Financial Advisor for the Development of the West Kowloon Cultural District and Related Matters

Final Report

April 2007

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GHK would like to thank the members of the Financial Matters Advisory Group (FMAG), the Home Affairs Bureau (HAB) and other relevant Government Bureaux/ Departments for their contributions to this consultancy assignment. In particular, the assumptions adopted by the Financial Advisor (FA) were drawn up in consultation with HAB and relevant Government Bureaux/ Departments. Through HAB, the FA was also invited to present progress and key findings of the consultancy assignment at FMAG meetings and received feedback and advice from members.

The information and analysis presented in this report is for the purpose of this West Kowloon Cultural District consultancy assignment. It is not intended for and GHK accepts no liability for its use by any third party.

All numbers in this report have been rounded to 0 or 1 decimal place for presentational ease. The table totals presented in this report therefore may not add up due to rounding.

( ) denotes negative value

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVIATIONS

ASD	Architectural Services Department
BLT	Build Lease Transfer
BRT	Build Rent Transfer
BOO	Build Own Operate
BOT	Build Operate Transfer (also Build Own Transfer)
BOOT	Build Own Operate Transfer
BTO	Build Transfer Operate
CACF	Core Arts and Cultural Facilities
CC	Consultative Committee
CEDD	Civil Engineering and Development Department
D&B	Design and Build
DBM	Design Build and Maintain
DBFM	Design, Build, Finance and Maintain
DBFO	Design Build Finance Operate
DBO	Design Build Operate
F&B	Food and Beverage
FMAG	Financial Matters Advisory Group
G/IC	Government, Institution or Community
IFP	Invitation for Proposals
JV	Joint Venture
KCRC	Kowloon-Canton Railway Corporation
LCSD	Leisure and Cultural Services Department
MAG	Museums Advisory Group
MPV	Mega Performance Venue
MTRCL	Mass Transit Railway Corporation Ltd.
NOFA	Net Operating Floor Area
NPO	Non Profit Organisation
NPV	Net Present Value
O&M	Operate and Maintain
OMM	Operate, Manage and Maintain
PFI	Private Finance Initiative
PPP	Public Private Partnership
PSC	Public Sector Comparator
PSI	Private Sector Involvement
PATAG	Performing Arts and Tourism Advisory Group
URA	Urban Renewal Authority
WKCD	West Kowloon Cultural District
WHC	Western Harbour Tunnel Company

1. INTRODUCTION

1.1 Background and Objective

1.1.1 West Kowloon Cultural District (WKCD) provides a unique opportunity to develop world class cultural, arts and entertainment facilities. In building the WKCD, the Government seeks to enhance the quality of life of the public by providing world class visual and performing arts programmes in state-of-the-art facilities, comprising local, traditional, as well as international elements. The WKCD is intended to boost Hong Kong's status as a world city by creating an international cultural metropolis with unique landmark design and an abundance of arts, cultural and entertainment events on offer.

1.1.2 In September 2003, the Government launched an Invitation for Proposals (IFP) to invite the private sector to develop the WKCD. Following a large-scale public consultation held from late 2004 to mid 2005, in October 2005 the Government proposed additional development parameters and conditions under the IFP (termed "the October 2005 Package") to address public concerns. In reply to the Government, none of the proponents wished to take forward their proposals.

1.1.3 Noting the gap between the public demands and the market response, the Government announced on 21 February 2006 that it would not continue with the IFP process and would instead press ahead with a new development approach for the early implementation of the WKCD. The Government continues to explore Public Private Partnership (PPP) in taking forward the WKCD project with a view to bringing in market creativity and vibrancy, facilitate diversity in arts and culture, sharing financial risks with the private sector and ensuring the sustainable operation of the WKCD. A Consultative Committee (CC) was established in April 2006 to re-examine and re-confirm, if appropriate, the Core Arts and Cultural Facilities (CACF) for the WKCD. The CC is supported by three Advisory Groups. The Museums Advisory Group (MAG) and the Performing Arts and Tourism Advisory Group (PATAG) were tasked with examining the need for museums and exhibition space and performing arts (PA) venues respectively. The Financial Matters Advisory Group (FMAG) was tasked with advising the CC on the financial implications of developing and operating the CACF as recommended by PATAG and MAG. It is the role of the CC to consider the recommendations of the three committees and "to advise the Chief Executive on the justifications for the CACF and other types of arts and cultural facilities as appropriate and necessary to be provided at the WKCD and the financial implications of developing and operating these facilities[1]."

1.1.4 To assist the FMAG in discharging its responsibilities, the Government has appointed GHK (Hong Kong) Ltd, (GHK) as the *Financial Advisor (FA) for the Development of WKCD and Related Matters*. The objective of the FA consultancy is to examine the financial implications of the recommended Core Arts and Cultural Facilities (CACF)[2] and other facilities at WKCD through the development of a series of dynamic financial models under different Public Private Partnership (PPP) options. The focus of the FA consultancy is on the financial implications of alternative procurement arrangements for all the WKCD facilities, financial viability and funding. More specifically, the scope of the FA's advice and recommendations should cover:

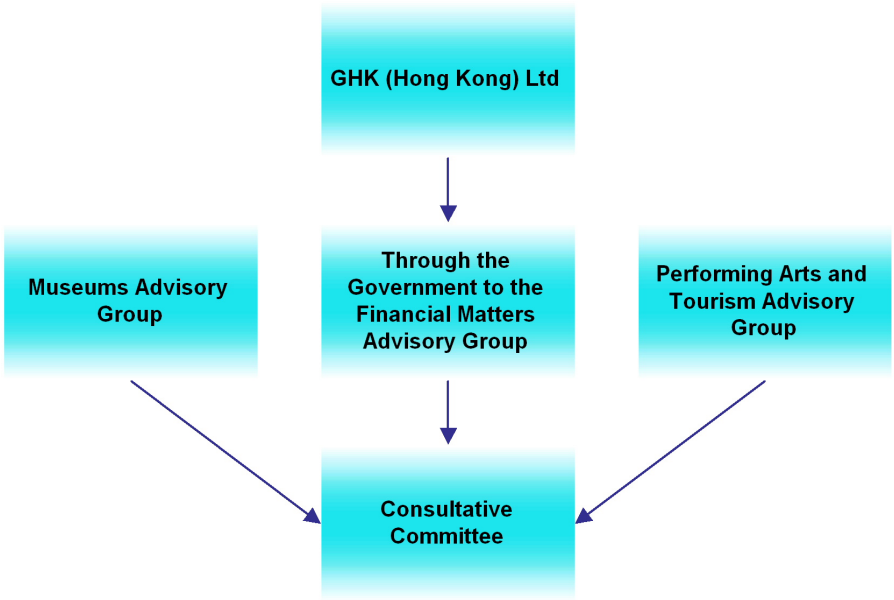
[1] Terms of Reference of the CC on the CACF for the WKCD

[2] As recommended by MAG and PATAG

- The estimation of capital, and operation, maintenance and management (OMM) costs and operating revenue of the recommended CACF and communal facilities to be included in the WKCD
- The financial viability of the recommended CACF and communal facilities and the possible options to enhance it
- Possible different PPP approaches which may or may not be suitable for the WKCD
- Funding arrangements for the proposed statutory body for the WKCD and the financial implications of these to the Government/proposed statutory body

1.1.5 The role of the FA is to provide professional and independent expert advice to the Government and through the Government to FMAG (see Figure 1-1). It is important to recognise that the FA consultancy was tasked with examining the financial implications of MAG and PATAG recommendations. As a result, the recommendations of MAG and PATAG, including the number and type of facilities and their broad demand as well as the development parameters set out in the October 2005 Package, are not in question under the FA's scope of work. The findings of the FA will be used as the basis for FMAG recommendations to the CC.

Figure 1-1: WKCD Reporting Structure



1.1.6 The FA (GHK) is an international firm of economic, financial, planning and management consultants. With an office in Hong Kong, GHK has led or been involved in most of the recent sectoral and strategic planning studies, including those in the cultural sector, as well as private sector assignments. The FA was supported by a team of sub-consultants from Positive Solutions (performing arts specialists), LORD Cultural Resources (museum, art gallery and exhibition venue specialists), Knight Frank Petty (land and property market specialists), Ove Arup & Partners Ltd (engineering and PPP specialists) and KPK Quantity Surveyors (HK) Ltd (costing specialists).

1.2 Scope and Layout of the Report

1.2.1 The key outputs and deliverables of the consultancy include:

- A qualitative analysis on various forms of PPP
- A public sector comparator (PSC)
- Financial analysis, including financial viability of the CACF and communal facilities and funding arrangements for the proposed statutory body
- A dynamic financial model and associated training

1.2.2 This Report – the Final Report – combines the first three deliverables to provide a comprehensive document covering all aspects of the FA consultancy. The main text focuses on the requirements of the third deliverable, the financial analysis and recommendations.

1.2.3 The Report's main text is presented in six further sections following this introduction:

- Section 2 presents the recommendations of MAG and PATAG for the CACF and the other requirements of the IFP and the October 2005 Package. These recommendations and requirements set out the broad parameters of the WKCD project on which the financial analysis is undertaken
- Section 3 summarises the qualitative analysis of various forms of PPP. It describes possible different PPP approaches which may or may not be suitable for the WKCD drawing on international and local experience
- Section 4 presents the methodology of the financial analysis. It explains the detailed development and operating assumptions drawn up by the FA in order to conduct the financial analysis, based on the broad recommendations of MAG, PATAG, the requirements of the October 2005 Package and the IFP. It also explains the calculation of the PSC; the calculation of land premium; and how, drawing on the analysis presented in Section 3, the FA developed three alternative procurement scenarios with different levels of private sector involvement, for assessment in the financial analysis
- Section 5 presents the financial implications of the three scenarios and the estimate of the PSC
- Section 6 undertakes sensitivity testing
- Section 7 addresses financing in the light of the results of the financial assessment, including measures to reduce the funding gap, consideration of financing options for WKCD and funding arrangements for the proposed statutory body.

1.2.4 An Executive Summary and supporting Annexes to the main text are included in separate volumes. The Annexes provide the detailed supporting research, analysis and assumptions adopted in the financial analysis:

- **Annex A** - Planning and Engineering Considerations - sets out site development parameters and constraints, presents the planning and engineering assumptions and cost estimates for the engineering works and facilities as proposed in the IFP
- **Annex B** - Master Planning and Area Management - presents the recommendations for the proposed statutory body for the development of the WKCD and cost estimates for master planning, area and project management
- **Annex C** - M+ and Exhibition Centre (EC) - provides supporting details of the research, analysis, assumptions and cost estimates for the facilities recommended by MAG

- **Annex D** - PA Venues - provides supporting details of the research, analysis, assumptions and cost estimates for the facilities recommended by PATAG
- **Annex E** - Transport Facilities - provides supporting details of the research, analysis, assumptions and cost estimates for the facilities as proposed in the IFP
- **Annex F** - Other Arts and Cultural Facilities (OACF) and Communal Facilities - provides supporting details of the research, analysis, assumptions and cost estimates for the facilities as proposed in the IFP
- **Annex G** - Consultancy and Contract Management - provides supporting details of the research, analysis, assumptions and cost estimates for fees and allowances included in the capital costs as drawn up by the FA
- **Annex H** - Residential and Commercial Land Values - provides supporting details of the analysis and assumptions of the land valuations, including packages, conducted by the FA,
- **Annex I** - Financial Assumptions - provides supporting details of the financial assumptions adopted by the FA
- **Annex J** - Risk Analysis - provides supporting details of the research, analysis, assumptions and estimates of risk associated with different procurement options conducted by the FA
- **Annex K** - Financial Analysis, Results - provides the detailed results of the financial analysis undertaken by the FA, including the sensitivity tests
- **Annex L** - Funding the WKCD - provides supporting detail of the assumptions and analysis of alternative funding arrangements for the WKCD
- **Annex M** - Study Report, Public Private Partnerships - provides detailed qualitative analysis of PPP and approaches to the development of the WKCD
- **Annex N** - Study Report, the Public Sector Comparator - provides the analysis and result of the PSC calculation

2. RECOMMENDATIONS OF PATAG AND MAG AND REQUIREMENTS FOR THE DEVELOPMENT OF THE WKCD

2.1 Basis of the Financial Analysis

2.1.1 The key recommendations and requirements of the two advisory groups, MAG and PATAG, the IFP and the October 2005 Package are summarised in this section and form the basis of the WKCD project. As described in Sections 3 onwards, the FA went on to develop potential PPP scenarios, draw up the detailed assumptions required and undertake the financial analysis.

2.2 PATAG Recommendations

2.2.1 PATAG reported to the CC in September 2006[3] and recommended the provision of the following PA venues:

- A **Xiqu Centre** for both Cantonese Opera and other types of traditional Chinese opera incorporating a theatre of 1,200 to 1,400 seats, a small theatre of 400 seats, a Xiqu Tea House to attract locals and tourists and other ancillary facilities
- A **Concert Hall** (with a maximum seating capacity of 2,000 seats) and a **Chamber Music Hall** (600 to 800 seats)
- A **"Theatreland"** comprising:
  - ***A Great Theatre*** (a proscenium theatre) with a seating capacity of 2,100 to 2,200 seats. An additional Great Theatre (of 1,800 to 1,900 seats) should be subject to proven demand
  - ***Two Medium-Sized Theatres*** each with a seating capacity of 500 to 800 seats. Two more Medium-Sized Theatres (each with 500 to 800 seats) should be subject to proven demand
  - ***Four Black Box Theatres*** each with a capacity of 150 to 250 seats
- A **Mega Performance Venue** with a maximum seating capacity of 15,000
- **Piazza Areas** of a total area of at least 30,000 sq.m. including a small canopy(s)

2.2.2 PATAG advised that 12 of the 15 PA venues and the piazzas should be developed concurrently in a first phase (Phase 1) with the remaining three facilities to be developed in a second phase (Phase 2) subject to the proving of future demand – i.e. Great Theatre 2 and Medium Theatres 3 and 4. The water amphitheatre that was included as part of the IFP was specifically not recommended by PATAG.

2.2.3 PATAG advocated that the performing arts venues and facilities should be suitably clustered together and integrated with the commercial facilities in the WKCD so as to attract people flow, thus creating synergy and vibrancy.

2.2.4 PATAG recommended that the facilities should strive to operate on a self-financing basis and that the future management should build up the artistic character of each venue. In general PATAG considered that there was increasing demand for PA venues in Hong Kong, coupled with an acute shortage of venues, noting that no PA venues had been built for many years and in particular, there was a shortage of newly designed venues to meet

[3] PATAG report to the CC, 7 September 2006

market need. PATAG reported that the PA sector had expressed a need for new facilities and had high aspirations that their demands would be addressed through new facilities at WKCD. PATAG also reported that the proposed arts and cultural facilities would alleviate the shortage of PA venues whilst space should be reserved for organic arts and cultural activities in the long run.

2.3 MAG Recommendations

2.3.1 MAG reported to the CC on 23th November 2006[4]. To achieve the vision of the WKCD, MAG recommended to the CC that it would be best to develop an area of rich development potential broadly categorised as "Visual Culture" and that "the most desirable form of cultural institution to collect, preserve, research, educate and present visual culture would be an **M+ (or Museum Plus)**." MAG advised that M+ would be a single cultural institution with its mission to focus on 20th – 21st century visual culture under an open-ended format that encourages partnership, interaction and cross fertilisation of ideas from a 'Hong Kong perspective', a 'perspective of now' and with a 'global vision'.

2.3.2 MAG's report comments that visual culture is a broad area and a fluid concept which offers flexibility and scope to respond to changing circumstances but typically includes areas such as, but not limited to, architecture, design, moving image, popular culture, visual arts, etc. Four initial broad groupings were proposed (in alphabetical order):

- Design
- Moving Image
- Popular Culture
- Visual Art

2.3.3 MAG advised that M+ should have sufficient size and flexibility and the space must be responsive to changing circumstances. With a target audience of 2.5 million, MAG recommended that the site footprint should cover 37,500 sq.m. with an eventual Net Operating Floor Area (NOFA)[5] of 75,000 sq.m. and an estimated Gross Floor Area (GFA) of 125,000 sq.m. The space should comprise exhibition galleries (net area of 30,000 sq.m.), a dedicated outreach and education centre, a library/archive, screening facility, a bookstore, artists-in-residence studios, back-of-house and other supporting facilities. If possible, the storage area and conservation laboratory could be located outside the WKCD. An open and international architectural design competition was proposed to attract the most innovative and appropriate architecture for M+. In addition, MAG also recommended that the development of M+ should be phased – two thirds of net gallery area to be provided in the first phase and the remaining one third to be provided in subsequent phase(s).

2.3.4 MAG recommended a stringent governance model for M+, preferably a statutory body with an independent Board of Trustees. M+ should build on the strength of local and global cultural partnerships and develop strategic relationships with local and international museums and cultural institutions.

2.3.5 With a separate identity from M+, an Exhibition Centre (EC) with an NOFA of 10,000 sq.m was also proposed, to be operated on a self-financing basis. It should accord priority to activities related to arts, culture and creative industries and other WKCD activities. Offers of concessionary rental and/or earmarking of specific time slots for these activities could be given.

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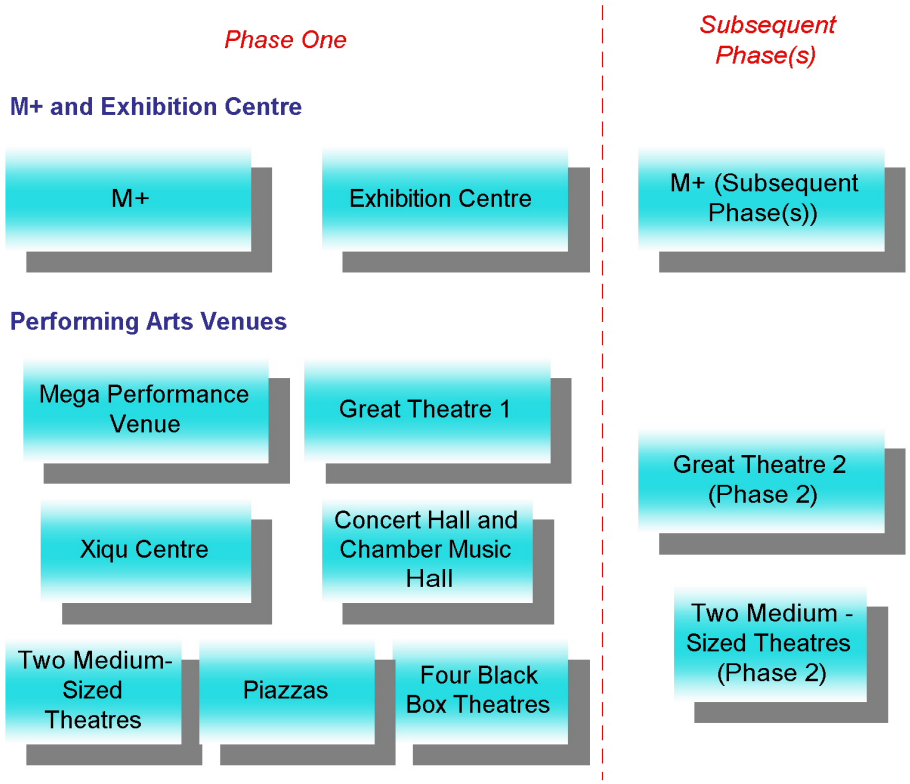
[4] The Report to the Consultative Committee, Museums Advisory Group, 23 November, 2006

[5] NOFA means the total area of all rooms and functional spaces within such part of the accommodation or facilities. This excludes all structures and partition, circulation areas, staircases, staircase halls, lift landings, mechanical and electrical services such as lift and air-conditioning systems.

