	
7	INFLATION (Base Date 2Q 2014)	<b>EXCLUDED</b>	
8	OPTIMISM BIAS	<b>EXCLUDED</b>	
	<b>ESTIMATED PROJECT COST TOTAL (Excl. VAT)</b>	<b>£10,710,000,000</b>	(@2nd Q 2014)

# HEATHROW EXPANSION Rev A - MASTER PLAN PRELIMINARY INDICATION OF COST AIRPORT

Issue Date: 19.06.14

No	Description	Quantity	Unit	Rate £	Cost £	Cost £	Risk Factor				Notes
							VH	H	M	L	
							50%	35%	25%	15%	
<b>1.00</b>	<b>AIRPORT</b>										
<b>1.01</b>	<b>Land</b>										
1.01.1	Purchase				Included Section 8						Costs to be priced by others.
1.01.2	Compensation/ Relocation				Included Section 8						Costs to be priced by others.
<b>1.02</b>	<b>Ecology/ Environmental/ Archaeological</b>					<b>157,000,000</b>					
1.02.1	Ecology - Allowance for mitigation and monitoring of ecological impact	1	item								Provisional allowance
1.02.2	Air quality - Allowance for monitoring and mitigation										
1.02.3	Noise - Allowance for noise monitoring				50,000,000						
1.02.4	Allowance for costs associated with Archaeological										
1.02.5	Noise mitigation measured to nearby houses	4,000	houses	8,000	32,000,000				25%		Provisional allowance
1.02.6	Flood water mitigation	1	item	75,000,000	75,000,000				25%		
<b>1.03</b>	<b>Advanced Enabling Works Clearing and Site Preparation</b>					<b>775,000,000</b>					
1.03.1	Site clearance	1	item								Provisional allowance
1.03.2	Demolition/Enabling Works										
1.03.3	Allowance for remediation works			£100,000,000	100,000,000				25%		
1.03.4	Allowance for ground stabilisation works										
1.03.5	Allowance for Earthworks - Cut/Fill/Grading of imported fill	13,000,000	m3	50	650,000,000				25%		Options are being explored in terms of the earthworks strategy.
1.03.6	Demolition of the Terminal 4( Including Piers) and Terminal 4 MSCP. Aprons retained.	1	item	25,000,000	25,000,000				25%		
<b>1.04</b>	<b>Utilities</b>					<b>35,000,000</b>					
1.04.1	Allowance for diversion of existing services	1	item								Provisional allowance
1.04.2	Allowance for new off site services										
1.04.3	Allowance for new on site services			10,000,000	10,000,000				35%		
1.04.4	Allowance for new substation.										
1.04.5	Undergrounding power lines	1	item	25,000,000	25,000,000				35%		
<b>1.05</b>	<b>Diversion of an existing fuel line</b>	3,000	m	2,000	6,000,000	<b>6,000,000</b>			35%		
<b>1.06</b>	<b>River Diversions/Culverts</b>					<b>127,550,000</b>					
1.06.1	River Diversions	4,700	m	4,000	18,800,000				35%		
1.06.2	River Culverts	4,350	m	25,000	108,750,000				35%		

