LC Paper No. CB(4)294/15-16



Legislative Council Subcommittee to Follow Up Issues Relating to the Three-runway System at the Hong Kong International Airport

Scope and Cost of the Three-Runway System Project

1 December 2015

Three-Runway System (3RS) Layout



3RS Reclamation – Ground Improvement



Deep Cement Mixing (DCM)

Runways and Taxiways Configuration



Third Runway Concourse



Third Runway Concourse – Departure Concourse







Third Runway Concourse – Commercial Node







Modification/ Expansion of T2



- Modified/ Expanded T2 Floor Area: ~300,000m² Check-in Counters: 216 (Existing T2 Floor Area: ~140,000m²)
- North & South Annex Buildings: ~100,000m²
- Baggage Reclaim Carousels: 8

Automated People Mover System



Baggage Handling System



Airport Support Infrastructure



Instruction from the development of the front of the development of th

DESCRIPTIONS	3RS Scher (TO	me Design TAL)
(all figures in HK\$ Bn)	TOTAL (4Q2010)	TOTAL (MOD)
1. Land Formation and Marine Works	36.8	56.2
2. Runway and Airfield Facilities	6.5	11.5
3. Apron Works	2.7	5.0
4. Terminal 2 Modification / Expansion	9.5	16.5
5. Third Runway Concourse	14.1	26.3
6. APM System	6.1	10.9
7. Baggage Handling Systems	4.5	7.8
8. Airport Support Facilities and Utilities	4.3	7.3
TOTAL PROJECT COST	84.5	141.5
Master Plan 2030 Estimate	86.2	136.2



DESCRIPTIONS	3RS Scheme Design (TOTAL)
(all figures in HK\$Bn)	TOTAL (MOD)
1. Land Formation and Marine Works	▲ 56.2
2. Runway and Airfield Facilities	A 11.5
3. Apron Works	5.0
4. Terminal 2 Modification / Expansion	A 16.5
5. Third Runway Concourse 🔰 🗸	26.3
6. APM System	10.9
7. Baggage Handling Systems	7.8
8. Airport Support Facilities and Utilities	7.3
TOTAL PROJECT COST	141.5





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DESCRIPTIONS		3RS Scheme Design (TOTAL)	
(all figures in HK\$Bn)		TOTAL (MOD)	
1. Land Formation and Marine Works		56.2	
- Ground Improvement		28.8	
- Fill Management		25.9	
- Utilities Diversion		1.5	
2. Runway and Airfield Facilities		11.5	
3. Apron Works		5.0	
4. Terminal 2 Modification / Expansion		16.5	
5. Third Runway Concourse	\lor	26.3	
6. APM System		10.9	
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(all figures in HK\$Bn)	TOTAL (MOD)	
1. Land Formation and Marine Works	56.2	
2. Runway and Airfield Facilities	11.5	
- Runway, Taxiway & Taxilane	5.2	
- Airfield Support Area	1.7	
- Airside Road Network	4.6	
3. Apron Works	5.0	
4. Terminal 2 Modification / Expansion	16.5	
5. Third Runway Concourse 🔰 🔌 🔿	26.3	
6. APM System	10.9	
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1. Land Formation and Marine Works	56.2	
2. Runway and Airfield Facilities	11.5	
3. Apron Works	5.0	
4. Terminal 2 Modification / Expansion	16.5	
- Foundation, Basement and Structure	5.7	
- Architectural Works	4.2	
- E&M and Airport Systems Works	6.6	
5. Third Runway Concourse 🔰 🔿	26.3	
6. APM System	10.9	
7. Baggage Handling Systems	7.8	
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5. Third Runway Concourse	$\mathbf{\land}$	26.3
- Foundation, Structure and FLB & ALB		12.3
- Architectural Works		4.5
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AAHK Project Management Experience

- 1. AAHK has invested over \$30 Bn in capital investment since airport opening
- 2. The Authority's key in-house project management professionals include engineers, architects and system specialists with historical knowledge, experience and expertise
- 3. Understanding of the challenges of construction in an operating airport environment
- 4. Established project management processes and procedures





Project Management Structures

Hierarchical Project Management Structure



 Critical reporting and Cost & Programme data may be "filtered" through organizational layers

AAHK will adopt a Matrix Project Management Structure

Matrix Project Management Structure



 Timely and accurate critical reporting and Cost & Programme data through the matrix organisation utilizing the "Single Source of Truth" principle

AAHK Project Management Structure



Project Delivery Team (PDT) focuses on Construction Delivery with embedded Functional resources from PMO - matrix organisation approach

Project Management Office (PMO) provides centralised Leadership of Key Functions: programme, budget, quality, safety and environment

Project Oversight Structure



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*Only Board Committees which are related to 3RS Project are shown.

Sufficient Site Investigation?

- Detailed and comprehensive site ground investigation will reduce the likelihood of unforeseen ground conditions
- Existing site data has been significantly supplemented over the last three years with a detailed geophysical survey and new Site Investigation
- Comprehensive records of the site conditions of the existing land (e.g. where T2 is located) are maintained by AAHK



Realistic Programme & Budget

- **Project Master Programme** prepared as part of a comprehensive exercise which included **Procurement Strategy & Risk Assessments**
- **Risk Management Plan** identifies risks for avoidance / mitigation and contingent actions
- **Project Budget Estimate** prepared by independent professional QS consultants based on comprehensive Scheme Design
- Project Budget Estimate reviewed by AAHK's Project Team and vetted by Government appointed independent M&V consultants
- Project Budget Estimate includes an appropriate **Contingency allowance**





Design & Construction Change Management

- **Project scope** established in Scheme Design stage
- **Peer review** of design and constructability by independent experts
- Operational & Maintenance input during Design to ensure costeffectiveness and genuine operational needs incorporated before Construction
- Value engineering will ensure the design is fit-for-purpose and value-formoney, avoiding extravagant or unnecessary features
- **Design freeze** and sign-off to avoid, minimize and manage change during construction





THANK YOU