Figure 2-1: CACF Recommended by PATAG and MAG



2.3.6 By way of comparison with existing provision:

- The area of exhibition galleries in M+ (30,000 sq. m.) is equivalent to 4 times that of the Hong Kong Heritage Museum (7,500 sq. m.)
- The seating capacity of the Mega Performance Venue (15,000 seats) is 1.2 times that of the Hong Kong Coliseum (12,500 seats)
- The seating capacity of other PA venues, excluding the tea house type venue in Xiqu Centre (12,900 seats) is equivalent to 3 times that of the Hong Kong Cultural Centre (4,249 seats)

2.4 Invitation for Proposals (IFP)

2.4.1 IFP requirements still relevant for the WKCD included:

- Facilities for Other Arts and Cultural Uses (OACF) such as an art information centre and offices of arts and cultural organisations
- Transport facilities, including an Automated People Mover (APM)
- Other communal facilities such as open space and refuse collection points (RCP)
- Infrastructure and engineering works

2.5 The October 2005 Package

2.5.1 The October 2005 Package set the upper plot ratio limit at 1.81, which, with a site area of 40.09 ha, gives the maximum total GFA (including CACF and communal facilities) at 726,285 sq m. The October package also set a cap on residential development at 20% of the total GFA. The cap has financial implications, in particular because residential is the most valuable type of floorspace, higher than retail or office, as is shown in Section 5.

3. PPP APPROACHES FOR WKCD

3.1 Scope of the Analysis on Forms of PPP

3.1.1 Involving the private sector in the delivery of what are traditionally seen as public services is a worldwide, ongoing trend and ranges from simple outsourcing of cleaning contracts to public floatation (divestiture) of former nationalised industries.

3.1.2 In analysing forms of PPP that might be suitable for the development of the WKCD, the FA:

- Assessed the range of PPP and other procurement approaches
- Undertook an analysis of PPP experience in Hong Kong and internationally in the arts and culture sector, as well as research on the financial performance of well known international arts and cultural facilities
- Assessed international experience of area-based approaches[6] to the development of the WKCD including experience of cultural districts and of the agencies tasked with their delivery

3.1.3 This section summarises the analysis of PPP, focusing on the lessons learnt for the WKCD and taken forward in preparing alternative scenarios for testing in the financial analysis, explained in the next Section 4. The qualitative analysis of PPP and approaches to the development of the WKCD are reported in **Annex M**.

3.2 PPP and Private Sector Involvement (PSI) Approaches to Procurement

3.2.1 PPPs represent a subset of the spectrum of private sector involvement (PSI) approaches. Despite slight variations in terminology between jurisdictions and between sectors, the four key characteristics of PPP are the **sharing of risk and responsibility**, a **contract** between Government and the private sector, over a **medium to long term timescale**, involving arrangements which take advantage of private sector management skills **incentivised by having private finance at risk**.

3.2.2 In considering appropriate procurement approaches for facilities proposed in the WKCD, the FA broadened the range of approaches normally identified as PPP to include all potential types of contract based private sector involvement (PSI), from outsourcing of service provision through to divestiture. In addition, because of the nature of arts and cultural facilities in a mixed use development such as that proposed at West Kowloon, the FA further broadened the range of PSI to include other kinds of private sector funding and other forms of public subsidy. This broad range was appropriate given the wide variety of facilities and services to be provided in the WKCD and the potential need for different approaches to PSI for different types of facilities. The focus, none-the-less, was on identifying potential PPP approaches which involve a contractual arrangement in which the private sector invests in constructing and operating facilities for a financial return over a lifecycle project period. Table 3-1 describes the range of generic private sector involvement options and the typical split of roles and responsibilities between the public and private sectors. Those which represent potential PPP type approaches are shaded.

[6] Area based approach means the comprehensive planning and development of a defined geographical area,

Table 3-1: Private Sector Involvement and PPP Approaches

Option	Typical Public Sector Role / Responsibility	Typical Private Sector Role / Responsibility
Service Contract	• Owns and finances underlying assets • Retains overall responsibility for operation and maintenance	• Provision of services to public sector as part of overall operation and / or maintenance • Responsible for providing services to the service levels specified
Operate and Maintain (O&M)	• Owns and finances underlying assets	• Operation and maintenance to a specified condition / service level • Provision of services to the customer, possibly including collection of revenue
Lease	• Existing asset transferred from the public sector for a specified period • Public sector usually transfers on the basis of a lease for which it receives an up front capital payment and then makes a regular service payment to the private operator during the life of the lease.	• May need to refurbish or expand existing asset • Finance of up front capital payment and refurbishment/expansion costs • May include operation and maintenance to a specified condition / service level
Design and Build (D&B)	• Specifies the asset required in terms of its functions and desired outcomes • Probably involves making stage payments during construction • Asset is transferred to public sector on completion • Operation, maintenance and management of completed asset	• Design and construction of the asset to agreed price and specification • Risk of time and cost overrun

Option	Typical Public Sector Role / Responsibility	Typical Private Sector Role / Responsibility
Design Build and Maintain (DBM) / Design Build Operate (DBO)	• Specifies the asset and services required • Purchases the asset on completion for a pre-agreed price and therefore finances the asset when it becomes operational • Takes all ownership risks following purchase • May provide management and operations	• Design and construction of the asset to agreed price and specification • Operation, management and maintenance to a specified condition/service level following completion or may just provide management • Provision of services to the customer, possibly including collection of revenue • Private sector incentive to design and build for long term quality operations/ or maintenance
Design, Build, Finance and Maintain (DBFM)	• Specifies the asset and services required • Purchases the asset throughout the agreed contract term • Provides management and operations	• Design, finance and construction of the asset • Maintenance of the asset to specified conditions/service level • Asset is returned to the public sector at the end of the contract
Build Own Operate Transfer (BOOT) / Build Operate Transfer (BOT)/ Design Build Finance Operate (DBFO)	• Specifies the services required and potentially the underlying asset required to deliver the services • Pays for the services and the cost of the underlying asset over the life of the contract • Takes ownership of the asset at the end of the contract, frequently at no cost • May provide front line services (e.g. teaching in a school or clinical services in a hospital)	• Design and construction of the asset to agreed price and specification • Finances project throughout contract period (construction and operation) • Operation and maintenance to a specified condition/service level following completion (extent of service provision dependent on the scope of the contract) • May provide services to the customer, possibly including collection of revenue (but service provision may be limited to building maintenance and possibly provision of soft facilities management or “hotel” services) • Takes full range of commercial risks associated with the project (excluding front line service provision provided by public sector) • Transfers asset to public sector at the end of the contract, usually with an obligation that the asset complies with minimum condition standards

Option	Typical Public Sector Role / Responsibility	Typical Private Sector Role / Responsibility
Build Own Operate (BOO)	• Similar to BOOT projects but the public sector does not become the owner of the asset at the end of the contract • Commits to purchase services produced by the asset for a fixed length of time	• Similar to BOOT projects but retains ownership of the asset in perpetuity
Joint Venture / Alliance	• Sharing of benefits/costs associated with project risks • Pooling of assets, finance and expertise under joint management • Pre-agreed formula to benchmark pricing, timing, service levels and sharing of benefits / costs achieved	• Sharing of benefits/costs associated with project risks • Pooling of assets, finance and expertise under joint management • Pre-agreed formula to benchmark pricing, timing, service levels and sharing of benefits / costs achieved
Divestiture	• Sale of business, with potential to retain a shareholding • Regulation of business to ensure it does not unfairly exploit a market monopoly and continues to provide public services to the desired standard	• Ownership and management of the business • Full range of business risks

Notes:

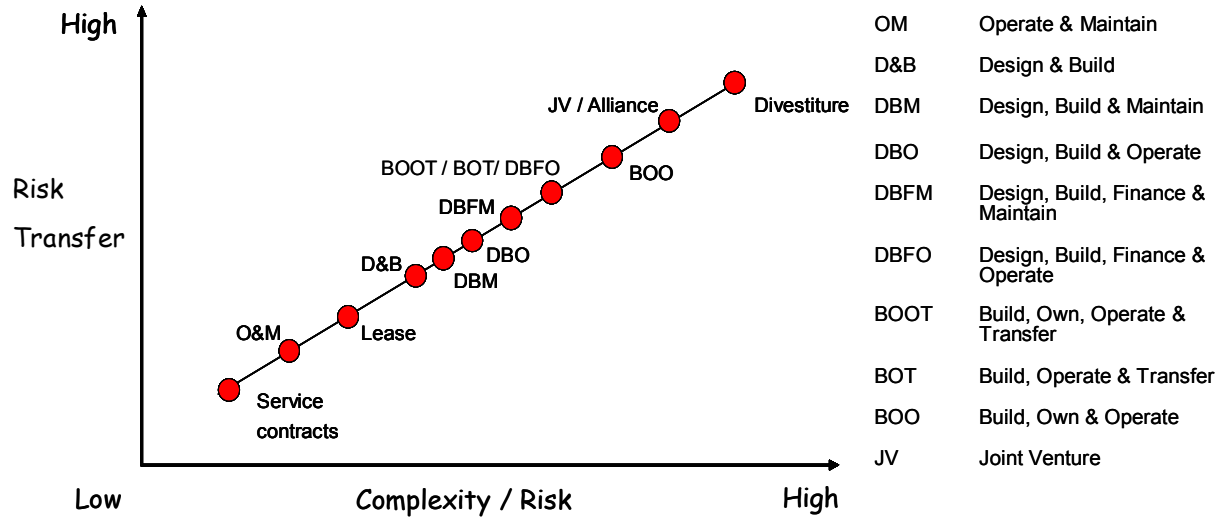
(i) Other hybrids/extensions of BOOT and BOO include: BLT/BRT: Build lease/rent transfer; BT: Build transfer and BTO: Build, transfer, operate and Design Build Finance Operate (DBFO) – DBFO tends to be used in Hong Kong and emphasises the "Finance" rather than "Ownership" but the former implies the latter and vice versa

(ii) Options may or may not include design depending on the nature of the facility

(iii) Options which include maintenance only, rather than full management and operations of facilities, may be more appropriate for some arts and culture facilities. In other sectors such as water supply or environmental services there are more players likely to both construct and operate facilities

3.2.3 What characterises and defines a procurement approach is how risks are allocated between the public and private sectors. The resulting spectrum of possible approaches is illustrated in Figure 3-1.

Figure 3-1: Finding the Balance of Risk Transfer, a Comparison of Approaches



3.2.4 As Figure 3-1 shows, the lower the level of risk transfer, the less complex the contractual arrangement is likely to be and thus the more straightforward the procurement process. In theory, the more risk that is transferred to the private sector, the greater the scope the private sector has to come up with more innovative forms of service delivery to improve value for money. The higher levels of risk transfer to the private sector are therefore usually associated with increasing levels of deregulation and, ultimately, higher levels of irreversibility of services and assets back to the public sector. The maximum degree of risk transfer will be achieved through privatisation, transferring all the business risk associated with the relevant public service provision.

3.3 International Experience on PSI in Arts and Cultural Facilities

Limited PPP Experience and Financial Performance of Cultural Facilities

3.3.1 There is a wide range of international experience of PPP in the procurement of a wide range of services including transport, social and other infrastructure. However, relatively little of this experience has been in the procurement of arts and cultural facilities. Almost all existing cultural facilities in Hong Kong are provided and operated by LCSD or funded through tertiary education or other organisations. Experience demonstrates that nearly all of the CACF and communal facilities that are likely to be developed at the WKCD are loss making. Examination of the financial performance of some of the better known international museums and PA venues demonstrates that most cultural facilities do not cover the cost of operations and maintenance and very few are able to make any contribution to capital costs – see Table 3-2.

Table 3-2: Museums and PA Venues do not Cover their Operating Costs

Facility	Self-Generated Revenue[1] as a % of Operating Costs[2]
Centre Pompidou, France	27%
Queensland Performing Arts Complex, Australia	62%
South Bank Centre, UK	43%
Sydney Opera House, Australia	74%
Tate Galleries (Tate Modern, Tate Britain, Tate Liverpool and Tate St Ives), UK	54%
The Museum of Modern Art, New York, USA	57%
The Esplanade, Singapore	38%

Notes:

1. Excludes depreciation, tax, interest and collection acquisition costs

2. Includes hire income, admission charges, merchandise sales, rental income, commercial sponsorship, fundraising activity and other miscellaneous income

The Museums and Galleries Sector

3.3.2 Museums worldwide are characterized by tremendous diversity in their funding and governance. In the United States and Canada and increasingly in Europe, most museums are operated by either a trust, a board-governed not-for-profit private organization, or as a board-governed "arm's length" government organization. The "arm's length" characteristic is necessary to attract private capital for reasons other than for commercial return, such as philanthropic donations and sponsorship as well as Government and Non-Government Organisation (NGO) funding. The fundamental reality shaping museum funding is the fact that museums and cultural centres rarely survive on self-generated revenue alone; that is, they virtually always require a subsidy just to cover operational costs, let alone capital costs. What is more important for museums and galleries therefore is the institutional set-up of the organisation, rather than the selection of procurement method.

3.3.3 The international case study and international examples illustrate the constraints on the scope for private sector participation:

- In the museum and gallery sector it is common for virtually all of the construction cost of facilities to be met by the public sector. For the development of the Guggenheim Bilbao in Spain, the Basque and Biscay Regional Governments financed 100% of the new museum whilst the £46 million construction cost of the Baltic at Gateshead in the UK was met 75% from Lottery funds and virtually all of the balance from a cocktail of local, regional, national and European Union funding
- Free land is also a key public sector contribution. The City of Bilbao donated the land on which the Guggenheim Museum was built and Gateshead Council donated the Baltic site and an unconverted building
- It is not uncommon for public authorities to make grants towards the start up and establishment or collection costs. The City of Bilbao, made a US$20-million donation to the Solomon R. Guggenheim Foundation called a 'rental fee' in reference to the future use of the Guggenheim's collection and 'brand name'
- Museum partnerships with other public entities are common. These are often public educational institutions (such as school districts or universities and colleges), other museums, or not-for-profit government agencies.

- The most common example of the involvement of commercial entities is in the day-to-day operation of museums - typically the operation of the museum's food outlet and, less commonly, retail outlets – usually through a concession arrangement.
- A few museums also have an operational arm that runs commercial activities. The Museum of Modern Art (MOMA) in New York, has its own condominium tower for revenue generation, others such as the National Palace Museum in Taiwan have gift shop operations that generate revenue used to cross-subsidise the museum facility.
- Commercial organizations often contribute in-kind services or make one-time donations for specific museum projects. It is also not uncommon for them to fund a particular programmatic initiative related to their philanthropic goals.

The Performing Arts Sector

3.3.4 As with museums, PPP procurement arrangements have not been widely used in the performing arts venues field – excluding commercial cinemas, theme parks and sports stadiums – because most of these facilities operate at a loss and the market players that construct these facilities are not those that operate them, hence the limited opportunity for project-life type approaches. Although revenues from the performing arts typically cover a higher proportion of operating costs than museums and galleries, virtually all performing arts venues require public funding for operations as well as for their construction. The case studies in **Annex M** also provide illustrations of the scope of public-private partnerships for the construction and operation of performing arts venues:

- Public funding has met most of the costs of development. In the UK the availability of public Lottery funding for arts facilities has been a major source of funding for performing arts venues. In the UK, the Lottery funded 60 – 70% of the capital costs of three recent and successful major theatre developments - the Milton Keynes Theatre and Gallery, the Sage, Gateshead and the Lowry at Salford and the balance of the funding came from a cocktail of local, regional, and national and European Union Funding.
- Private sector contributions are more likely to be made in the form of donations and sponsorships rather than commercial investments. These typically take the form of naming rights, sponsorships and donations to the facility or its programmes; and trusts and foundations, seeking to fulfil social responsibility charters. In Los Angeles, the Walt Disney Concert Hall attracted private donations for more than 50% of the capital costs – principally from the Disney family. In the US donations are more common than risk capital.
- A more common form of private sector participation in the development of performing arts venues has been in their construction as part of a mixed commercial development for which they can provide an attractive anchor. The Orleans Arts Centre in Ottawa, Canada, will be the centrepiece of a larger Orleans Town Centre development, and will also include hotels and other retail/commercial and residential developments.
- In the case of the Orleans Arts Centre, a PPP procurement arrangement was made between the City of Ottawa Government and a private consortium based on a design, construction, finance, operation and maintenance contract with ownership reverting to the City after the agreement expires in 25 years' time.
- Perhaps the most common form of private sector participation in performing arts venues, particularly theatres, is for a commercial entity to operate the facility or its ancillary commercial activities (restaurants, bars, shops, car parks etc.) on a service contract or lease. In Milton Keynes and Richmond-upon-Thames in the UK, the theatre is owned or leased to a charitable Theatre Trust and the theatre then leased

to the private Ambassador Theatre Group Ltd, a commercial theatre and production company, to operate.

Other Visitor Destinations Sector

3.3.5 The analysis of museums and performing arts venues funding strategies suggests that risk sharing PPP arrangements are uncommon in both construction and operation because of the limited market revenue generated by cultural facilities compared with the high capital and operating costs. However the more commercial the "cultural" activity the more revenue generated and other visitor destination facilities such as sports and events stadiums and arenas, convention and exhibition centres do provide multi-purpose accommodation for commercial entertainment and cultural events. The review of international cases has included visitor destination facilities of this type and indicates that risk sharing PPP arrangements such as DBFO contracts are increasingly being used by public agencies to provide these types of visitor destination facilities.