# HEATHROW EXPANSION Rev A - MASTER PLAN

## PRELIMINARY INDICATION OF COST

### AIRPORT

Issue Date: 19.06.14

No	Description	Quantity	Unit	Rate £	Cost £	Cost £	Risk Factor				Notes
							VH	H	M	L	
							50%	35%	25%	15%	
<b>1.07</b>	<b>Service Roads</b>					<b>20,000,000</b>					
1.07.1	Service/circulatory roads within airport	5,000	m	4,000	20,000,000				25%		Provisional allowance
<b>1.08</b>	<b>Terminal Building</b>					<b>1,726,940,500</b>					
1.08.1	Terminal Building: Below Ground	158,015	m2	3,800	600,457,000					15%	Based on T2 -Assumed 2 floors below ground. Includes 30% increase in area
	Above Ground	237,023	m2	4,600	1,090,303,500					15%	Based on T2 -Assumed 2 floors below ground. Includes 30% increase in area
	Total Gross Internal Area	395,038	m2		-						
1.08.2	Airbridges incl. Pre Conditioned Air (PCA)	28	no.	450,000	12,600,000					15%	
1.08.3	Rotunda Foundations	12	no.	40,000	480,000					15%	
1.08.4	Nodes	12	no.	1,375,000	16,500,000					15%	
1.08.5	Fixed links	140	m	20,000	2,800,000					15%	
1.08.6	Coaching Facility	1	item	3,800,000	3,800,000					15%	Facility required for operations only, excludes cost of coaches.
<b>1.09</b>	<b>Satellites</b>					<b>1,848,956,000</b>					
1.09.1	New satellites: Below Ground	198,480	m2	3,800	754,224,000					15%	2no. assume 2 above ground with 2 floors below underground.
	Above Ground	198,480	m2	4,900	972,552,000					15%	
1.09.2	Airbridges incl. PCA	70	no.	450,000	31,500,000					15%	
1.09.3	Rotunda Foundations	12	no.	40,000	480,000					15%	
1.09.4	Nodes	8	no.	1,375,000	11,000,000					15%	
1.09.5	Fixed links	160	m	20,000	3,200,000					15%	
1.09.6	Vertical Circulation Cores (VCCs)	20	no.	3,800,000	76,000,000					15%	
<b>1.10</b>	<b>Track Transit System (TTS)</b>					<b>267,500,000</b>					
1.10.1	TTS - Tunnel Civils (T6 to Satellites)	1,200	m	50,000	60,000,000					15%	Assumed twin core.
1.10.2	TTS - System and Fit-out (T6 to Satellites)	1,200	m	40,000	48,000,000					15%	
1.10.3	Station Structure & Fit-out (T6 & Satellites)	3	nr	20,000,000	60,000,000					15%	
1.10.4	TTS - Tunnel Civils (T5 to T2E) - Civils	700	m	85,000	59,500,000					15%	Assumed only required from T5-T2E, rest assumed to be in Heathrow base.
1.10.5	TTS - System & Fit-out (T5 to T2E)	700	m	40,000	28,000,000					15%	
1.10.6	Station Structure & Fit-out (T2E)	1	nr	20,000,000	-						Excluded
1.10.7	Additional TTS Cars	6	nr	2,000,000	12,000,000					15%	
<b>1.11</b>	<b>Baggage</b>					<b>580,575,875</b>					
1.11.1	Baggage system for new Terminals including screening equipment	395,038	m2	690	272,575,875					15%	

