

ANNEX E: TRANSPORT FACILITIES

1. Scope of Cost Estimates

- 1.1 The estimation of costs and revenues was one of the key tasks undertaken to provide input to the FA's financial model and analysis. The level of detail adopted in their estimation is appropriate to a financial assessment undertaken at this stage in the project cycle i.e. prior to master planning of the site and based on the broad recommendations of MAG and PATAG, the development parameters/requirements set under the October 2005 Package and the Invitation for Proposals (IFP). The level of detail is also appropriate given that the FA assignment was tasked with considering alternative PPP arrangements, financial viability and funding arrangements for the proposed statutory body; the purpose of which was to assist the government in the preparation of the institutional and funding arrangements for the WKCD.
- 1.2 It is important to appreciate, particularly for the estimation of capital and operation, maintenance and management (OMM) costs, that this FA assignment is not a feasibility study on individual facilities which would have involved detailed site and technical surveys, preliminary design, layout plans, etc. This assignment is not based on a master plan or design of engineering works or facilities, and site and technical surveys were not undertaken. Similarly, for the estimation of revenues, it is important to appreciate that demand for facilities is based on the recommendations of PATAG and MAG (a high level of demand and a target of 2.5 million visitors a year for M+). Independent market demand assessments were not undertaken as part of this assignment.
- 1.3 In consultation with relevant Government bureaux / departments, the FA developed a set of assumptions for a WKCD 'Base Case' in the level of detail required for the estimation of capital and OMM costs and revenues on an annual basis, based on the broad recommendations of PATAG and MAG and the development parameters/requirements of the October 2005 Package and the IFP, and making use of local and international experience and benchmarks where appropriate. This included the construction phasing and development programme of the facilities to be provided, their size¹, overhaul and maintenance requirements, collection acquisition costs, programming budget, annual attendance, number of performances, utilisation rates, admission charges, ticket price, hire charges, merchandise sales, rental income from resident company space, shops, restaurants and other uses, sponsorship and fundraising amongst others.

¹ The construction floor area (CFA) was estimated by the FA based on assumed gross floor area (GFA) and industry standards. GFA for M+ and the Exhibition Centre (EC) was provided by MAG. GFA for PA Venues was estimated by the FA based on the number of seats, provided by PATAG

Annex E: Transport Facilities

Annex E.1: Automated People Mover

			Remarks
I Capital Construction Cost Estimates			Not a mandatory requirement but if removed will have significant impacts on rental income of retail, dining and entertainment uses.
(a)	Construction Cost (excludes professional fees, on costs, risks and inflation)	\$504 (million HK\$)	Assumed a cable-hauled system (see IFP 2003 TIA for details) which can be provided at grade, or at the podium deck level or elevated above the ground / podium level. Max. speed of 25km/hr, patronage capacity of 6,000, a tourist attraction as well as an environmentally friendly public transport system capable of bringing in visitors to WKCD and enhancing visitor experience in WKCD. Assumed 5 stations and 1 train depot (8,000 sq.m. in total), a total length of 1.5 km running through WKCD. Assumed connections to places outside the WKCD will be implemented by the Government. Assumed the whole routing to be viaduct with double tracks. 55% of cost is for the APM system, 35% is for civil works including (viaduct and foundation), 10% is for stations. Excluded the cost of pedestrian linkages between APM stations and existing railway stations. Systems of higher patronage capacity (rubber tyre of 10,000 and monorail of 48,000) can be considered if the future Traffic Impact Assessment suggests the need for a higher capacity system.
II Other Capital Costs			
Nil			
III Major Repair and Renovation Costs			Carried out every 30 years
(a)	Major Repair and Renovation Costs as % of Total Construction Cost	60% [% to be applied to construction costs before on-costs to estimate major overhaul costs]	covering system and upgrading works
IV Operating Costs			
Assumed breakeven, i.e. income from fares and advertising will off-set staff, electricity, maintenance and other costs (estimated to be in the order of \$78 million per annum, in 2006 prices)			
\$28 million for utilities (estimated based on electricity and water consumption)			
\$23 million for repair and maintenance (estimated based on maintenance requirements)			
\$14 million staff cost (estimated based on operational requirements)			
\$3 million cleaning and security (estimated based on operational requirements)			
\$2 million administration (estimated based on operational requirements)			
\$2 million rates and government rents (~2.5% of revenue)			
\$6 million profit to operator (~8% of revenue)			

Note: All numbers are rounded to 0 decimal places (nearest \$ million) for presentational ease