3.3.6 It is also important to note that for these types of destination venue projects there is now an increasingly experienced group of international contractors, financiers and consortiums of other skills which have bid for and implemented PPP contracts. The combination of skills is wide and usually includes marketing, maintenance, and real estate skills to assess and manage the risks. Consortiums with these skills do not exist to the same extent in the cultural and arts sectors.

3.4 Area-Based Approaches and Agencies for Arts and Cultural Districts

Area based Approaches for Cultural Districts

3.4.1 Some cultural districts in the major international cities have developed organically over a long period of time, but it is now more common for them to be created through an area-based regeneration and planning process where the Government provides the lead for a range of public and private partners. International experience also shows that the opportunity to plan and develop an area comprehensively – an 'area based' approach – will be important in expanding the use of PSI approaches by enabling the arts and cultural facilities to be grouped with commercial property development in procurement. Area-based approaches usually include a rich mix of different types of development and cultural facilities are often the centre pieces of the districts, such as the Guggenheim Museum at Bilbao Ria 2000, the Baltic and the Sage at Gateshead Waterfront, and the Australian Centre for the Moving Image and the Ian Potter Centre at Federation Square in Melbourne.

3.4.2 Key features of these cultural development led districts include:

- The economic and financial success of area-based development is based on mixed commercial and cultural uses which complement each other, ensuring that there is day-long activity and that revenues from commercial uses can cross-subsidise cultural uses.
- There is a mutually supportive relationship between cultural and commercial uses which increases the quality and value of, for example, retail, dining and entertainment facilities, brings a wider cross section of the community into cultural areas and generally increases urban vibrancy.
- The objective of mixed area-based development is as a driver for change in the economy and quality of life in the city as a whole by boosting the visitor economy and adding a new dimension to the image of city, nationally and internationally.

Area-Based Agency Approaches for WKCD

3.4.3 All the international experience also shows that mixed use area-based development is most effectively implemented through the establishment of an independent dedicated development authority or not-for-profit company, with:

- Board members from a wide public sector and private sector representation

- Dedicated resources and powers to plan, develop the infrastructure in the area
- In some cases, responsibility for the subsequent operation and maintenance of the district and its facilities.

3.4.4 Area-based agencies may be public authorities formed under statute or may be incorporated as private entities. The key is the level of autonomy of the agency, including a Board, which is independent from Government and an independent budget. The agency needs to be able to retain income from land disposals and other receipts; engage in service and other contracts with the private sector; and package and prepare sites for development.

Area Development Agency Approaches to Private Sector Involvement

3.4.5 Finally, the analysis of international experience, and the case studies of three cultural district agencies in Australia, Spain and Canada set out in **Annex M** has also shown that the potential for private sector involvement - including PPP options – is more effective where the public sector partner – in this case, the future statutory body - has a dedicated area-based development role and can enter into development packaging, service, PPP and other agreements with developers and operators on behalf of the Government and other public partners. The analysis of international experience has shown that area-based institutions are more effective in:

- Master planning the development of the area (within the government's statutory planning framework) in order to optimise the pattern of development and secure the right financial, technical and cultural balance of arts, commercial and communal infrastructure development across the area as a whole.
- Development site and land-use parcelling and packaging of commercial, cultural and communal facilities. A dedicated agency is best able to subsidise and cross-subsidise development and facility operation through a range of "planning gain"[7], project packaging and risk sharing agreements.
- Developing business propositions to be offered to the private sector, whilst ensuring the public interest is met, both financially and culturally. An agency with an area-based focus is best placed to create market interest and understand public and arts community interests and objectives.
- Being the public party which enters into joint venture and other risk sharing PPP contracts on behalf of the public sector ensuring the public interest is maintained but at "arm's length" from Government.
- Allowing effective revolving of revenues from the leasing and development of sites and the operation of revenue generating facilities. This minimizes the need for seed monies and reduces the need for further public capital injections.
- Representing public sector involvement in the management structures of cultural and arts facilities. A dedicated area agency could be instrumental in establishing and participating in Foundations, Trusts, and other not-for profit organisations essential for the ownership and operation of many cultural facilities.

3.5 Lessons for Private Sector Involvement in WKCD

3.5.1 The analysis of PSI and PPP experiences in Hong Kong and internationally in the cultural and arts sectors demonstrates that nearly all of the types of cultural and associated communal facilities that are likely to be developed and operated at the WKCD are loss making. **Most cultural facilities do not cover the cost of operations and maintenance and very few are able to make any contribution to recovering capital**

[7] Lease or planning conditions which require the private sector to provide certain facilities or services.

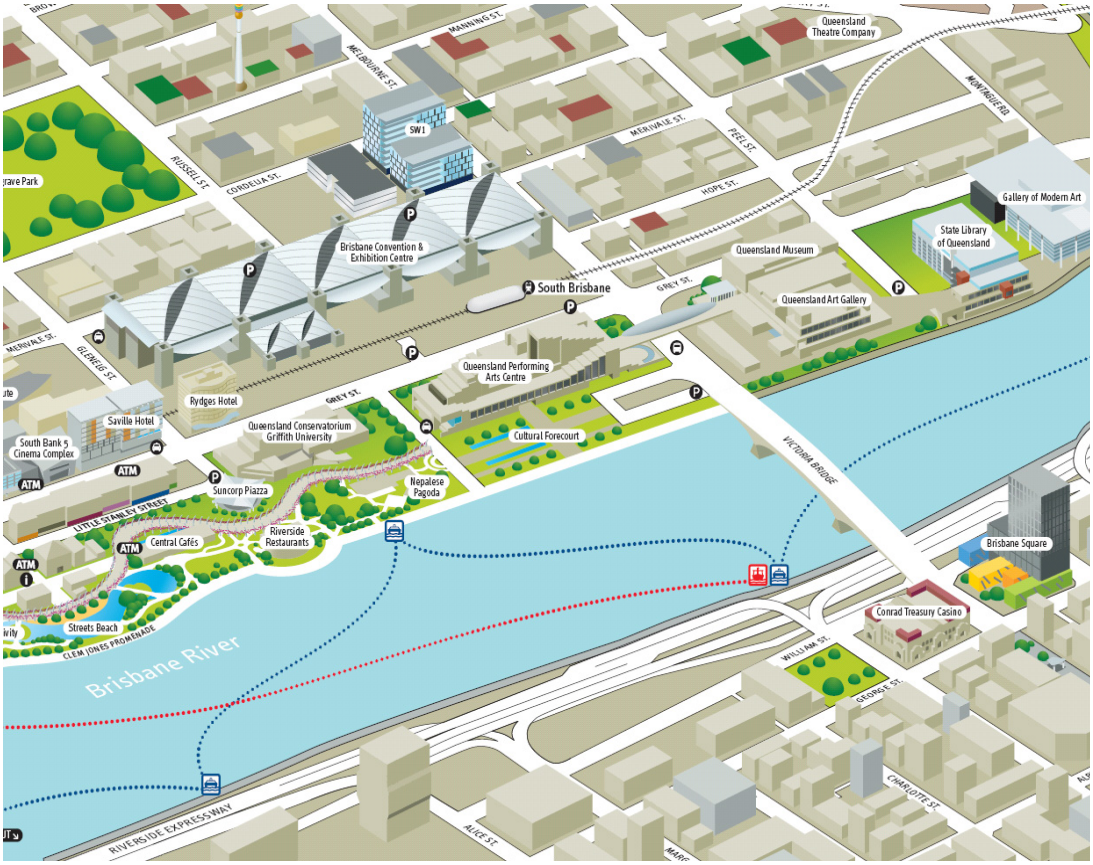
costs. Likewise, the market players that construct cultural facilities are not those that manage them. Scope for the private sector to take the lead in the development or operation of facilities has therefore been limited; in virtually all cases facility **development and operation has required significant levels of public subsidy**. Where contributions from the private sector have been made, these have tended to be in the form of donations.

3.5.2 The composition and level of public sector subsidy was found to vary considerably. Common methods include capital expenditure, other grants and loans, land and property inducements, development packaging and planning gain. Most of these are already employed in Hong Kong. The issue is therefore the level, source and form of public subsidy which is the most efficient and cost effective for the WKCD.

3.5.3 There are a number of lessons learnt from these cultural development led districts in other world cities:

- Cultural facilities are typically loss making in operating terms and rarely make any contribution to capital costs. There are virtually no market players involved in the construction as well as the operation of facilities. This severely restricts risk sharing PSI opportunities.
- Nearly all cultural facility construction has been funded directly by the public sector or heavily subsidised through a wide range of public sector arts, local, regional and national funding programmes.
- Where government initiated projects have sought private partners to help them deliver the projects, they are usually not-for-profit private organizations such as trusts and foundations. Where private capital is contributed it is usually in the form of donations and sponsorship.
- Private sector participation is usually limited to service contracts or leases but, in the case of some performing arts venues, contracting by specialist operating or production companies is common.
- Adopting an area based approach in the development of mixed-use districts enables arts and cultural facilities to be grouped with commercial development in planning gain and development packaging procurement approaches, as additional forms of public subsidy.
- In many cases a statutory body has been established as an autonomous entity to oversee the planning, development and operation of the mixed use area.
- In return for a very high level of public funding of cultural development, Governments have been able to secure relatively high levels of regulation through programming agreements and Board member participation by local government representatives.
- Many cultural development projects are carried out to meet policy objectives such as cultural development, urban renewal, economic and tourism development and the economic and social benefits are used to justify the high levels of public spending.

Figure 3-2: South Bank Cultural Precinct, Brisbane, Australia



Courtesy of South Bank Corporation

4. METHODOLOGY OF THE FINANCIAL ANALYSIS

4.1 Overview

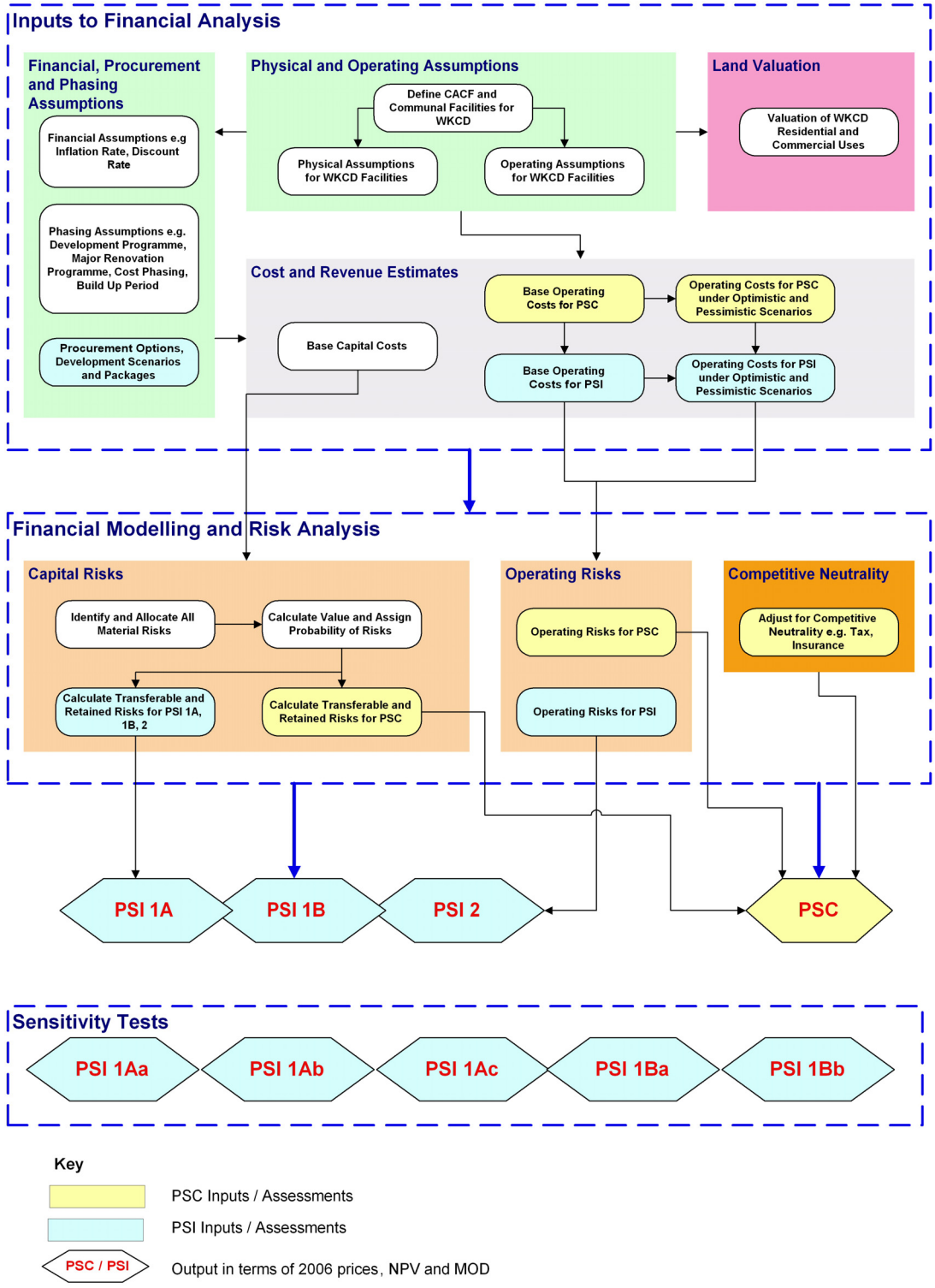
4.1.1 An overview of the methodology adopted for the financial assessment is presented as Figure 4-1. The main steps involved in undertaking the financial analysis are summarised as follows:

- The recommendations and requirements of the advisory groups, the October 2005 Package and the IFP were used as the basis for the WKCD project. The FA then went on to prepare detailed assumptions and development parameters for each facility as well as the WKCD site as a whole
- Based on the analysis presented in Section 3 and a market sentiment exercise conducted in Hong Kong and elsewhere, alternative appropriate procurement options for each facility were proposed. The facilities were grouped together to form different scenarios for the WKCD as a whole. In this way, three alternative PSI scenarios were developed for testing, each reflecting different levels of risk transfer to the private sector. A further scenario which reflected existing Government procurement practices – the public sector comparator (PSC) - was also developed (see Section 4.3)
- A set of financial assumptions to be adopted in the financial analysis were developed, drawing on existing Government practice, evidence on financial and economic parameters and the market sentiment exercise
- The proposed residential and commercial facilities were valued using comparables, based on a generally accepted methodology and the general market situation, as at end 2006. This provided an estimate of the residual land value which would be paid as land premiums
- Estimation of the costs and revenues (before risk and contingency) for each of the facilities. The cost estimates included:
  - Initial capital including master planning, area and project management, construction and associated fees and contract management
  - Additional capital expenditure, including the costs of collection and library set up and further exhibition development
  - Major repair and overhaul
  - Operations, including operation, management, maintenance (OMM) of the facility
- Risk analysis was then undertaken to adjust cost and revenues to reflect the relevant procurement option or development package and also adjust for factors such as tax and insurance to enable fair comparison with the PSC
- The annual costs and revenues for the analysis period were then estimated, with a project period of 50 years from assumed land sales in 2010 and assuming planning including master planning occurs in 2008 and 2009
- A Money of the Day (MOD) annual surplus or deficit for each facility and a 2006 Net Present Value (NPV) equivalent were then calculated
- The financial results of the individual CACF, communal and other facilities including land premiums were then combined to provide an overall analysis including annual

MOD surplus and deficit, and a resultant NPV for the WKCD project as a whole under the alternative scenarios

4.1.2 Selected aspects of the methodology are described in more detail in Sections 4.2 to 4.6.

Figure 4-1: Methodology of the Financial Analysis, Overview



4.2 Developing the WKCD Base Case

Key Physical Development Parameters and Operating Assumptions

4.2.1 The recommendations and requirement of the advisory groups, the October 2005 Package and the IFP are set out in Section 2. Although they provided a basis for the WKCD project, they did not provide the level of detail required for the estimation of annual costs and revenues needed for the financial analysis.

4.2.2 As such, using these recommendations and requirements, and subsequent advice from government departments, the FA then went on to develop a set of detailed development parameters and operating assumptions for a WKCD 'Base Case'. The WKCD Base Case defines all the physical development and operational parameters in the level of detail required for the estimation of annual capital and OMM costs and revenues. These include the grouping of facilities which would be physically developed together sharing space; the development programme of the facilities to be provided, the phasing of construction, the size of facilities[8], overhaul and maintenance requirements, collection acquisition budget, programming budget, annual attendance, number of performances, utilisation rates, admission charges, ticket price, hire charges, merchandise sales, rental charges for resident company space, shops, restaurants and other uses, level of sponsorship and fundraising amongst others.

4.2.3 The detailed assumptions, costs and revenues, were drawn up by the FA, in consultation with relevant Government Bureaux / Departments, making use of local and international experience and benchmarks where appropriate. A summary of the key assumptions and development parameters adopted with their source shown in brackets ( ) are presented in Figure 4-2 and Figure 4-3. Full details of the development and operational parameters and broad order cost estimates for the CACF and other facilities are set out in **Annexes A – F**.

Phasing and Development Programme

4.2.4 Figure 4-4 presents the development mix and the development programme. As recommended by MAG and PATAG, the construction of CACF was assumed to take place in phases. The FA assumed two phases and that Phase 1 would start as soon as possible. The master planning exercise was assumed to commence in 2008 when the legislative procedures for the establishment of the proposed statutory body are completed. The master planning exercise for both Phase 1 and Phase 2 (including the preparation of a master layout plan, detailed demand assessments and technical studies, securing planning approvals for residential developments, and public consultation) are assumed to be completed in about 2 years. It was assumed that land sales would take place as soon as possible after the completion of the master planning exercise, i.e. in 2010, and the land lease would expire in 2059.

4.2.5 Area and project management was assumed to commence in 2008 and cover the whole assessment period to the year 2059. There are 2 phases: (i) 2008 to 2015, which is primarily construction and area management and (ii) 2016 onwards, which is primarily operational management.

4.2.6 The FA assumed that

- The design and construction of PA venues and the EC would take 3 to 4 years and the design and construction of M+ would take 6 years, including 2 years for an international architectural design competition. As such:

[8] 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 – the FA made assumptions on phasing and off-site uses. GFA for PA Venues was estimated by the FA based on the type and seating capacity of venues, provided by PATAG

- Phase 1 PA venues would be operational by 2014 and the M+ by 2016
- Phase 2 PA venues would be operational by 2026, 10 years after the completion of all Phase 1 facilities and M+ (phase 2) would be operational in 2031.