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### AIRPORT

Issue Date: 19.06.14

No	Description	Quantity	Unit	Rate £	Cost £	Cost £	Risk Factor				Notes
							VH	H	M	L	
							50%	35%	25%	15%	
1.11.2	Baggage system for Satellites	1	item	150,000,000	150,000,000					15%	
1.11.3	Early Baggage Store	1	item	50,000,000	50,000,000					15%	
1.11.4	Baggage transfer tunnels including baggage transfer system and fit-out	1,200	m	90,000	108,000,000					15%	
1.11.5	Fit-out(only) of existing baggage tunnel from T5- T2	2,700	m	50,000	-						Works to be carried out by HAL pre 2023.
<b>1.12</b>	<b>Ancillary Facilities</b>					<b>110,000,000</b>					
1.12.1	Electrical sub-stations	2	no.	15,000,000	30,000,000					15%	
1.12.2	Sewage pumping stations	1	no.	45,000,000	45,000,000					15%	
1.12.3	Fire Station	1	no.	3,000,000	3,000,000					15%	
1.12.4	Energy Centre	1	no.	30,000,000	30,000,000					15%	
1.12.5	Taxi Feeder park including accommodation	1	item	2,000,000	2,000,000					15%	
<b>1.12</b>	<b>Air Field</b>					<b>781,163,600</b>					
1.13.1	New Runway	177,600	m2	380	67,488,000					15%	
1.13.2	Runway shoulders	44,400	m2	260	11,544,000					15%	
1.13.3	Northern:Parallel Taxiway Links, Rapid Exit Taxiway (RETs), Taxiway Hold incl. fillets to support new runways.	171,975	m2	300	51,592,500					15%	
1.13.4	Northern Taxiway shoulders	240,765	m2	200	48,153,000					15%	
1.13.5	Southern:Parallel Taxiway Links, Rapid Exit Taxiway (RETs), Taxiway Hold incl. fillets to support new runways.	137,580	m2	300	41,274,000					15%	Note, new Southern taxiway added.
1.13.6	Southern Taxiway shoulders	192,612	m2	200	38,522,400					15%	Note, new Southern taxiway added.
1.13.7	Apron including stands	785,000	m2	380	298,300,000					15%	19.06.14 increased area of Apron
1.13.8	E/O for services to stand (Fixed electrical ground power (FEGP), fuel, potable water, fire main, Comms, lighting, barriers etc.)	56	no.	450,000	25,200,000					15%	
1.13.9	Airside roads, perimeter track	103,250	m2	150	15,487,500					15%	
1.13.10	Airside Road - C&C Tunnel	1,000	m	75,000	75,000,000					15%	Provisional Allowance
1.13.11	Grassed Areas & carriage drainage	1,147,000	m2	10	11,470,000					15%	
1.13.12	Runway and taxiway land drainage	634,740	m2	10	6,347,400					15%	
1.13.13	Stands and taxi lane land drainage	785,000	m2	10	7,850,000					15%	
1.13.14	Airfield lighting system	2,566,740	m2	20	51,334,800					15%	
1.13.15	Airfield lighting system control	1	item	4,600,000	4,600,000					15%	
1.13.16	Nav aids Allowance	1	item	25,000,000	25,000,000					15%	
1.13.32	Approach Lighting	1	item	2,000,000	2,000,000					15%	
1.13.34											
1.13.35	<b>Air Field Infrastructure</b>					<b>224,644,260</b>					
1.13.36	Landscaping	1,148,426	m2	10	11,484,260					15%	
1.13.39	Bus/ Coach facilities	1	item	7,500,000	7,500,000					15%	
1.13.40	Balancing Ponds incl. equipment, pumping, controls etc. (clean and dirty water)	1	item	20,000,000	20,000,000					15%	

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# HEATHROW EXPANSION Rev A - MASTER PLAN

## PRELIMINARY INDICATION OF COST

### M25 DIVERSION/ OTHER ROAD WORKS

Issue Date: 19.06.14

No	Description	Quantity	Unit	Rate £	Cost £	Cost £	Risk Factor				Notes
							VH	H	M	L	
<b>2.00</b>	<b><u>M25 DIVERSION/ OTHER ROAD WORKS</u></b>						50%	35%	25%	15%	
<b>2.01</b>	<b>Land</b>										
2.01.1	Purchase					Included Section 8					
2.01.2	Compensation/ Relocation					Included Section 8					
<b>2.02</b>	<b>Ecology/ Environmental/ Archaeological</b>					<b>25,000,000</b>					
2.02.1	Ecology - Allowance for mitigation and monitoring of ecological impact										
2.02.2	Air quality - Allowance for monitoring										
2.02.3	Noise - Allowance for noise monitoring and control measures	1	item	25,000,000	25,000,000						Provisional Allowance
2.02.4	Allowance for costs associated with Archaeological										
<b>2.03</b>	<b>Advanced Enabling Works Clearing and Site Preparation</b>					<b>10,000,000</b>					
2.03.1	Site clearance										
2.03.2	Demolition/Enabling Works										
2.03.3	Allowance for remediation works	1	item	10,000,000	10,000,000		50%				Provisional Allowance
2.03.4	Allowance for ground stabilisation works										
<b>2.04</b>	<b>Utilities</b>					<b>5,000,000</b>					
2.04.1	Allowance for diversion of existing services										
2.04.2	Allowance for new off site services										
2.04.3	Allowance for new on site services	1	item	5,000,000	5,000,000		50%				Provisional Allowance
2.04.4	Allowance for new substation.										
<b>2.05</b>	<b>Airport &amp; South (South of M4)</b>					<b>224,496,000</b>					
2.05.1	Road Works	1	item	132,579,000	132,579,000				25%		
2.05.2	Motorway Works	1	item	75,972,000	75,972,000				25%		
2.05.3	Junction Works	1	item	5,445,000	5,445,000			35%			
2.05.4	Viaducts	1	nr	7,500,000	7,500,000			35%			
2.05.5	Bridges	1	nr	3,000,000	3,000,000			35%			