Annex E: Transport Facilities

Annex E.2: Roads and Pedestrian Connections

			Remarks
I Capital Construction Cost Estimates			
1 Road Works (Decorative Paving)			assumed at grade
(a) Floor Area	8,400 sq.m.		assumed most areas in WKCD will be pedestrainized, allowed some internal roads only - also serve as Emergency Vehicular Access. Assumed a two-lane two-way vehicular road with footpaths on both sides (12.3m wide) running from east to west of the site, plus a round-about at the western side of the site and a road near Kowloon Point Typhoon Shelter to connect to the public road network to Lantau. Total length of the roads is about 2.3km. Assumed 30% of the roads with decorative paving and the rest with standard paving.
(b) Unit cost	\$3,000 per sq.m. Floor Area (HK\$)		2006 3Q estimate
(c) Construction Cost (excludes professional fees, on costs, risks and inflation adjustment)	\$25 (million HK\$)		1(c) = 1(a) x 1(b)
2 Road Works (Standard Paving)			
(a) Floor Area	19,600 sq.m.		see above
(b) Unit cost	\$2,000 per sq.m. Floor Area (HK\$)		2006 3Q estimate
(c) Construction Cost (excludes professional fees, on costs, risks and inflation adjustment)	\$39 (million HK\$)		2(c) = 2(a) x 2(b)
3 Footbridge to Kowloon Station Development			
(a) CFA	850 sq.m.		
(b) Unit cost	\$15,000 per sq.m. CFA (HK\$)		2006 3Q estimate
(c) Construction Cost (excludes professional fees, on costs, risks and inflation adjustment)	\$13 (million HK\$)		3(c) = 3(a) x 3(b)
4 Pedestrian Connections to KCR Station			
(a) CFA	1,000 sq.m.		
(b) Unit cost	\$9,000 per sq.m. CFA (HK\$)		2006 3Q estimate
(c) Construction Cost (excludes professional fees, on costs, risks and inflation adjustment)	\$9 (million HK\$)		4(c) = 4(a) x 4(b)
II Other Capital Costs			
Nil			
III Major Repair and Renovation Costs (before inflation adjustment)			Carried out every 20 years
(a) Major Repair and Renovation Costs as % of Construction Cost (Roadworks)	100%		
(b) Major Repair and Renovation Costs	\$64 (million HK\$)		(b) = 1 1 (c) + 2 (c); major repair and renovation required for roadworks only; repair and renovation of footbridge and pedestrian connections is covered by routine maintenance
(c) Major Repair and Renovation Costs as % of Total Construction Cost	75% [% to be applied to construction costs before on-costs to estimate major overhaul costs]		(c) = (b) / (1 1(c) + 1 2 (c) + 1 3 (c) + 1 4 (c))
IV Operating Costs			
The cost of operating roadworks and pedestrian facilities is \$1.2 million per annum (2006 prices), plus management fee to the private operator (equivalent to 8% of operating costs) under PSI scenarios. The cost is \$1.3 million per annum (2006 prices) under PSC scenario.			

Note: All numbers are rounded to 0 decimal places (nearest \$ million) for presentational ease.

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Annex E.3: Public Pier

			Remarks
I Capital Construction Cost Estimates			Assumed to be landing step type, will involve the modification of existing seawall. Making reference to the IFP requirement and the 2003 TIA, the FA assumed no ferry services at this early stage of planning. If the demand for ferry services is demonstrated in the future master planning and TIA exercise, a pontoon pier could be provided and operated by the private sector ferry operator.
(a)	CFA	4,800 sq.m.	
(b)	Unit cost	\$5,000 per sq.m. CFA (HK\$)	
(c)	Construction Cost (excludes professional fees, on costs, risks and inflation adjustment)	\$24 (million HK\$)	
II Other Capital Costs			
Nil			
III Major Repair and Renovation Costs			
Covered by routine maintenance (no major overhaul within 50 years period)			
IV Operating Costs			
The cost of operating roadworks and pedestrian facilities is \$0.2 million per annum (2006 prices), plus management fee to the private operator (equivalent to 8% of operating costs) under PSI scenarios. The cost is \$0.3 million per annum (2006 prices) under PSC scenario.			

Note: All numbers are rounded to 0 decimal places (nearest \$ million) for presentational ease