Figure 4-2: WKCD Base Case, Key Assumptions and Development Parameters

Key Site Development Parameters:

- Site Area of 40.09 hectares (as per IFP)
- Site zoned "Other Specified Uses" annotated "Arts, Cultural, Commercial and Entertainment Uses" (existing zoning)
- Plot Ratio of 1.81 (as per October 2005 Package) gives a total GFA of 726,285 sq.m.
- Residential development limited to 20% of total GFA (as per October 2005 Package) - 145,257 sq.m. GFA based on a plot ratio of 1.81
- 3 hectares of piazzas (as advised by PATAG)
- 20 hectares of public open space excl. piazzas (as per IFP) on or above ground
- Carparks and loading / unloading facilities are included as ancillary uses and are exempt from the GFA calculation (FA assumption)
- APM stations and depots are exempt from the GFA calculation (FA assumption)
- International architectural design competition for M+ only (as advised by MAG)
- NOFA to GFA ratios:
  - 1:1.67 for M+ (as advised by MAG)
  - 1:1.5 for PA venues (FA assumption)
  - 1:1.25 for Exhibition Centre (as per IFP)
- Maximum building heights ranging from 50mPD to 100mPD (as proposed by the Planning Department)

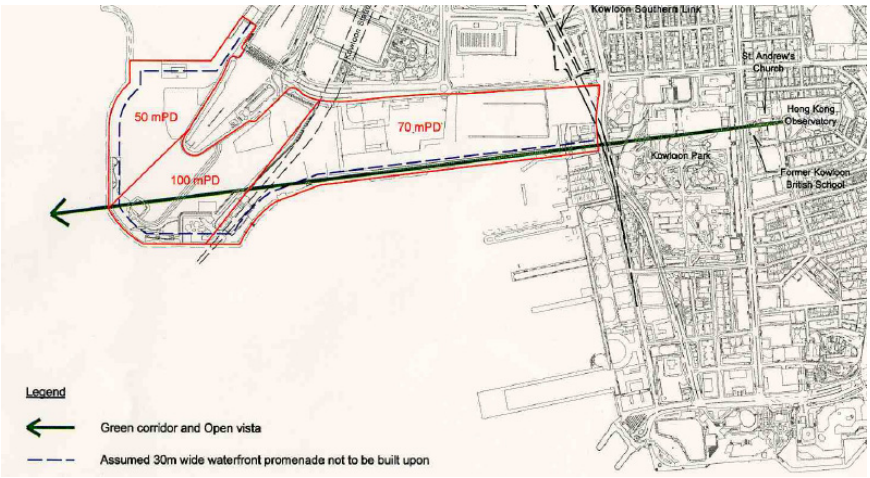


Figure 4-3: WKCD Base Case, Development Mix and Key Operating Assumptions

Development Mix

	GFA (sq.m.)	% of Total GFA
M+* and Exhibition Centre	111,030	15%
PA Venues	202,389	28%
Sub-total	**313,419**	**43%**
Other Arts and Cultural Uses	15,000	2%
Communal Facilities	20,000	3%
Sub-total	**35,000**	**5%**
Residential: Villa Houses & Apartments	145,257	20%
Commercial: Hotels & Retail /Dining/Entertainment Facilities (RDE)	232,609	32%
Sub-total	**377,866**	**52%**
Total	**726,285**	**100%**

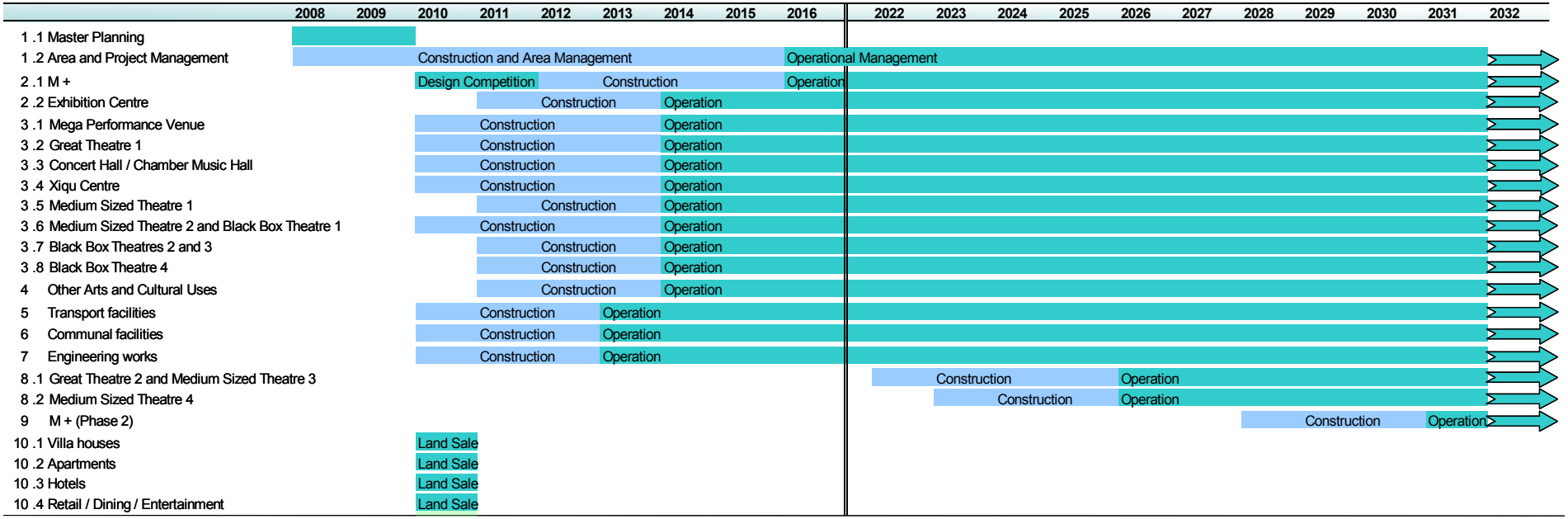
* Excluding 19,200 sq.m. GFA of off-site storage and conservation laboratory

Note: The FA assumed no commercial offices in WKCD given limited GFA available for commercial development and priority was given to retail/dining /entertainment (RDE) facilities and hotels to support cultural facilities in WKCD as suggested by PATAG. If more GFA were available for commercial development, then part of this capacity could be reserved for commercial office development in order to diversify the risk of commercial development in WKCD. Providing prime offices in WKCD could support the growth of Hong Kong as an international finance and commercial centre and help develop the WKCD and neighbouring areas into a decentralized office node on the Kowloon side.

Key Operating Assumptions:

- All the CACF facilities will be 'world class' (Government objective)
- All PA venues "should strive to operate on a self-financing basis" (as advised by PATAG)
- There will be a high level of demand for the proposed CACF whilst all existing cultural and entertainment facilities continue to operate (as advised by PATAG and MAG):
  - PA venues - high utilisation / attendance levels
  - Target of 2.5 million attendance p.a. at M+
- Build up of costs and revenue during initial years of operation (FA assumption)
- Gradual increase in demand for PA venues and EC to year 30 (FA assumption)

Figure 4-4: Development Programme



4.3 Developing Scenarios to be Tested, the PSC

4.3.1 The PSC is calculated as a broad order estimate of the risk adjusted cost, if the WKCD project were to be undertaken by the public sector. It is defined as: a hypothetical risk-adjusted costing as if a project were to be financed, owned and implemented by the public sector. A PSC is prepared for comparative purposes and is one of a number of assessment tools which maybe be used in preparing for a PPP approach to the delivery of services. It is not a pass/fail test. The detailed methodology and calculation of the PSC is shown in **Annex N**.

4.3.2 The PSC:

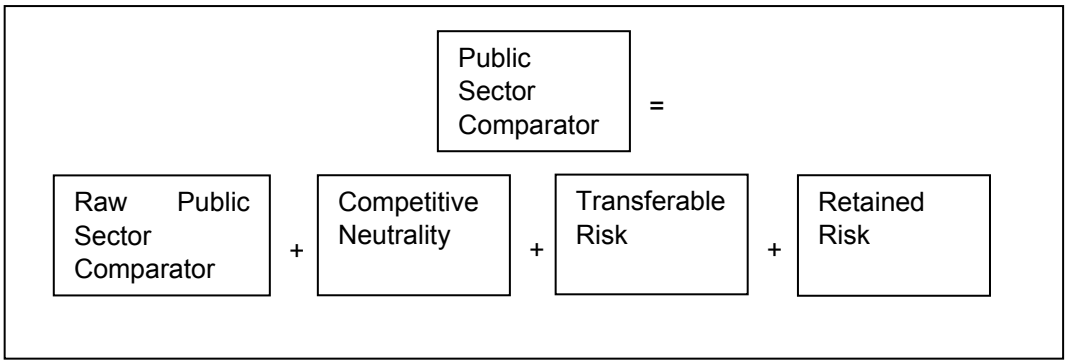
- Is expressed in net present value (NPV) terms
- Is based on defined output specifications
- Takes into account the risks that would be encountered under that method of procurement

4.3.3 Importantly, the PSC does not necessarily mean that the public sector is undertaking all activities such as building construction. Rather it is the risk-adjusted cost of public sector procurement practices, defined as a **Reference Case** which, in Hong Kong, incorporates contracting out some services to the private sector, including building design, building construction and services such as cleaning and security.

4.3.4 The approach to PSC calculation has four main components and is calculated as shown in Figure 4-5:

- **Raw Public Sector Comparator:** which is estimated as the **net** Base Costs of construction and operation under existing public sector procurement practices
- **Competitive Neutrality:** which is an adjustment to the Raw PSC to remove the advantages of public ownership such as taxes and insurance
- **Transferable Risk:** which identifies and estimates for the risks proposed to be transferred to the private sector under a private sector scenario, such as demand risk. For example, where a private sector operator of a Government sports facility collects and retains attendance revenues as their main source of income
- **Retained Risk:** which adjusts for the value of the risks proposed to continue to be borne by the Government under a private sector scenario, such as political risk. For example where the project is delayed for political reasons and this is provided for in the contract

Figure 4-5: Calculation of the PSC



4.4 Developing Scenarios to be Tested, PSI Scenarios

Appropriate PPP and PSI Approaches for the WKCD Financial Analysis

4.4.1 Based on the analysis of PPP and PSI approaches examined in Section 3, Figure 4-6 on the following page presents the potential range of PSI options for the major types of cultural facilities and other communal facilities that were identified by the FA.

4.4.2 As Figure 4-6 suggests, the **potential** PSI options for cultural facilities are wide ranging but the actual suitability is determined by:

- The expected level of financial viability of construction and operation (excluding donations and subsidies)
- The relationship between capital and operating cost – specifically the need for a satisfactory level of capital **and** operating viability to be achieved for whole-life approaches
- The existence of private sector players in the market with the right kind of experience and resources

4.4.3 Of those facilities that demonstrate more commercial viability, procurement could still be undertaken using the traditional public sector approach but consistent with Government's intention to explore PPP in taking forward the WKCD project, preference would be for involvement of the private sector and the sharing of risk.

4.4.4 In addition to the contract based approaches set out in Section 3, the analysis in **Annex M** shows that other planning and development approaches have also been used widely elsewhere to encourage and subsidise private sector involvement in project delivery including 'development packaging' and 'planning gain' mechanisms.

4.4.5 In analysing the most appropriate PSI approaches, it is clear that the more commercially viable a facility/service, the more appropriate it is for PSI development and operation. However, evidence shows that very few facilities are financially viable and that there are few private sector players in the market. In particular, in practice there were a limited range of appropriate PSI options

4.4.6 Having therefore only identified a limited range of procurement options potentially suitable for each individual CACF and other communal facilities, these options were combined into three PSI scenarios – each combination of procurement options forming a PSI Scenario covering the range of possibilities and representing different broad levels of risk transfer to the private sector.

4.4.7 The FA specifically adopted two broad approaches to testing procurement options – unpackaged and packaged, as described below and presented in Figure 4-7.

Figure 4-6: Potential Range of PPP and PSI Approaches

	PSI Capital Options											
				PSI Operating Options								
CACF / Communal Facilities	**Planning Gain**	**Development Packaging**	**Build / D&B**	**DBM**	**DBO**	**DBFM**	**BOOT/ BOT / DBFO**	**BOO**	**JV / Alliance**	**Service Contracts**	**OMM**	**Lease**
Mega Performance Venue		x	x	x	x	x	x	x	x	x	x	x
Great Theatres		x	x			x				x	x	x
Concert Halls		x	x	x		x				x	x	
Xiqu Centre		x	x	x	x	x				x	x	
Medium-sized Theatres	x	x	x			x				x	x	x
Blackbox Theatres	x	x	x	x	x	x				x	x	x
Piazzas	x	x	x	x						x	x	
M+		x	x	x						x		
Exhibition Centre		x	x	x	x	x	x	x	x	x	x	x
Automated People Mover	x	x	x	x	x	x	x	x	x	x	x	
Roads	x		x							x		
Public Open Spaces	x		x							x		
Other G/IC Facilities	x		x	x	x	x				x		

Scenario 1: The Unpackaged Development Approach

4.4.8 Scenario 1 adopts the approach that each facility[9] are treated as financially separate i.e. there is no packaging of arts facilities with commercial or residential development. This allows the financial analysis to be entirely transparent in presenting the costs and revenues and the overall funding surplus or gap for each facility.

4.4.9 Two scenarios for the Unpackaged Development Approach were developed – **Scenario 1A**, which represented a lower level of risk transfer from the public to the private sector and **Scenario 1B** which represented a higher level of risk transfer from the public to the private sector.

4.4.10 In particular under scenario 1B, wherever possible, a lifecycle approach is adopted. For most CACF this involves combining the construction and the major repair and overhaul and building maintenance into a Design Build Finance Maintain (DBFM) contract. For practical reasons it is not possible to combine the management and operations of a PA venue with its construction: there are no players in the market and the required skill base and scale required for constructing a theatre is completely different to running a theatre. There is no incentive for a third party to take both construction and operations unless there is another reason to do so, which leads to scenario 2.

Scenario 2: Packaged Development Approaches

4.4.11 This scenario assesses the financial implications of 'packaging' some of the facilities into mixed cultural / commercial developments. This enhanced the potential for PSI approaches with a higher level of private sector risk transfer and allowed cross-subsidy of costs and revenues within individual packages. There was also some packaging of communal facilities with residential development.

4.4.12 The key to achieving viability of any package in Scenario 2 is the extent to which the land premium associated with the commercial or residential parcel can be used to cross-subsidise developing and operating the cultural or communal facility.

4.4.13 The FA used estimates of capital and operating costs and revenues and the surveyors' land valuation for the commercial and residential floorspace, in order to identify packages which are coherent, and viable. The overall criteria for packaging are based on:

- The availability of private sector players with relevant mixed development experience
- The formulation of development packages which are coherent in terms of the complementarity and scale of commercial uses with appropriate cultural uses
- Achieving capital and operating financial viability of any package
- The packaging calculation aims to achieve a satisfactory level of financial surplus – or "cushioning" – in the estimated residual land value
- The potential to reduce construction costs by developing integrated use buildings and other combined operating efficiencies

4.4.14 The land premium for each package is calculated by:

- Discounting the annual cash flows of the CACF facilities provided under the package using the WACC (2010-2059)

[9] For simplicity, later in this Report, facilities that are assumed by the FA to be physically developed together, sharing space, are referred to as 'a facility'. This comprises: the Concert Hall and Chamber Music Hall; the Xiqu Centre; Medium Theatre 2 and Black Box Theatre 1 and Back box Theatres 2 & 3 in Phase 1 and the Great Theatre 2 and Medium Theatre 3 in Phase 2. Physical and clustering assumptions are explained in detail in Annex D

- Calculating the net premium in 2010, taking into account the negative NPV of the CACF / communal facilities and the land premium calculated for the commercial development
- Discounting the net value in 2010 to 2006 using the nominal discount rate of 6.1%

4.4.15 This implies that the land premium for the package, when compared to the premium for the commercial or residential component on its own would be either significantly reduced, or reduced to a nil premium. Further details of the calculation for each package are set out in **Annex H**.

4.4.16 For packaging purposes, the residential and commercial land was divided into six parcels:

- C.1 Residential Parcel – Assumed all residential retained as single development parcel. Expected to maximise land value for this scale of residential development at a waterfront location
- C.2, C.3, C.4 Hotels – There was sufficient GFA to accommodate three separate hotel developments. Assumes demand for one 5-star and two 4-star hotels at this location
- C.5 and C.6 Commercial (Retail/Dining/Entertainment) – Based on the criteria set out above, the packaging assumed division into two development parcels one of 40,000 sq.m. and the other of the balance of 108,609 sq.m. This balance was expected to give flexibility for packaging with two parcels of compatible CACF – one a smaller scale RDE facility which complements a “theatreland” grouping of facilities and a larger commercial package with the MPV which utilizes the skills of developers and operators who frequently combine uses together such as large scale shopping, hotels and visitor destinations. This distribution of RDE facilities also optimised the commercial land value required to achieve the capital and operating financial viability, and necessary level of cushioning of each package

4.4.17 The chosen packages for Scenario 2 and their rationale are summarised in Table 4-1: Scenario 2, Development Packages and their Rationale.

Table 4-1: Scenario 2, Development Packages and their Rationale

Package	CACF / Communal Facility	Commercial / Residential Development	Rationale
A	3.1 MPV	C.3 / C.4 Hotels 2 + 3 C.5 Commercial 1 (108,609 m^2 GFA)	Package combines two 4 star hotels and 108,609 sq.m. of commercial GFA with compatible destination venue – MPV Envisages development and operation by a dedicated international venue developer and operator Premium for commercial and hotel development and positive operating NPV expected to cover capital costs of construction.
B	3.5 Medium Theatre 1 3.7 Blackbox Theatres 2 & 3	C.2 Hotel 1 C.6 Commercial 2 (40,000 m^2 GFA)	Package combines 5 star hotel and 40,000 sq.m. of commercial GFA with two theatre parcels to strengthen "theatreland" concept with compatible commercial uses. Envisages development and maintenance by major commercial developer and separate contract for operation by a dedicated private theatre operator Premium for commercial and hotel development expected to cover capital costs of construction and operation of theatres
C	5.2 Road works and pedestrian access 5.3 Public Pier 5.4 Car Parks 6.1 Public Open Space 6.2 Fire Station, Police Post, RCP etc. 6.3 Public Toilets 4.0 OACF	C.1 Residential 1 (All residential GFA)	"Planning Gain" package which utilises part of the high land value of the residential development parcel to cross subsidise the construction and operating cost of all communal facilities in WKCD except APM In this case the developer funds the full cost of communal facilities through reduced premium and transfers them to the proposed statutory body / Govt Departments at no cost

Notes:

MT2 / BB1 and BB4 can be integrated with commercial facilities physically, although not linked financially under PSI 2.