## HEATHROW EXPANSION Rev A - MASTER PLAN PRELIMINARY INDICATION OF COST M25 DIVERSION/ OTHER ROAD WORKS

Issue Date: 19.06.14

[illegible]



## HEATHROW EXPANSION Rev A - MASTER PLAN PRELIMINARY INDICATION OF COST PHASING ALLOWANCE

Issue Date: 19.06.14

[illegible]



## HEATHROW EXPANSION Rev A - MASTER PLAN

### PRELIMINARY INDICATION OF COST

#### OTHER DEVELOPMENT COSTS

Issue Date: 19.06.14

[illegible]

**NOTES (Assumptions)**

***The Cost Estimate is based on the following notes:***

- 1 Estimate is based on the level of detail/information provided. Therefore, estimate includes for risks typically transferred to the contractor, but not those risks typically retained by the employer.
- 2 To avoid excessive repetition and multiple statements that appear obvious, certain fundamental assumptions that apply across the project are stated once in the list below. This list also allows a more comprehensive cross-reference with the risk register.  
It is generally assumed that :
  - a The project will be fully funded i.e. there are no financial constraints/contribution expectations/ etc.
  - b The works as scoped will be packaged, procured and completed within time and to budget.
  - c The works will deliver the required performance and function.
  - d The operational railway will deliver the required performance and function.
  - e There will be sufficient skilled resources and market capacity to meet Project demand at reasonably competitive prices.
  - f All parties will be reasonable, remain solvent and exercise reasonable skill and care.
  - g All parties will comply with the applicable laws, regulations, standards, contract conditions and conventions and that these constraints will not materially change.
  - h change.
  - i The UK economy and other relevant economies and foreign exchange rates will remain stable.
  - j The project will not suffer from force majeure, protracted legal disputes, ground or property collapse, exceptionally adverse climatic conditions, or significant industrial relations problems.
  - k industrial relations problems.
  - l External influences do not result in significant changes in scope.
- 3 Estimates are compiled from information provided on drawings and meetings.
- 4 Includes additional 5000 MSCP car park.
- 5 Allowance for new Southern Taxiway added to estimate, based on the same scope as the Northern Taxiway.
- 6 Terminal 6 increased in area by 30% for increased capacity following demolition of T4.
- 7 Satellites increased in area by 20%.
- 8 Allowance included for the demolition of Terminal 4 and MSCP car park.
- 9 HUB, APM, Baggage Transfer System, road works north of M4 and the Southern Rail Access works have not been costed in this estimate and form a separate Surface Access Strategy estimate which is to follow.
- 10 2% provisional allowance for the phasing costs.
- 11 A risk allowance ranging from 15% - 50% has been applied to each item of cost within the detailed estimate based on a high level assessment of probable risk (the risk percentages can be seen within the detailed estimate). We note that this approach is in contrast to the HAL, who we understand have applied a 15% risk allowance to all items.
- 12 Only primary option for the highways and airport works have been priced.
- 13 No allowance made for the safe guarding of the southern runway/ extension
- 14 Provisional allowances included for all utilities associated works
- 15 Provisional allowances included for all Ecological, Environmental, Flood Control measures.
- 16 Provisional allowance included for works associated with Archaeological and Historical/Listed buildings measures
- 17 Earth work quantities for the airfield provided by URS.
- 18 With the exception of the runways, all other works follow the profile of the land and therefore do not require major excavation/fill
- 19 1no. 500 bed hotel included in Airport.
- 20 The connections to and from the utilities do not require any special measures