Annex E: Transport Facilities

Annex E.4: Public Carparks

			Remarks
I Capital Construction Cost Estimates			
1 Basement Carparks			
(a)	CFA	11,437 sq.m.	see attached
(b)	Unit cost	\$11,200 per sq.m. CFA (HK\$)	2006 3Q estimate
(c)	Construction Cost (excludes professional fees, on costs, risks and inflation adjustment)	\$128 (million HK\$)	1(c) = 1(a) x 1(b)
2 Podium Carparks (Underneath Buildings, Foundation Costs Shared with Buildings Above)			
(a)	CFA	23,962 sq.m.	see attached
(b)	Unit cost	\$4,000 per sq.m. CFA (HK\$)	2006 3Q estimate
(c)	Construction Cost (excludes professional fees, on costs, risks and inflation adjustment)	\$96 (million HK\$)	2(c) = 2(a) x 2(b)
3 Basement Carparks (Underneath Buildings, Foundation Costs Shared with Buildings Above)			
(a)	CFA	19,061 sq.m.	see attached
(b)	Unit cost	\$7,000 per sq.m. CFA (HK\$)	2006 3Q estimate
(c)	Construction Cost (excludes professional fees, on costs, risks and inflation adjustment)	\$133 (million HK\$)	3(c) = 3(a) x 3(b)
II Other Capital Costs			
Nil			
III Major Repair and Renovation Costs (before inflation adjustment)			Carried out every 20 years
(a)	Major Repair and Renovation Costs as % of Construction Cost	20%	including fitting out and M&E costs
(b)	Major Repair and Renovation Costs	\$76 (million HK\$)	(b) = (a) x I 3 (b) x (I 1 (a) + I 2 (a) + I 3 (a)) / 1000000 [for major repair and renovation cost calculation, the unit construction cost for basement carparks with foundation cost shared with buildings (i.e. \$7,000 per sq.m. CFA above) is assumed for all three types of carparks]
(c)	Major Repair and Renovation Costs as % of Total Construction Cost	21% [% to be applied to construction costs before on-costs to estimate major overhaul costs]	(c) = (b) / (I 1(c) + I 2 (c) + I 3 (c))
IV Operating Costs			
See attached			

Note: All numbers are rounded to 0 decimal places (nearest \$ million) for presentational ease.

Annex E: Transport Facilities

	Considered in Land Value Estimation	No. of Carpark No. of Carpark	Total Area for Capital Cost Calculation (35sq.m. each)	Remarks
Carparks - PSC / PSI				
Arts and Cultural Uses (operators of PA Venues)	No	143	5,005	detailed study to be conducted in the master planning stage to assess the requirements for parking facilities
Arts and Cultural Uses (users / visitors)	No	1,311	45,885	min. 2000 for CACF (incl. parking spaces of retail and GIC uses) as per 2005 WKCD Traffic Impact Assessment
Communal Facilities	No	50	1,750	as per 2005 WKCD Traffic Impact Assessment
Hotels	Yes	14		1 per 100 rooms, based on 2005 WKCD Traffic Impact Assessment
Retail Dining Entertainment Uses / Offices	Yes	496		1 per 300 sq.m. GFA, based on 2005 WKCD Traffic Impact Assessment
Villa Houses	Yes	60		2 per house
Apartments	Yes	256		1 per 6 flats, based on 2005 WKCD Traffic Impact Assessment, assuming 88 sq.m. GFA per flat
Total for Capital Cost Calculation		2,330	52,640	
Loading / Unloading Facilities				
	Considered in Land Value Estimation	No. of Loading / Unloading Bays	Total Area for Capital Cost Calculation (70sq.m. each)	
Arts and Cultural Uses (operators of PA Venues)	No	-		detailed study to be conducted in the master planning stage to assess the requirements for loading / unloading facilities
Arts and Cultural Uses (users / visitors)	No	26	1,820	on average 2 per cluster of theatres, museum, EC and other arts and cultural facilities
Communal Facilities	No	-		
Hotels	Yes	14		1 per 100 rooms, based on 2005 WKCD Traffic Impact Assessment
Retail Dining Entertainment Uses	Yes	124		1 per 1,200 sq.m. GFA, based on 2005 WKCD Traffic Impact Assessment
Villa Houses	Yes	-		
Apartments	Yes	12		1 per block, based on 2005 WKCD Traffic Impact Assessment
Total for Capital Cost Calculation			1,820	
Total Area for Carpark and L/UL Facilities			54,460	sq.m.
Assuming 44% at podium level (foundation cost shared with other buildings)	sq.m.	23,962		
Assuming 21% at basement level (including foundation cost of \$4,200 per sq.m.)	sq.m.	11,437		
Assuming 35% at basement level (foundation cost shared with other buildings)	sq.m.	19,061		
Total No. of Public Carpark / L/UL Facilities		1,337		
Utilisation		3 hours a day		
Parking rate		\$20 per hour		
Revenue		29.3 million a year		
Profit sharing arrangement		50% of revenue as rental income, tenant will cover operating costs		
Net Revenue		14.6 million a year		

Annex E: Transport Facilities

Annex E.5: Traffic Noise Mitigation

			Remarks
I Capital Construction Cost Estimates			
1	Noise Barrier		cantilevered and vertical noise barrier as part of apartment development(s) to mitigate the traffic noise of roads D1 and D12 (Austin Road West) and Canton Road; to be provided by developer(s) of apartments
(a)	Floor Area	4,500 sq.m.	assumed 750m x 6m
(b)	Unit cost	\$3,000 per sq.m. Floor Area (HK\$)	2006 3Q estimate; cost to be borne by developer(s) of apartments (see Annex H)
(c)	Construction Cost (excludes professional fees, on costs, risks and inflation adjustment)	\$14 (million HK\$)	

II Other Capital Costs			
Nil			

III Major Repair and Renovation Costs			
Not included, to be borne owners of apartments			

IV Operating Costs			
Not included, to be borne owners of apartments			

Note: All numbers are rounded to 0 decimal places (nearest \$ million) for presentational ease.