The demand for and supply of hotels in Hong Kong should be the subject of a detailed study to be conducted at the master planning stage.

Figure 4-7: PSI and PSC Scenarios

CACF and Communal Facilities	Scenario 1 - Unpackaged Development Approach PSI Options Scenario 1A	Scenario 1B	Scenario 2 - Packaged Development Approach PSI Options Scenario 2	PSC
PHASE 1				
1 Management and Masterplanning				
1.1 Masterplanning	Proposed Statutory Body's consultants	Proposed Statutory Body's consultants	Proposed Statutory Body's consultants	HAB + OGD + Consultants
1.2 Area and Project Management	Proposed Statutory Body	Proposed Statutory Body	Proposed Statutory Body	CEDD, LCSD supported by OGD
2 Museum and Exhibition Space				
2.1 M+	DC, DB + OMM by NPO	DC, DB + OMM by NPO	DC, DB + OMM by NPO	DC, DB + LCSD, ASD, EMSD
2.2 Exhibition Centre	DB + OMM	BOT	BOT	DB + LCSD, ASD, EMSD
3 Performing Arts Facilities				
3.1 Mega Performance Venue	DB + OMM	DBFM + OM	Development Package A	DB + LCSD, ASD, EMSD
3.2 Great Theatre 1	DB + OMM (possibly NPO)	DBFM + OM (possibly NPO)	DBFM + OM (possibly NPO)	DB + LCSD, ASD, EMSD
3.3 Concert Hall and Chamber Music Hall	DB + OMM (likely NPO)	DBFM + OM (likely NPO)	DBFM + OM (likely NPO)	DB + LCSD, ASD, EMSD
3.4 Xiqu Centre	DB + OMM (possibly NPO)	DBFM + OM (possibly NPO)	DBFM + OM (possibly NPO)	DB + LCSD, ASD, EMSD
3.5 Medium Theatre 1	DB + OMM (likely NPO)	DBFM + OM (likely NPO)	Development Package B	DB + LCSD, ASD, EMSD
3.6 Medium Theatre 2 and Black Box Theatre 1	DB + OMM (likely NPO)	DBFM + OM (likely NPO)	DBFM + OM (likely NPO)	DB + LCSD, ASD, EMSD
3.7 Black Box Theatres 2 and 3	DB + OMM (likely NPO)	DBFM + OM (likely NPO)	Development Package B	DB + LCSD, ASD, EMSD
3.8 Black Box Theatre 4	DB + OMM (likely NPO)	DBFM + OM (likely NPO)	DBFM + OM (likely NPO)	ASD, C + LCSD, ASD, EMSD
3.9 Piazzas*	DB + OMM (likely NPO)	DB + OMM (likely NPO)	DB + OMM (likely NPO)	ASD, C + LCSD, ASD, EMSD
4 Other Arts and Cultural Uses	DB + OMM (likely NPO)	BOT	Development Package C	ASD, C + LCSD, ASD, EMSD
5 Transport Facilities				
5.1 Automated People Mover	DBO	BOT	BOT	DBO
5.2 Road Works and Pedestrian Connections	DB + M	DB + M	Development Package C	DB + TD/HyD DB + LCSD, ASD, EMSD (Merged with open space)
5.3 Public Pier	DB + M (Merged with open space)	DB + M (Merged with open space)	Development Package C	
5.4 Car Parks	DB + L	DB + L	Development Package C	ASD, C + L
6 Communal Facilities				
6.1 Public Open Space	DB + M	DB + M	Development Package C	ASD, C + LCSD, ASD, EMSD
6.2 Fire Station, Police Post and RCP	DB + Govt D	DB + Govt D	Development Package C	ASD, C + Govt D
6.3 Public Toilets	DB + M	DB + M	Development Package C	ASD, C + Govt D
7 Engineering Works				
7.1 Bridge Over WHC Tunnel Portal	DB + WHC	DB + WHC	DB + WHC	DB + WHC
7.2 Build Over Ventilation Buildings	DB + MTRCL / WHC	DB + MTRCL / WHC	DB + MTRCL / WHC	DB + MTRCL / WHC
7.3 Other Site Engineering Works	DB + Govt D	DB + Govt D	DB + Govt D	DB + Govt D
PHASE 2				
8 Performing Arts Facilities (Phase 2)				
8.1 Great Theatre 2 and Medium Theatre 3	DB + OMM (likely NPO)	DBFM + OM	DBFM + OM	DB + LCSD, ASD, EMSD
8.2 Medium Theatre 4	DB + OMM (likely NPO)	DBFM + OM	DBFM + OM	DB + LCSD, ASD, EMSD
9 M + (Phase 2)	DB + OMM (likely NPO)	DB + OMM by NPO	DB + OMM by NPO	DB + LCSD, ASD, EMSD

* Includes a small canopy

Commercial & Residential (Phase 1)		GFA (sq.m.)
C.1	Residential	145,257
C.2	Hotel 1	39,500
C.3	Hotel 2	22,250
C.4	Hotel 3	22,250
C.5	Retail / Dining / Entertainment	108,609
C.6	Retail / Dining / Entertainment	40,000

Development Package A		GFA (sq.m.)
3.1	Mega Performance Venue	
C.3	Hotel 2	22,250
C.4	Hotel 3	22,250
C.5	Retail / Dining / Entertainment	108,609

Development Package B		GFA (sq.m.)
3.5	Medium Theatre 1	
3.7	Black Box Theatres 2 and 3	
C.2	Hotel 1	39,500
C.6	Retail / Dining / Entertainment	40,000

Development Package C		GFA (sq.m.)
4	Other Arts and Cultural Uses	
C.1	Residential	145,257
5.2	Road Works and Pedestrian Connections	[Planning Gain]
5.3	Public Pier	[Planning Gain]
5.4	Car Parks	[Planning Gain]
6.1	Public Open Space	[Planning Gain]
6.2	Fire Station, Police Post and RCP	[Planning Gain]
6.3	Public Toilets	[Planning Gain]

Key	
ASD	Architectural Services Department
BOT	Build Operate Transfer
C	Construction
CEDD	Civil Engineering and Development Department
DB	Design Build Contract
DBFM	Design Build Finance Maintain
DBO	Design Build Operate
DC	International Architectural Design Competition
EMSD	Eectrical and Mechanical Services Department
HyD	Highways Department
L	Lease for operations
LCSD	Leisure and Cultural Services Department
M	Maintenance
MTRCL	Mass Transit Railway Corporation Ltd.
NPO	Not for Profit Organisation
OGD	Other Government Departments (ie all relevant Depts)
OM	Operate and Manage
OMM	Operate, Manage and Maintain
TD	Transport Department
WHC	Western Harbour Tunnel Co Ltd

4.5 Financial Assumptions

4.5.1 FA adopted a set financial and other modelling assumptions in the course of the analysis. The main assumptions are shown in Table 4-2. Full definitions and details of the basis of these assumptions are set out in **Annex I**.

Table 4-2: Financial and Modelling Assumptions

Criteria	Assumption	Basis and Comment
Period of analysis	Project period of 50 years from 2010, assuming planning including master planning in 2008 and 2009	The institutional and legal requirements for the proposed statutory body, are assumed to start as soon as possible. The master planning is assumed to start in 2008 and take 2 years. Land sales are assumed early in 2010 with a lease of 50 years.
Land Premium	Land valuation 2006 Q4 Adjustment to year of sale - 0% (Real) per annum to 2010 (inflation only) Nil land cost for CACF and communal facilities (except for the off-site storage and conservation laboratory of M+)	Reflects the most recent land prices Future fluctuations in the land market are considered as a sensitivity test
Discount Rate	4% (Real) per annum	Reference made to the rate used by Government for public projects
Inflation Rate	2% per annum	Reference made to historical data, HK Government forecasts and international forecasts For modelling such a long time period moderate and constant inflation assumptions are appropriate
Construction Cost Escalation	0% (Real) per annum	Reference made to historical data, HK Government forecasts For modelling such a long time period, no divergence from average inflation is appropriate
Staff Costs Escalation for CACF and Communal Facilities	0% (Real) per annum	Reference made to historical data for the most appropriate employment sector where wage increases have been decreasing and are now close to inflation For modelling such a long time period, no divergence from average inflation is appropriate
Weighted Average Cost of Capital (WACC)	12.5% to reflect the WACC of a property developer bidding to build and operate a facility or cluster of facilities.	For the calculation of financing costs under PSI 1B and PSI 2. Reference made to: other reported WACCs in HK regulations including tunnel tolls and bus franchises, returns to property developers, rate of interest on loans and the market sentiment exercise

4.6 Risk Analysis

4.6.1 Key to any comparison of different forms of procurement and private sector involvement, including PPP, is how risk and uncertainty are shared between the public and private sector, and how that risk is managed. In general, the private sector will require compensation for taking on greater risks but will be better at handling these commercial risks. The risk analysis developed measures of risk that reflect the different risk profiles of

different forms of procurement and in operations, different operators – Government or private. This measure, called the risk premium, is the expected value of deviations from a base cost estimate. This approach provides a more sophisticated estimate of contingencies than the simple approach of adding a fixed percentage to a base cost estimate and better reflects the type of procurement arrangement adopted[10]. In line with international best practice, the focus of the risk analysis undertaken was on those risks that will materially affect the costs (or revenues) being quantified:

"It would generally be inappropriate to devote excessive time and resources to valuing minor or less sensitive risks." Partnerships Victoria, Public Sector Comparator, Technical Note, Guidance Material, June 2001.

4.6.2 Unlike risk assessments for conventional public infrastructure facilities, the nature of operating risks for cultural facilities such as performing arts venues is largely associated with demand risk, and the risk is substantially affected by the relationship between operating costs and revenues. The FA therefore adopted similar approaches, but applied in a different way, to assessing the risk associated with capital construction as against operating risks as described below. Details are provided in **Annex J**.

Construction Risk Assessment

4.6.3 Development of bespoke construction risk premiums for the different procurement options was undertaken by first breaking down the construction of the CACF into a series of discrete stages, charting the facility's development right through from the first appointment of consultants to final fit-out of the interior, each of which had the potential to turn out differently from that anticipated under the base cost calculation. By assigning to each of these stages first a probability that events may turn out differently, then an anticipated cost under that different outcome, it was possible to generate risk premiums that differ from one procurement option to the next due to the way they handle risk.

4.6.4 For the purposes of presentation, the risk premiums associated with construction of the CACF were summarised under the following headings:

- Project management risk, including changes in scope, selecting the wrong company during the tendering process and the failure of consultants to effectively handle the project
- Function risk, including potential for changes in GFA and a facility's functional use
- Approval risk, including the failure to obtain approval for building plans or to meet required standards
- Underground conditions risk, including the possibility of deeper bedrock
- Construction and completion risk, including delay, safety and on-budget construction

4.6.5 The degree to which costs may differ from the base case reflects the probability and magnitude of these eventualities arising. The risk-adjusted cost then varies by procurement mode since some modes are more susceptible to changes than others. The resulting expected values of the risk premium adopted for each of the alternative procurement modes are summarised in Table 4-3 below.

[10] This detailed risk assessment has only been applied to CACF facilities. The standard approach of adopting a 15% contingency is used for non-CACF, communal and other engineering facilities.

Table 4-3: Construction Risk Premiums for CACF Facilities by Procurement Mode

	Procurement Method						
	ASD + C	Design Competition + DB	DB	DBFM	DBO	BOT	BOO
Total Risk Percentage	28.4%	34.7%	23.0%	29.5%	20.8%	20.8%	20.8%
Project Management	17.7%	19.5%	12.6%	19.1%	10.4%	10.4%	10.4%
Functional	6.0%	10.5%	6.0%	6.0%	6.0%	6.0%	6.0%
Approval	2.6%	2.7%	2.5%	2.5%	2.5%	2.5%	2.5%
Underground conditions	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%
Construction and Completion	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%
Non-CACF	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%

4.6.6 The resulting risk premiums on construction of the CACF vary between 20.8% and 34.7%. The main method of procurement used by Government (and assumed for most facilities in the risk calculation of the PSC) of Design and Build (DB) had an expected value risk premium of 23%.

4.6.7 The greatest variation arises from project management risks. Procurement modes that separate the design from the building stages and add additional project management risks (e.g. of delay, or change of scope) increase the level of risk significantly. This includes procurement modes such as a design competition or, as in the case of DBFM, those which include the maintenance role in the construction contract, and separate it from other operating and management functions. Those procurement methods which provide a clear output specification to bid against and integrate the development, finance and ultimate operation process under the responsibility of one contractor, such as DBO, BOT and BOO, reduce these risks and provide more cost effective solutions compared with those which divide functions such as ASD+C, Design Competition +DB and DBFM.

Operating Risk Assessment

4.6.8 Estimation of appropriate operating risks for the performing arts venues, the Exhibition Centre and the M+ were based on the same theory but applied in a slightly different way. The key risk in operating a facility is demand risk – the possibility that demand and attendance will be higher or lower than assumed for the base costs. The manner in which such changes in demand are handled are then estimated to differ dependent upon whether the Government or a private sector institution, either profit-orientated if the operation generates surpluses or not-for-profit if it generates deficits, are operating the facility.

4.6.9 The operating risk premium was calculated as the weighted average of three potential demand outcomes: the base case, a more positive outcome, a more negative outcome, and the relative probabilities of these outcomes occurring. The FA prepared a positive case and a negative case for each facility, which determined the individual cost and revenue line items based on varying assumptions.

4.6.10 For the performing arts venues, these assumptions reflected possible changes in the utilisation rate, hire charges, attendance, ticket prices, sponsorship, rental and merchandise sales income, and operating costs. The outcome was found to differ considerably between the 15 venues (excluding the tea house type venue), even under quite similar assumptions. Large venues, the Mega Performance Venue in particular, are particularly sensitive to changes in demand – utilisation, ticket price, hire charges and attendance etc. By contrast, smaller venues are not so sensitive to changes in demand. This was largely because the hire charge is based on basic rates rather than a profit (and risk) sharing arrangement, and that lower utilisation generally meant fewer programmes requiring subsidy since the saving in programming costs offset the reduction in rental

income. The operating risk premium for large performing arts venues was therefore greater than for smaller ones.

4.6.11 For the Exhibition Centre the relevant assumptions referred to the hire charge discounts for cultural users, the utilisation rates of the different galleries, rental rates for retail space, attendance, cleaning and security costs, and public and educational programming costs. Like the large performing arts venues, the Exhibition Centre was quite sensitive to demand and the operating risk premium was therefore fairly high.

4.6.12 For M+ the relevant assumptions referred to the attendance, hire charges, sponsorship, public and educational programme revenue, rental and other income, and cleaning and security costs. The operating risk of M+ was low given its self generated income only covered a small proportion of operating costs.

5. RESULTS OF THE FINANCIAL ANALYSIS

5.1 Introduction

5.1.1 This section sets out the results for facilities and for the WKCD as a whole under each of the three PSI scenarios and the PSC. The analysis was undertaken using a Microsoft Excel spreadsheet model, which consisted of a series of linked files so that the analysis could be traced from input to output and results be relatively easily tested. Results are presented by scenario, followed by a brief discussion of results. Further discussion of the meaning of the results is included in Chapters 6 and 7.

5.2 Presentation, Application and Interpretation of Results

Explanation of Adopted Performance Measures

5.2.1 The results are presented in three ways: Money of the Day (MOD), Net Present Value (NPV) and 2006 Prices. MOD incorporates inflation and NPV discounts future cash flows to a present day value (2006) equivalent; both are able to incorporate all of the costs and revenues over the analysis period to present alternative measures of the total WKCD deficit. 2006 Prices provides a capital cost and the cost of a single representative year of operations. It does not include all the years in the analysis period and thus cannot be compared with MOD or NPV.

5.2.2 The differences between the performance measures are best explained with the help of an example. Figure 5-1 shows a hypothetical worked example of a simplified ten-year annual cash flow for a facility. This facility is expected to take two years to build (years 1 and 2), at a total cost of $2,000 in year 1 prices. Once fully operational it is assumed to generate an annual operating deficit of $200 in year 1 prices. However, it takes the facility three years from opening in Year 3 before costs and revenues are expected to reach their long-term trend. It therefore makes an operational loss of $600 in the first year of opening, $400 in the second year, and then an annual loss of $200 from the third year of opening onwards. In addition, the facility is assumed to require a complete overhaul after five years, at a cost of $1,000 in year 1 prices.