**NOTES (Assumptions) Continued.**

- 20 Existing Power Capacity - Existing power suppliers will have the necessary capacity to accommodate the demands of the Project.
- 21 Commercial/Over-Site Development - There is no provision for Commercial/Over-Site Development. Any changes to the operational infrastructure to enhance Commercial/Over-Site Development value will be treated as a Scope change to the Project.
- 22 Access to Works Sites - Access to works sites, including temporary possession of assets and facilities of other parties, will be available to allow the project to proceed in accordance with the programme.
- 23 Standard construction equipment - The project will be constructed using 'standard' construction plant and equipment.
- 24 Unexploded Ordnance (UXB) - There are no express provisions in the scope of the works for dealing with unexploded ordnance that may be encountered during the construction works.
- 25 Construction traffic will not be adversely restricted
- 26 Works by Nominated Undertaker - No additional costs will be incurred if works are not undertaken by the Nominated Undertaker and its contractors
- 27 Excavated Materials - Wherever possible and economically advantageous excavated materials will be re-used on the Project.
- 28 Excavated Materials - Where relevant the estimate contains an allowance (10%) for dealing with contaminated material by local remediation and re-use on the Project.
- 29 Continuous construction and commissioning sequence - The scheme will be constructed and commissioned in one continuous construction sequence i.e. no de-mobilisation and re-mobilisation. The railway will be tested and commissioned in phases.
- 30 Support from Contractors of Third Parties - Where third parties' contractors are required to carry out works to support the Project (e.g. modifications to existing assets and attendance for handover/hand back activities), they will be able to carry out these works as required by the Project programme.
- 31 Provisional allowance of £130m for a new fuel farm (based on HAL costs) included.

**EXCLUSIONS**

*The Master Planning is based on the following exclusions:*

- 1 All Southern Rail Access works
- 2 Automated People Mover (from Hub to Airport)
- 3 Heathrow Hub Remote Baggage Transfer
- 4 Road Works North of the M4
- 5 Client costs at Heathrow
- 6 The client's corporate, project management and design costs (indirect costs)
- 7 Control tower
- 8 Works associated with the retention of T4 Hotel and road network
- 9 Any works associated with T4 - changes to LUL and HEX
- 10 Any works associated with changes to the T4 baggage transfer tunnel
- 11 Works to existing Heathrow facilities unless specifically identified on master plan(including Terminal 5)
- 12 Modifications/extensions/enhancements to existing Heathrow R2 airport
- 13 Any works to the existing HPRT
- 14 ORAT
- 15 Systems Integration(existing facilities to new)
- 16 Security screening at new stations - no allowance has been made for significant changes to the current security practices used for long distance inter-urban services in the UK.
- 17 The powers sufficient to construct, operate and maintain the whole of the works as identified including all associated services.
- 18 Development Fees and Financing Costs
- 19 Cost of any goods and services provided by the employer
- 20 Costs or allowances associated with risks that will not be transferred to the contractor
- 21 New office buildings, cargo warehouses, catering, aircraft maintenance.
- 22 On Grade Car parking at the airport.
- 23 Sustainable improvements/enhancements
- 24 Future statutory changes including Construction Regulations
- 25 Future inflation in rates and prices; costs are based at 2Q14
- 26 Costs of operation or asset management following hand over
- 27 Specific drainage arrangements e.g. grey water harvesting systems, attenuation tanks etc.
- 28 Specific and special measures for reservoir and waterways protections
- 29 Income or expenditure associated with the acquisition or disposal of land and property.
- 30 Income or expenditure associated with potential property development
- 31 Disposal off-site of unusable contaminated material.
- 32 No Cost Recovery for Materials or Plant - There are no allowances in the estimate for residual value of plant and equipment (e.g. value of any salvaged materials).
- 33 Betterment - No allowances have been made in the estimate for recovery of monies from third parties in respect of betterment.
- 34 Cost Sharing - No allowances have been made in the Phase 1 point estimate for recovery of monies from Utilities in respect of 'cost sharing'.
- 35 Archaeological Discoveries - No sums are included in the estimate for expenses associated with the discovery of archaeological remains.
- 36 Non-Operational Assets - The cost of retail fit-outs and other non-operational assets (e.g. ATMs, photo booths, vending machines and telephone kiosks) are excluded from the Phase One point estimate. They are assumed to be borne by others.

**EXCLUSIONS Continued**

- 37 Section 106 costs
- 38 Section 278 costs
- 39 Value Added Tax
- 40 Levies such as Land Fill Tax, HA contributions
- 41 Costs of operation or asset management following hand over
- 42 Fees, third party cost and expenses, statutory and other charges
- 43 Local Authority Adoption costs and commuted sums - roads and public realm to be maintained by developer / community trust

**BASIS**

*The Cost Estimate is based on the following information:*

**Drawing (Included in Appendix A):**

URS - General Arrangement - P47067372/TL/GA/02/01 Rev06