- **2006 Prices** – In the example, year 1 is 2006. The annual operating cost is the yearly deficit that the facility occurs once it is fully operational and has settled into its long term trend, which in this example is three years after opening. Development costs are the costs incurred in the first two years to construct the facility, totalling $2,000. All capital including the cost of overhaul is $3,000. The total deficit over the period is $5,000. However, because this measure does not adjust for the fact that costs are incurred in different years. If the time span being analysed is long or the annual costs/revenues vary considerably such as for the WKCD project, then as a measure, it could be quite misleading
- **MOD** – this measure allows for effects of time by adjusting the annual figures for inflation. The example assumes that prices rise by 2% per annum, thus purchasing the identical bundle of goods in year two will cost 2% more than in year one. Thus the second year of construction costs in MOD terms is $1,020 and by year 7, purchasing $1000 worth of overhaul in will actually cost $1,126 in MOD terms
- **Discount rate** - The discount rate is used to adjust the annual costs to their year 1 equivalent value to account for the fact that a dollar today is worth more than a

dollar tomorrow[11]. In this example, the discount rate is applied to the MOD figures which include inflation. The appropriate discount rate therefore is the nominal discount rate which includes the real rate (that which adjusts for time and risk) and inflation. In the example the real discount rate is 4% and inflation is assumed to be 2%. The nominal discount rate is therefore (1+4%) x (1+2%) -1 = 6.1%. The discount factor that is applied to the MOD figure in year 2 therefore is 1/(1+6.1%) = 0.943

- **Present Value** – The PV is the equivalent amount in year 1; i.e. the future cost adjusted by the discount factor. In the example, the PV in year 1 of the costs in year 2 is $1,020 x 0.943 = $962
- **NPV** – The NPV is the sum of each year's present value, i.e. the sum of the annual figures after they have been multiplied by the discount factor. In this way the NPV uses discounted cash flow techniques to calculate a present day (2006) equivalent of the overall cost, allowing easy comparison between procurement options for facilities, between facilities and for the WKCD as a whole. NPVs can therefore provide a meaningful measure which combines all costs and revenues adjusting for the year in which they occur. For the WKCD project for example, facilities undertaken later in Phase 2 will appear cheaper than Phase 1 facilities

Application and Interpretation of Results

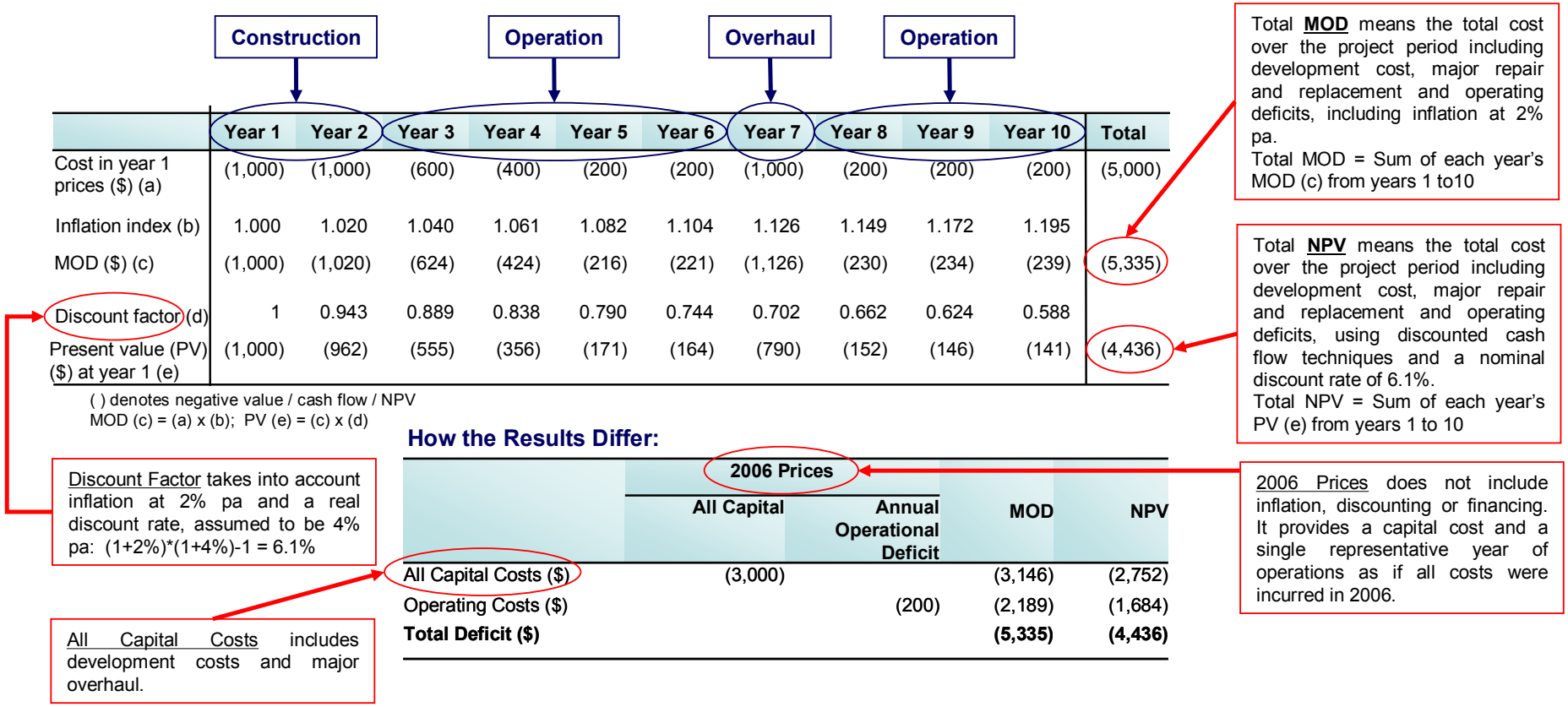
5.2.3 The results of each of the PSI scenarios and the PSC are summarised in the next section in Tables 5-1, 5-3, 5-5 and 5-7, exactly as shown in Figure 5-2. The figure explains what each of the numbers mean and how they should be interpreted.

5.2.4 The results of each of the PSI and PSC scenarios are also summarised by facility in Tables 5-2, 5-4, 5-6 and 5-8. The same measures are presented. The representative year for the 2006 prices operational surplus/deficit is either 2023 (for Phase 1 facilities) or 2035 (for Phase 2 facilities). The operational cost recovery rate is the representative year's annual revenue, expressed as a percentage of the annual costs, taking into account management fees, adjustments for risk and competitive neutrality, if applicable.

5.2.5 A highlight of assumptions and results are presented in the **Appendix** to this Final Report**.** Further detailed results are shown in **Annex K**.

[11] This is because a dollar today can be invested and earn interest, thus being worth more than just a dollar tomorrow.

Figure 5-1: Hypothetical Example of Cash Flow and Results



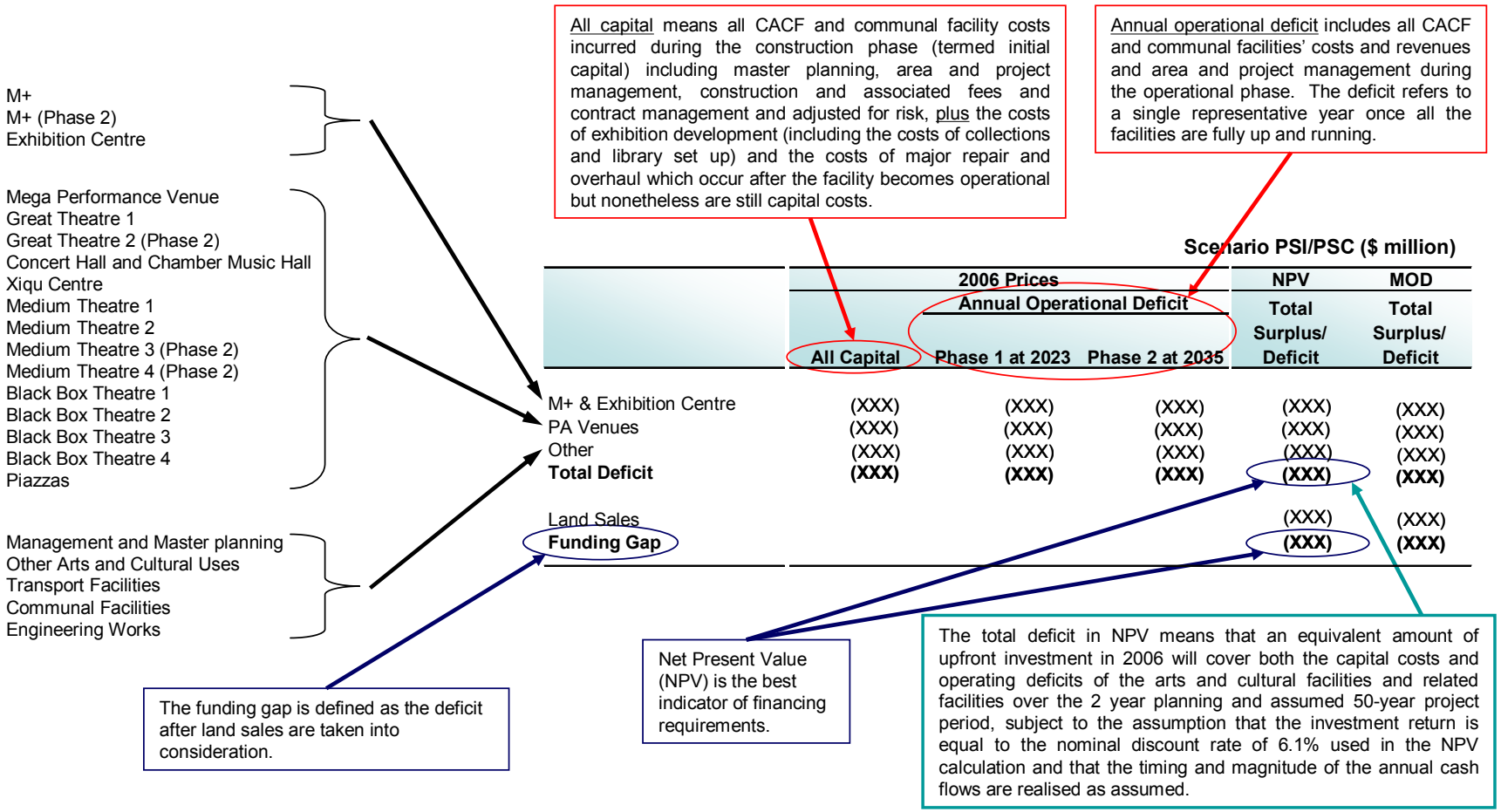
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Total
Cost in year 1 prices ($) (a)	(1,000)	(1,000)	(600)	(400)	(200)	(200)	(1,000)	(200)	(200)	(200)	(5,000)
Inflation index (b)	1.000	1.020	1.040	1.061	1.082	1.104	1.126	1.149	1.172	1.195	
MOD ($) (c)	(1,000)	(1,020)	(624)	(424)	(216)	(221)	(1,126)	(230)	(234)	(239)	(5,335)
Discount factor (d)	1	0.943	0.889	0.838	0.790	0.744	0.702	0.662	0.624	0.588	
Present value (PV) ($) at year 1 (e)	(1,000)	(962)	(555)	(356)	(171)	(164)	(790)	(152)	(146)	(141)	(4,436)

( ) denotes negative value / cash flow / NPV
MOD (c) = (a) x (b); PV (e) = (c) x (d)

How the Results Differ:

	2006 Prices			
	All Capital	Annual Operational Deficit	MOD	NPV
All Capital Costs ($)	(3,000)		(3,146)	(2,752)
Operating Costs ($)		(200)	(2,189)	(1,684)
Total Deficit ($)			**(5,335)**	**(4,436)**

Figure 5-2: Application and Interpretation of Results



5.3 Scenario 1A

5.3.1 Scenario 1A is unpackaged and of the two unpackaged scenarios is the least aggressive in terms of its risk transfer to the private sector. Summary procurement options and features of the scenario are:

- The procurement option is Design and Build (DB) and operation by private sector Operate, Manage and Maintain (OMM) contract for all CACF and communal facilities, except:
  - M+ includes an international architectural design competition
  - The Automated People Mover (APM) which is assumed to be a Design Build Operate (DBO)
  - DB and Lease for public car parks
  - OMM for engineering works are assumed to be taken up by the relevant Government department / organisations

5.3.2 In 2006 prices, the capital cost is some $37 billion and the annual operational deficit about $0.5 billion for Phase 1 facilities and $0.1 billion for Phase 2 facilities.

5.3.3 Of the annual operating deficit, the M+ and EC account for about 80% of the amount. This is entirely due to the running cost of M+, since revenues from the exhibition centre are expected to cover its operational costs. As a group, the PA venues show an annual deficit of about $15 million for Phase 1 facilities and $44 million for Phase 2 facilities. The Mega Performance Venue (MPV) which is part of Phase 1 is expected to operate at a surplus. All of the other PA venues are expected to have annual operating deficits which, in Phase 1, are largely offset by the surplus generated by the MPV explaining why the deficit appears to be lower for Phase 1 facilities than for Phase 2.

5.3.4 In NPV terms, taking both capital and operating costs and revenues into account, all categories show considerable deficits: the M+ and EC, $13 billion; the PA venues, about $10 billion and others, $7 billion. The total deficit over the analysis period in NPV terms is $30 billion. The equivalent in MOD is some $103 billion. Taking land sales into account, the negative NPV representing the funding gap is $9 billion. The equivalent funding gap in MOD is $77 billion.

Table 5-1: Summary Results, Scenario 1A

($ million)

	2006 Prices			NPV	MOD
		Annual Operational Deficit			
	All Capital	Phase 1 at 2023	Phase 2 at 2035	Total Surplus/ Deficit	Total Surplus/ Deficit
M+ & Exhibition Centre	(12,135)	(393)	(74)	(12,687)	(56,935)
PA Venues	(17,087)	(15)	(44)	(10,149)	(29,405)
Other	(8,103)	(81)		(7,114)	(17,048)
Total Deficit	**(37,325)**	**(488)**	**(118)**	**(29,950)**	**(103,388)**
Land Sales				20,901	26,466
Funding Gap				**(9,050)**	**(76,921)**

Table 5-2: Results by Facility, Scenario 1A

	2006 Prices			NPV	MOD
	All Capital	Annual Operational Surplus/ Deficit	Indicative Operational Cost Recovery Rate	Total Surplus/ Deficit	Total Surplus/ Deficit
PHASE 1					
1 Management and Masterplanning	**(1,549)**	**(60)**		**(2,117)**	**(6,774)**
1.1 Masterplanning	(33)	-	na	**(30)**	**(35)**
1.2 Area and Project Management	(1,515)	(60)	0%	**(2,086)**	**(6,738)**
2 Museum and Exhibition Space	**(10,963)**	**(393)**		**(11,777)**	**(50,004)**
2.1 M+	(10,129)	(409)	17%	**(11,551)**	**(50,365)**
2.2 Exhibition Centre	(834)	16	142%	**(226)**	**361**
3 Performing Arts Facilities	**(14,170)**	**(15)**		**(8,488)**	**(21,441)**
3.1 Mega Performance Venue	(4,504)	53	145%	**(1,733)**	**(1,299)**
3.2 Great Theatre 1	(2,040)	(1)	98%	**(1,198)**	**(2,966)**
3.3 Concert Hall and Chamber Music Hall	(2,357)	(18)	81%	**(1,678)**	**(5,028)**
3.4 Xiqu Centre	(1,949)	(13)	79%	**(1,352)**	**(4,047)**
3.5 Medium Theatre 1	(876)	(9)	63%	**(649)**	**(2,143)**
3.6 Medium Theatre 2 and Black Box Theatre 1	(1,163)	(12)	61%	**(877)**	**(2,849)**
3.7 Black Box Theatres 2 and 3	(537)	(8)	49%	**(440)**	**(1,524)**
3.8 Black Box Theatre 4	(327)	(6)	39%	**(284)**	**(1,018)**
3.9 Piazzas*	(417)	-	100%	**(276)**	**(566)**
4 Other Arts and Cultural Uses	(429)	-	100%	**(294)**	**(561)**
5 Transport Facilities	**(1,807)**	**11**		**(972)**	**(1,655)**
5.1 Automated People Mover	(952)	-	100%	**(603)**	**(1,332)**
5.2 Road Works and Pedestrian Connections	(235)	(1)	0%	**(142)**	**(503)**
5.3 Public Pier	(31)	(0)	0%	**(29)**	**(57)**
5.4 Car parks	(589)	12	571%	**(197)**	**237**
6 Communal Facilities	**(1,961)**	**(29)**		**(1,854)**	**(5,109)**
6.1 Public Open Space	(1,403)	(29)	0%	**(1,401)**	**(4,438)**
6.2 Fire Station, Police Post and RCP	(521)	-	na	**(421)**	**(581)**
6.3 Public Toilets	(37)	(0)	0%	**(32)**	**(91)**
7 Engineering Works	**(2,357)**	**(2)**	**0%**	**(1,878)**	**(2,948)**
7.1 Deck Over WHC Tunnel Portal	(329)	(2)	0%	**(306)**	**(579)**
7.2 Build Over Ventilation Buildings	(503)	-	na	**(407)**	**(560)**
7.3 Other Site Engineering Works	(1,525)	-	na	**(1,166)**	**(1,809)**
Subtotal	**(33,236)**	**(488)**		**(27,379)**	**(88,492)**
PHASE 2					
8 Performing Arts (Phase 2)	**(2,917)**	**(44)**		**(1,662)**	**(7,964)**
8.1 Great Theatre 2 and Medium Theatre 3	(2,223)	(31)	72%	**(1,250)**	**(5,878)**
8.2 Medium Theatre 4	(695)	(13)	57%	**(412)**	**(2,087)**
9 M+ (Phase 2)	**(1,172)**	**(74)**	**na**	**(910)**	**(6,931)**
Subtotal	**(4,089)**	**(118)**		**(2,572)**	**(14,895)**
TOTAL CACF AND COMMUNAL FACILITIES	**(37,325)**			**(29,950)**	**(103,388)**
LAND SALES					
10 Residential and Commercial Land Sales				**20,901**	**26,466**
10.1 Villa Houses				**1,624**	**2,057**
10.2 Apartments				**13,874**	**17,569**
10.3 Hotels				**1,453**	**1,840**
10.4 Retail/Dining/Entertainment				**3,949**	**5,001**
10.5 Offices				**-**	**-**
TOTAL				**(9,050)**	**(76,921)**

* includes a small canopy

5.4 Scenario 1B

5.4.1 Scenario 1B is also unpackaged and is slightly more aggressive in terms of risk transfer compared to Scenario 1A. Summary procurement options and features of the scenario are:

- The procurement option is Design, Build, Finance and Maintain (DBFM)[12] and operation by private sector Operate and Manage (OM) contract for all CACF except:
  - The M+ includes an international architectural design competition
  - The EC is assumed to be a Build Operate Transfer (BOT)
- The procurement option is DB and Maintain for all communal facilities except:
  - The APM and OACF are also assumed to be a BOT
  - DB and Lease for public car parks; and DB and OMM for the piazzas
  - OMM for engineering works are assumed to be taken up by the relevant Government department / organisations

5.4.2 For PA venues, the DBFM approach may prove difficult in implementation since the operation and management of the venue is very much linked to the maintenance of facility equipment for example. The DBFM contract is thus assumed to only include maintenance of the structure of the building.

5.4.3 In 2006 prices, the capital cost is some $38 billion and the annual operational deficit about $0.5 billion for Phase 1 facilities and $0.1 billion for Phase 2 facilities.

5.4.4 In NPV terms , taking both capital and operating costs and revenues into account, all categories show considerable deficits: the M+ and EC, $13 billion; the PA venues, about $12 billion and others, $7 billion. The total deficit in NPV terms is $32 billion. The equivalent in MOD is some $137 billion.

5.4.5 Taking land sales into account, the negative NPV representing the funding gap is $11 billion. The equivalent funding gap in MOD is $110 billion. The MOD is much higher under PSI 1B because the contractual payments under DBFM are constant over the contract term (in real terms) whereas under Scenario 1A, payments are more upfront.

Table 5-3: Summary Results, Scenario 1B

($ million)

	2006 Prices			NPV	MOD
		Annual Operational Deficit			
	All Capital	Phase 1 at 2023	Phase 2 at 2035	Total Surplus/ Deficit	Total Surplus/ Deficit
M+ & Exhibition Centre	(12,126)	(393)	(74)	(12,707)	(58,516)
PA Venues	(17,633)	(15)	(44)	(11,757)	(58,380)
Other	(8,103)	(81)		(7,226)	(20,047)
Total Deficit	**(37,862)**	**(488)**	**(118)**	**(31,690)**	**(136,944)**
Land Sales				20,901	26,466
Funding Gap				**(10,789)**	**(110,477)**

[12] The estimation of DBFM cost is a two-step process. An NPV equivalent is first calculated from construction cost, overhaul cost, building maintenance cost and finance cost. This number is then turned into regular service payments.

Table 5-4: Results by Facility, Scenario 1B

	2006 Prices			NPV	MOD
	All Capital	Annual Operational Surplus/ Deficit	Indicative Operational Cost Recovery Rate	Total Surplus/ Deficit	Total Surplus/ Deficit
PHASE 1					
1 Management and Masterplanning	**(1,549)**	**(60)**		**(2,117)**	**(6,774)**
1.1 Masterplanning	(33)	-	na	(30)	(35)
1.2 Area and Project Management	(1,515)	(60)	0%	(2,086)	(6,738)
2 Museum and Exhibition Space	**(10,954)**	**(393)**		**(11,797)**	**(51,585)**
2.1 M+	(10,129)	(409)	17%	(11,551)	(50,365)
2.2 Exhibition Centre	(825)	16	142%	(246)	(1,220)
3 Performing Arts Facilities	**(14,602)**	**(15)**		**(9,875)**	**(44,720)**
3.1 Mega Performance Venue	(4,646)	53	145%	(2,188)	(8,893)
3.2 Great Theatre 1	(2,104)	(1)	98%	(1,403)	(6,363)
3.3 Concert Hall and Chamber Music Hall	(2,431)	(18)	81%	(1,917)	(9,019)
3.4 Xiqu Centre	(2,011)	(13)	79%	(1,549)	(7,343)
3.5 Medium Theatre 1	(903)	(9)	63%	(736)	(3,648)
3.6 Medium Theatre 2 and Black Box Theatre 1	(1,200)	(12)	61%	(995)	(4,809)
3.7 Black Box Theatres 2 and 3	(554)	(8)	49%	(494)	(2,479)
3.8 Black Box Theatre 4	(337)	(6)	39%	(317)	(1,599)
3.9 Piazzas*	(417)	-	100%	(276)	(566)
4 Other Arts and Cultural Uses	**(429)**	**-**	**100%**	**(331)**	**(1,639)**
5 Transport Facilities	**(1,807)**	**11**		**(1,047)**	**(3,577)**
5.1 Automated People Mover	(952)	-	100%	(679)	(3,254)
5.2 Road Works and Pedestrian Connections	(235)	(1)	0%	(142)	(503)
5.3 Public Pier	(31)	(0)	0%	(29)	(57)
5.4 Car parks	(589)	12	571%	(197)	237
6 Communal Facilities	**(1,961)**	**(29)**		**(1,854)**	**(5,109)**
6.1 Public Open Space	(1,403)	(29)	0%	(1,401)	(4,438)
6.2 Fire Station, Police Post and RCP	(521)	-	na	(421)	(581)
6.3 Public Toilets	(37)	(0)	0%	(32)	(91)
7 Engineering Works	**(2,357)**	**(2)**		**(1,878)**	**(2,948)**
7.1 Deck Over WHC Tunnel Portal	(329)	(2)	0%	(306)	(579)
7.2 Build Over Ventilation Buildings	(503)	-	na	(407)	(560)
7.3 Other Site Engineering Works	(1,525)	-	na	(1,166)	(1,809)
Subtotal	**(33,658)**	**(488)**	**0%**	**(28,898)**	**(116,353)**
PHASE 2					
8 Performing Arts (Phase 2)	**(3,032)**	**(44)**		**(1,882)**	**(13,660)**
8.1 Great Theatre 2 and Medium Theatre 3	(2,310)	(31)	72%	(1,418)	(10,191)
8.2 Medium Theatre 4	(722)	(13)	57%	(464)	(3,469)
9 M+ (Phase 2)	**(1,172)**	**(74)**	**na**	**(910)**	**(6,931)**
Subtotal	**(4,204)**	**(118)**		**(2,792)**	**(20,591)**
TOTAL CACF AND COMMUNAL FACILITIES	**(37,862)**			**(31,690)**	**(136,944)**
LAND SALES					
10 Residential and Commercial Land Sales				**20,901**	**26,466**
10.1 Villa Houses				1,624	2,057
10.2 Apartments				13,874	17,569
10.3 Hotels				1,453	1,840
10.4 Retail/Dining/Entertainment				3,949	5,001
10.5 Offices				-	-
TOTAL				**(10,789)**	**(110,477)**

* includes a small canopy

5.5 Scenario 2

5.5.1 Scenario 2 is the packaged scenario. It includes three packages A, B and C, which combine some CACF and communal facilities with commercial and residential development.

5.5.2 Summary procurement options and features of the scenario are:

- The EC is assumed to be a BOT, as in Scenario 1B
- Three packages, A, B and C are adopted, as shown in Table 4-1. These include the MPV, one medium theatre and two black-box theatres in commercial packages. Other arts and cultural uses and some of the communal facilities are packaged with the residential. Where facilities are not packaged then the procurement option for PA Venues is DBFM and operation by private sector OM contract
- The M+ is assumed to be a DB and includes an international architectural design competition
- The APM is assumed to be a BOT
- DB and OMM for the piazzas

5.5.3 In the presentation of 2006 prices, the capital cost of some $38 billion and the annual operational deficit of about $0.5 billion for Phase 1 facilities and $0.1 billion for Phase 2 facilities, represents the un-packaged cost of all the facilities as in Scenarios 1A and 1B. This is because 2006 prices as a performance measure only shows a representative year of operations and does not reflect the whole analysis period as do NPV and MOD (see Section 4 for detailed explanation). As such it is not possible to use 2006 prices to present the impact of packaging facilities with commercial and residential development in a meaningful way.

5.5.4 Where a facility is included in a package, the overall cost in NPV or MOD is subsumed in a reduced land premium. This apparent lack of transparency is one of the drawbacks of the scenario since each facility and its contribution to the deficit is less clear than in the un-packaged scenarios.

5.5.5 In NPV terms, taking both capital and operating costs and revenues into account, all categories show considerable deficits: the M+ and EC, $13 billion; the PA venues, $8 billion and others, $5 billion. The total deficit in NPV terms is $26 billion. The equivalent in MOD is some $115 billion. The total deficit in NPV is less than the un-packaged scenarios because some of the facilities are subsumed into a reduced land premium.

5.5.6 Land sales revenue is some $14 billion NPV, less than Scenarios 1A and 1B because of the packaging. Taking land sales into account, the negative NPV representing the funding gap is $11 billion. The equivalent funding gap in MOD is $97 billion.

Table 5-5: Summary Results, Scenario 2

($ million)

	2006 Prices			NPV	MOD
		Annual Operational Deficit			
	All Capital	Phase 1 at 2023	Phase 2 at 2035	Total Surplus/ Deficit	Total Surplus/ Deficit
M+ & Exhibition Centre	(12,126)	(393)	(74)	(12,707)	(58,516)
PA Venues	(17,443)	(15)	(44)	(8,339)	(43,359)
Other	(8,103)	(81)		(4,674)	(12,976)
Total Deficit	**(37,672)**	**(488)**	**(118)**	**(25,719)**	**(114,851)**
Land Sales				14,243	18,035
Funding Gap				**(11,477)**	**(96,816)**

Table 5-6: Results by Facility, Scenario 2

		2006 Prices			NPV	MOD
		All Capital	Annual Operational Surplus/ Deficit	Indicative Operational Cost Recovery Rate	Total Surplus/ Deficit	Total Surplus/ Deficit
PHASE 1						
1	**Management and Masterplanning**	**(1,549)**	**(60)**		**(2,117)**	**(6,774)**
1.1	Masterplanning	(33)	-	na	(30)	(35)
1.2	Area and Project Management	(1,515)	(60)	0%	(2,086)	(6,738)
2	**Museum and Exhibition Space**	**(10,954)**	**(393)**		**(11,797)**	**(51,585)**
2.1	M+	(10,129)	(409)	17%	(11,551)	(50,365)
2.2	Exhibition Centre	(825)	16	142%	(246)	(1,220)
3	**Performing Arts Facilities**	**(14,412)**	**(15)**		**(6,457)**	**(29,699)**
3.1	Mega Performance Venue	(4,456)	53	145%	-	-
3.2	Great Theatre 1	(2,104)	(1)	98%	(1,403)	(6,363)
3.3	Concert Hall and Chamber Music Hall	(2,431)	(18)	81%	(1,917)	(9,019)
3.4	Xiqu Centre	(2,011)	(13)	79%	(1,549)	(7,343)
3.5	Medium Theatre 1	(903)	(9)	63%	-	-
3.6	Medium Theatre 2 and Black Box Theatre 1	(1,200)	(12)	61%	(995)	(4,809)
3.7	Black Box Theatres 2 and 3	(554)	(8)	49%	-	-
3.8	Black Box Theatre 4	(337)	(6)	39%	(317)	(1,599)
3.9	Piazzas*	(417)	-	100%	(276)	(566)
4	**Other Arts and Cultural Uses**	**(429)**	**-**	**100%**	**-**	**-**
5	**Transport Facilities**	**(1,807)**	**11**		**(679)**	**(3,254)**
5.1	Automated People Mover	(952)	-	100%	(679)	(3,254)
5.2	Road Works and Pedestrian Connections	(235)	(1)	0%	-	-
5.3	Public Pier	(31)	(0)	0%	-	-
5.4	Car parks	(589)	12	571%	-	-
6	**Communal Facilities**	**(1,961)**	**(29)**		**-**	**-**
6.1	Public Open Space	(1,403)	(29)	0%	-	-
6.2	Fire Station, Police Post and RCP	(521)	-	na	-	-
6.3	Public Toilets	(37)	(0)	0%	-	-
7	**Engineering Works**	**(2,357)**	**(2)**		**(1,878)**	**(2,948)**
7.1	Deck Over WHC Tunnel Portal	(329)	(2)	0%	(306)	(579)
7.2	Build Over Ventilation Buildings	(503)	-	na	(407)	(560)
7.3	Other Site Engineering Works	(1,525)	-	na	(1,166)	(1,809)
Subtotal		**(33,468)**	**(488)**		**(22,928)**	**(94,260)**
PHASE 2						
8	**Performing Arts Facilities (Phase 2)**	**(3,032)**	**(44)**	**0%**	**(1,882)**	**(13,660)**
8.1	Great Theatre 2 and Medium Theatre 3	(2,310)	(31)	72%	(1,418)	(10,191)
8.2	Medium Theatre 4	(722)	(13)	57%	(464)	(3,469)
9	**M+ (Phase 2)**	**(1,172)**	**(74)**	**na**	**(910)**	**(6,931)**
Subtotal		**(4,204)**	**(118)**		**(2,792)**	**(20,591)**
TOTAL CACF AND COMMUNAL FACILITIES		**(37,672)**			**(25,719)**	**(114,851)**
LAND SALES						
10	**Packages**				**14,243**	**18,035**
A	MPV (3.1), 2 Hotels (C.3, C.4) and RDE (C.5)				1,610	2,039
B	Medium Theatre 1 (3.5), Black box Theatres 2&3 (3.7), Hotel (C.2), RDE (C.6)				836	1,058
C	Residential (C.1), OACF (4), Transport and Communal Facilities (5.2-5.4, 6.1-6.3)				11,796	14,938
TOTAL					**(11,477)**	**(96,816)**

* includes a small canopy

5.6 The PSC

5.6.1 The PSC is calculated to provide a broad order estimate of the risk adjusted cost if the WKCD project were to be undertaken by the public sector. Although a single cost has been calculated and shown here and is compared with the PSI scenarios, in reality, the PSC is a range of hypothetical estimates around that which is calculated here and thus any interpretation should not treat the PSC as any kind of hurdle or "pass rate". It is one of a number of tools which may be used in preparing for a PPP approach to the delivery of services.

5.6.2 Moreover, the PSC does not mean that the Government builds and operates all the facilities because this is not the usual Hong Kong Government procurement practice. The scenario instead assumes that all construction contracts are undertaken by the private sector, as is the current practice; and that 15% of the value of building projects are designed by ASD with the rest, (85%), incorporating design into the construction contract – as a Design and Build (DB) contract, again in line with Government practice. Government departments are assumed to run the facilities with some outsourcing of services such as cleaning and security.

5.6.3 A summary of the procurement options and features of the scenario are:

- DB and operation by Government departments for CACF and communal facilities, except:
  - Black Box Theatre 4, the piazzas and the communal and other facilities which are ASD (or other Government department) with construction (ASD + C) and operation by Government departments.
  - The M+ includes an international architectural design competition
  - The APM which is assumed to be a DBO
  - ASD + C + Lease for public carparks

5.6.4 In 2006 prices, the capital cost is some $37 billion and the annual operational deficit about $0.6 billion for Phase 1 facilities and about $0.2 billion for Phase 2 facilities. Construction costs are similar to PSI scenarios because construction is undertaken by the private sector anyway. Operational deficits are higher due to a greater number of staff, different salary structures, and more limited opportunities for revenue generation.

5.6.5 As with private sector scenarios, in NPV terms, all categories show considerable deficits: the M+ and EC, $13 billion; the PA venues, about $12 billion and others, $7 billion. The total deficit in NPV terms is about $33 billion ($13.3 billion + $12.3 billion + 7.2 billion = $32.8 billion). The equivalent in MOD is some $120 billion.

5.6.6 Land sales revenue is the same as Scenarios 1A and 1B. Although revenues would form part of general land sales revenue under the PSC, presenting a comparable to the funding gap incorporated under the PSI scenarios (total deficit less land sales), gives a negative NPV of $12 billion. The equivalent funding gap in MOD is $93 billion.

Table 5-7: Summary Results, PSC

($ million)

	2006 Prices			NPV	MOD
		Annual Operational Deficit			
	All Capital	Phase 1 at 2023	Phase 2 at 2035	Total Surplus/ Deficit	Total Surplus/ Deficit
M+ & Exhibition Centre	(12,135)	(433)	(80)	(13,319)	(60,708)
PA Venues	(17,109)	(127)	(75)	(12,249)	(41,705)
Other	(8,161)	(85)		(7,238)	(17,521)
Total Deficit	**(37,405)**	**(645)**	**(155)**	**(32,806)**	**(119,933)**
Land Sales				20,901	26,466
Funding Gap				**(11,905)**	**(93,467)**

Table 5-8: Results by Facility, PSC

	2006 Prices			NPV	MOD
	All Capital	Annual Operational Surplus/ Deficit	Indicative Operational Cost Recovery Rate	Total Surplus/ Deficit	Total Surplus/ Deficit
PHASE 1					
1 Management and Masterplanning	**(1,607)**	**(62)**		**(2,196)**	**(7,016)**
1.1 Masterplanning	(33)	-	na	**(30)**	**(35)**
1.2 Area and Project Management	(1,573)	(62)	0%	**(2,166)**	**(6,981)**
2 Museum and Exhibition Space	**(10,963)**	**(433)**		**(12,370)**	**(53,406)**
2.1 M+	(10,129)	(443)	15%	**(12,046)**	**(53,230)**
2.2 Exhibition Centre	(834)	10	126%	**(324)**	**(176)**
3 Performing Arts Facilities	**(14,192)**	**(127)**		**(10,304)**	**(31,388)**
3.1 Mega Performance Venue	(4,504)	30	125%	**(2,092)**	**(3,263)**
3.2 Great Theatre 1	(2,040)	(15)	81%	**(1,420)**	**(4,128)**
3.3 Concert Hall and Chamber Music Hall	(2,357)	(40)	63%	**(2,042)**	**(7,117)**
3.4 Xiqu Centre	(1,949)	(27)	62%	**(1,583)**	**(5,316)**
3.5 Medium Theatre 1	(876)	(22)	38%	**(860)**	**(3,309)**
3.6 Medium Theatre 2 and Black Box Theatre 1	(1,163)	(28)	38%	**(1,126)**	**(4,224)**
3.7 Black Box Theatres 2 and 3	(537)	(15)	31%	**(550)**	**(2,130)**
3.8 Black Box Theatre 4	(335)	(9)	27%	**(344)**	**(1,321)**
3.9 Piazzas*	(431)	-	100%	**(286)**	**(581)**
4 Other Arts and Cultural Uses	**(429)**	**-**	**100%**	**(294)**	**(561)**
5 Transport Facilities	**(1,807)**	**11**		**(971)**	**(1,653)**
5.1 Automated People Mover	(952)	-	100%	**(603)**	**(1,332)**
5.2 Road Works and Pedestrian Connections	(235)	(1)	0%	**(142)**	**(501)**
5.3 Public Pier	(31)	(0)	0%	**(29)**	**(57)**
5.4 Car parks	(589)	12	571%	**(197)**	**237**
6 Communal Facilities	**(1,961)**	**(32)**		**(1,898)**	**(5,342)**
6.1 Public Open Space	(1,403)	(31)	0%	**(1,445)**	**(4,670)**
6.2 Fire Station, Police Post and RCP	(521)	-	na	**(421)**	**(581)**
6.3 Public Toilets	(37)	(0)	0%	**(32)**	**(92)**
7 Engineering Works	**(2,357)**	**(2)**		**(1,878)**	**(2,948)**
7.1 Deck Over WHC Tunnel Portal	(329)	(2)	0%	**(306)**	**(579)**
7.2 Build Over Ventilation Buildings	(503)	-	na	**(407)**	**(560)**
7.3 Other Site Engineering Works	(1,525)	-	na	**(1,166)**	**(1,809)**
Subtotal	**(33,316)**	**(645)**	**0%**	**(29,912)**	**(102,315)**
PHASE 2					
8 Performing Arts (Phase 2)	**(2,917)**	**(75)**		**(1,945)**	**(10,317)**
8.1 Great Theatre 2 and Medium Theatre 3	(2,223)	(50)	60%	**(1,419)**	**(7,283)**
8.2 Medium Theatre 4	(695)	(26)	37%	**(526)**	**(3,034)**
9 M+ (Phase 2)	**(1,172)**	**(80)**	**34%**	**(949)**	**(7,302)**
Subtotal	**(4,089)**	**(155)**	**na**	**(2,894)**	**(17,619)**
TOTAL CACF AND COMMUNAL FACILITIES	**(37,405)**			**(32,806)**	**(119,933)**
LAND SALES					
10 Residential and Commercial Land Sales				**20,901**	**26,466**
10.1 Villa Houses				**1,624**	**2,057**
10.2 Apartments				**13,874**	**17,569**
10.3 Hotels				**1,453**	**1,840**
10.4 Retail/Dining/Entertainment				**3,949**	**5,001**
10.5 Offices					
TOTAL				**(11,905)**	**(93,467)**

* includes a small canopy

5.7 Summary of Results

Summary Results for the WKCD

5.7.1 The findings of the analysis showed a considerable funding gap for WKCD for both capital and operations for **all** PSI scenarios and the PSC. Table 5-9 summarises the overall results in terms of the negative NPV and MOD.

Table 5-9: Summary Results, WKCD

($ million)

	PSI 1A	
	NPV	**MOD**
All Capital	(21,618)	
Operations	(8,333)	
Finance	-	
Total Deficit	**(29,950)**	**(103,388)**
Land Sales	20,901	26,466
Funding Gap	**(9,050)**	**(76,921)**

	PSI 1B	
	NPV	**MOD**
All Capital	(22,008)	
Operations	(8,333)	
Finance	(1,349)	
Total Deficit	**(31,690)**	**(136,944)**
Land Sales	20,901	26,466
Funding Gap	**(10,789)**	**(110,477)**

	PSI 2	
	NPV	**MOD**
All Capital	(16,287)	
Operations	(8,569)	
Finance	(864)	
Total Deficit	**(25,719)**	**(114,851)**
Land Sales	14,243	18,035
Funding Gap	**(11,477)**	**(96,816)**

	PSC	
	NPV	**MOD**
All Capital	(21,682)	
Operations	(11,124)	
Finance	-	
Total Deficit	**(32,806)**	**(119,933)**
Land Sales	20,901	26,466
Funding Gap	**(11,905)**	**(93,467)**

5.7.2 The overall deficit was:

- Scenario 1A: NPV ($30.0 billion); MOD ($103 billion)
- Scenario 1B: NPV ($31.7 billion); MOD ($137 billion[13])
- PSC: NPV ($32.8 billion); (MOD ($120 billion)

5.7.3 Since Scenario 2 assumed that some CACF are "packaged" with commercial land, the total deficit is not strictly comparable.

5.7.4 Assuming that the revenues from land sales are counted as net financial gains to WKCD, the total funding gap over the analysis period were:

- Scenario 1A: NPV ($9.1 billion); MOD ($77 billion)
- Scenario 1B: NPV ($10.8 billion) MOD ($110 billion)
- Scenario 2: NPV ($11.5 billion); MOD ($97 billion)
- PSC: NPV (11.9 billion); MOD (93 billion)

Summary Results by Facility

5.7.5 **Taking both capital and recurrent costs and revenues into account, none of the CACF and communal facilities are independently financially viable under any of the PSI Scenarios or the PSC**. None of the facilities have a positive NPV. This finding is very

[13] The difference in the NPV and MOD values lies in the timing of the costs and revenues. In scenario 1B which incorporates DBFM or BOT procurement for most of the CACF, the annual cost is calculated as a yearly payment over the period, equal in real terms (i.e. increasing with inflation).

important since it means that there can be no cross subsidy from one venue to another since all of them require some form of external subsidy, whether that be in cash or kind. None of them would pass an individual investment appraisal and if left entirely to market forces, they would not be built. Even facilities such as the MPV and the EC which are more commercial and were initially potential candidates for financial sustainability showed negative NPV's under all scenarios.

5.7.6 The M+ is by far the most expensive facility. The presentation of results so far has shown that in addition to capital costs, the annual operating deficit considerably contributes to the overall negative NPV. Phase 1 has a deficit of $12 billion NPV and Phase 2, a further $1 billion.

5.7.7 Putting aside capital costs, only two of the CACF are operationally independently viable i.e show a positive NPV in operations: the EC and the MPV. This means that for the other facilities, even if they were built and any major overhaul were provided by the proposed statutory body, they would still require a subsidy in order to operate them.

5.7.8 The difference in the results for facilities is in the selected mode of procurement or packaging. The differences are the result of:

- Net operating costs (which even before risk adjustment are higher under the PSC than the PSI scenarios) due to a greater number of staff, different salary structure, and more limited opportunities for revenue generation
- Operational risk adjustment (higher risk for Government run facilities)
- Capital risk adjustment (which varies for each procurement mode: is lowest under BOT and BOO and highest under a contract incorporating a Design Competition
- Financing (which is only included under DBFM, BOT and BOO contracts)
- Timing of contract payments (which are assumed to be equal real annual payments i.e. adjusted with inflation for DBFM and BOT procurement options). This does not affect NPV, only MOD.

5.7.9 Table 5-10 summarises the results of the PSI scenarios and the PSC by facility.

5.8 Discussion of Results

Discussion of Results, PSI Scenarios

5.8.1 **The findings of the analysis show a considerable funding gap, for all PSI scenarios and for the PSC,** even after allowing for land sales revenues. The deficit is in the range of $9 billion to $12 billion NPV over the analysis period. The MOD equivalent is $77 billion to $110 billion.

5.8.2 **Scenario 1A has the lowest funding gap** both in NPV terms, some $9.1 billion, and in MOD terms, $77 billion. Looking at the total deficit, Scenario 1A requires a lower subsidy than Scenario 1B, by some 5% in NPV terms, or if land sales are included as revenue, by 16%.

5.8.3 Scenario 1A mainly includes DB and separate operational contracts with private entities or not-for-profit organisations, whereas for CACF under Scenario 1B a lifecycle approach is taken wherever possible, mainly using a DBFM procurement option. Two factors therefore affect the capital cost in comparing Scenarios 1A and 1B: the risk adjustment is less (more favourable) for Scenario 1A and also Scenario 1A does not require financing costs so both factors tend to reduce the subsidy requirement of Scenario 1A relative to Scenario 1B. For individual facilities, Scenario 1A and Scenario 1B differ only where the procurement option differs, so, for example M+ and the Piazzas are the same, as are all of the transport and other facilities except the APM which is a DBO under Scenario 1A and a BOT under Scenario 1B.

Table 5-10: Summary Results by Facility

	PSI 1A			PSI 1B				PSI 2				PSC		
	All Capital	Operations	Capital & Operations	All Capital	Operations	Finance	Capital, Operations & Finance	All Capital	Operations	Finance	Capital, Operations & Finance	All Capital	Operations	Capital & Operations
PHASE 1														
1 Management and Master planning	**(1,256)**	**(860)**	**(2,117)**	**(1,256)**	**(860)**	**-**	**(2,117)**	**(1,256)**	**(860)**	**-**	**(2,117)**	**(1,304)**	**(893)**	**(2,196)**
1.1 Master planning	(30)	-	(30)	(30)	-	-	(30)	(30)	-	-	(30)	(30)	-	(30)
1.2 Area and Project Management	(1,226)	(860)	(2,086)	(1,226)	(860)	-	(2,086)	(1,226)	(860)	-	(2,086)	(1,273)	(893)	(2,166)
2 Museum and Exhibition Space	**(5,967)**	**(5,809)**	**(11,777)**	**(5,960)**	**(5,809)**	**(27)**	**(11,797)**	**(5,960)**	**(5,809)**	**(27)**	**(11,797)**	**(5,967)**	**(6,403)**	**(12,370)**
2.1 M+	(5,492)	(6,059)	(11,551)	(5,492)	(6,059)	-	(11,551)	(5,492)	(6,059)	-	(11,551)	(5,492)	(6,554)	(12,046)
2.2 Exhibition Centre	(476)	250	(226)	(468)	250	(27)	(246)	(468)	250	(27)	(246)	(476)	151	(324)
3 Performing Arts Facilities	**(8,128)**	**(360)**	**(8,488)**	**(8,469)**	**(360)**	**(1,046)**	**(9,875)**	**(4,951)**	**(909)**	**(597)**	**(6,457)**	**(8,145)**	**(2,159)**	**(10,304)**
3.1 Mega Performance Venue	(2,576)	843	(1,733)	(2,688)	843	(342)	(2,188)	-	-	-	-	(2,576)	484	(2,092)
3.2 Great Theatre 1	(1,162)	(36)	(1,198)	(1,212)	(36)	(155)	(1,403)	(1,212)	(36)	(155)	(1,403)	(1,162)	(258)	(1,420)
3.3 Concert Hall and Chamber Music Hall	(1,351)	(327)	(1,678)	(1,410)	(327)	(180)	(1,917)	(1,410)	(327)	(180)	(1,917)	(1,351)	(691)	(2,042)
3.4 Xiqu Centre	(1,117)	(235)	(1,352)	(1,165)	(235)	(149)	(1,549)	(1,165)	(235)	(149)	(1,549)	(1,117)	(466)	(1,583)
3.5 Medium Theatre 1	(491)	(158)	(649)	(512)	(158)	(65)	(736)	-	-	-	-	(491)	(370)	(860)
3.6 Medium Theatre 2 and Black Box Theatre 1	(665)	(212)	(877)	(694)	(212)	(89)	(995)	(694)	(212)	(89)	(995)	(665)	(461)	(1,126)
3.7 Black Box Theatres 2 and 3	(305)	(135)	(440)	(318)	(135)	(41)	(494)	-	-	-	-	(305)	(245)	(550)
3.8 Black Box Theatre 4	(185)	(98)	(284)	(194)	(98)	(25)	(317)	(194)	(98)	(25)	(317)	(192)	(152)	(344)
3.9 Piazzas*	(276)	-	(276)	(276)	-	-	(276)	(276)	-	-	(276)	(286)	-	(286)
4 Other Arts and Cultural Uses	(294)	-	(294)	(294)	-	(37)	(331)	-	-	-	-	(294)	-	(294)
5 Transport Facilities	**(1,144)**	**172**	**(972)**	**(1,144)**	**172**	**(75)**	**(1,047)**	**(603)**	**-**	**(75)**	**(679)**	**(1,144)**	**172**	**(971)**
5.1 Automated People Mover	(603)	-	(603)	(603)	-	(75)	(679)	(603)	-	(75)	(679)	(603)	-	(603)
5.2 Road Works and Pedestrian Connections	(120)	(22)	(142)	(120)	(22)	-	(142)	-	-	-	-	(120)	(21)	(142)
5.3 Public Pier	(25)	(4)	(29)	(25)	(4)	-	(29)	-	-	-	-	(25)	(4)	(29)
5.4 Car parks	(395)	198	(197)	(395)	198	-	(197)	-	-	-	-	(395)	198	(197)
6 Communal Facilities	**(1,369)**	**(485)**	**(1,854)**	**(1,369)**	**(485)**	**-**	**(1,854)**	**-**	**-**	**-**	**-**	**(1,369)**	**(529)**	**(1,898)**
6.1 Public Open Space	(923)	(478)	(1,401)	(923)	(478)	-	(1,401)	-	-	-	-	(923)	(521)	(1,445)
6.2 Fire Station, Police Post and RCP	(421)	-	(421)	(421)	-	-	(421)	-	-	-	-	(421)	-	(421)
6.3 Public Toilets	(24)	(8)	(32)	(24)	(8)	-	(32)	-	-	-	-	(24)	(8)	(32)
7 Engineering Works	**(1,838)**	**(40)**	**(1,878)**	**(1,838)**	**(40)**	**-**	**(1,878)**	**(1,838)**	**(40)**	**-**	**(1,878)**	**(1,838)**	**(40)**	**(1,878)**
7.1 Deck Over WHC Tunnel Portal	(266)	(40)	(306)	(266)	(40)	-	(306)	(266)	(40)	-	(306)	(266)	(40)	(306)
7.2 Build Over Ventilation Buildings	(407)	-	(407)	(407)	-	-	(407)	(407)	-	-	(407)	(407)	-	(407)
7.3 Other Site Engineering Works	(1,166)	-	(1,166)	(1,166)	-	-	(1,166)	(1,166)	-	-	(1,166)	(1,166)	-	(1,166)
SubTotal	**(19,996)**	**(7,382)**	**(27,379)**	**(20,330)**	**(7,382)**	**(1,185)**	**(28,898)**	**(14,609)**	**(7,619)**	**(700)**	**(22,928)**	**(20,061)**	**(9,851)**	**(29,912)**
PHASE 2														
8 Performing Arts Facilities (Phase 2)	**(1,228)**	**(434)**	**(1,662)**	**(1,284)**	**(434)**	**(164)**	**(1,882)**	**(1,284)**	**(434)**	**(164)**	**(1,882)**	**(1,228)**	**(717)**	**(1,945)**
8.1 Great Theatre 2 and Medium Theatre 3	(939)	(311)	(1,250)	(982)	(311)	(125)	(1,418)	(982)	(311)	(125)	(1,418)	(939)	(480)	(1,419)
8.2 Medium Theatre 4	(289)	(123)	(412)	(302)	(123)	(39)	(464)	(302)	(123)	(39)	(464)	(289)	(238)	(526)
9 M+ (Phase 2)	**(394)**	**(517)**	**(910)**	**(394)**	**(517)**	**-**	**(910)**	**(394)**	**(517)**	**-**	**(910)**	**(394)**	**(555)**	**(949)**
Subtotal	**(1,621)**	**(950)**	**(2,572)**	**(1,678)**	**(950)**	**(164)**	**(2,792)**	**(1,678)**	**(950)**	**(164)**	**(2,792)**	**(1,621)**	**(1,272)**	**(2,894)**
TOTAL CACF AND COMMUNAL FACILITIES	**(21,618)**	**(8,333)**	**(29,950)**	**(22,008)**	**(8,333)**	**(1,349)**	**(31,690)**	**(16,287)**	**(8,569)**	**(864)**	**(25,719)**	**(21,682)**	**(11,124)**	**(32,806)**
LAND SALES	**-**	**-**	**20,901**	**-**	**-**	**-**	**20,901**	**-**	**-**	**-**	**14,243**	**-**	**-**	**20,901**
10.1 Villa Houses			1,624				1,624			Package A	1,610			1,624
10.2 Apartments			13,874				13,874			Package B	836			13,874
10.3 Hotels			1,453				1,453			Package C	11,796			1,453
10.4 Retail/Dining/Entertainment			3,949				3,949				-			3,949
TOTAL (INCLUDING LAND SALES)	**-**	**-**	**(9,050)**	**-**	**-**	**-**	**(10,789)**	**-**	**-**	**-**	**(11,477)**	**-**	**-**	**(11,905)**

* including a small canopy ( ) denotes negative NPV

5.8.4 Comparison of the total deficit for Scenario 2 is not appropriate since the Scenario by definition includes some of the revenues from land sales included as part of a package. Including all the land both packaged and un-packaged, the funding gap is some $11.5 billion, greater than both the un-packaged Scenarios 1A and 1B. In Scenario 2, if a facility is packaged with commercial development then the risk premium is taken as that of a BOO since it will continually be owned and operated outside the public sector and as such is lower than that for a DBFM contract under say Scenario 1B. However, the financing cost and the required return for undertaking the construction and operation of the facility outweighs the reduction in risk such that the costs are higher than under the other scenarios. The higher costs are reflected in the lower land premium estimated under Scenario 2.

Comparison with the PSC

5.8.5 The PSC, adopting the same WKCD Base Case also showed a considerable funding gap. As explained in Section 4.3, the PSC is useful as one of a number of assessment tools used in preparing for a PPP approach and should not be seen as a pass/fail test. The differences between the PSC and PSI Scenarios help to explain where the efficiencies of a PSI approach lie. As an example, comparing the PSC and PSI 1A:

- The estimated price of construction (base cost) is the same under the PSC and PSI 1A because in both circumstances it would be undertaken by the private sector. What differed was the risk of different procurement procedures
- Area and project management is slightly more expensive under the PSC, primarily due to different staffing structure and salary levels
- The costs of insurance, rates and Government rents fall under base costs in the PSI and under competitive neutrality (incorporated into risk adjustment) in the PSC, the outcome is neutral
- Some PA venues and other facilities were assumed to be run by profit making companies under the PSI and in these cases, the PSI is slightly higher to account for a profit or management fee; those such as M+ and some theatres that are anticipated to be run by non profit making organizations were not affected
- Operational costs before profit adjustment (i.e. profits to commercial operators) are higher if Government departments operate facilities (PSC) compared with the private sector (PSI). This is due to a greater number of staff, and a different salary structure
- Operational revenues are slightly lower under the PSC due to more limited opportunities for revenue generation
- For the EC, PA venues and other facilities, there are also reductions in the operational risk premium since the private sector is more likely to achieve a more positive outcome as a result of better managing the demand risk and being more responsive to demand

5.8.6 Comparing the PSC to Scenario 1B would be similar to that of 1A in terms of capital costs and revenues before risk adjustment. As with 1A the difference would be in the capital risk adjustment and the financing, which make Scenario 1B more expensive. A detailed comparison of the PSC and the PSI Scenarios 1A and 1B is included in **Annex K**.

5.9 The Impact of Alternative PSI Procurement Options

5.9.1 As illustrated by the NPV's under different scenarios; the use of different procurement methods does not have a significant impact on the absolute scale of the funding gap. However, there are some differences. Comparing the procurement modes in each scenario:

- Scenario 1A: Scenario 1A requires the lowest level of subsidy of the three procurement packages, though it should be noted that the difference is in the capital requirement: the operational requirement is the same in 1B and only slightly greater in 2. In terms of the procurement modes used in Scenario 1A – mainly Design and Build contracts - two factors reduce the capital cost: there is less risk transfer to the private sector under these modes (leaving the Government with higher risk but lower contract costs) and also scenario 1A does not incur financing costs to the proposed statutory body. Both factors tend to reduce the subsidy requirement of 1A relative to 1B
- Scenario 1B: This scenario tries to achieve greater risk transfer to the private sector, primarily through the use of DBFM contracts for many projects. Although this approach achieves some benefits of a "whole life" approach to maintenance, the higher risk adjustment costs associated with DBFM contracts increase capital costs (in terms of negative NPV) by nearly $0.6 billion and introduces financing costs of $1.4 billion. The introduction of BOT contracts for facilities such as the Exhibition Centre, MPV and APM has little impact on capital costs and introduces significant additional financing costs. Although there is greater private sector involvement in 1B, and transparency is maintained if contracts are let through the proposed statutory body, the benefits appear limited compared with the additional costs of capital subsidy required
- Scenario 2: This scenario introduces the concept of packaging and planning gain and has its most significant impact where a facility or parcel of facilities is subsumed in a package. The increase in negative NPV of $0.7 billion is therefore attributable to some direct cost savings of packaging but also to the resulting reduction in the value of land sales for residential and commercial development. In fact, compared with 1B, the reduction in direct capital costs of construction and financing costs (measured in negative NPV terms) passed to the private sector in the packages is over $6.2 billion (and in the case of the MPV does not require further operating subsidy). This gives the benefits of a whole life approach and reduces the up front capital costs of the project. However this is offset by a reduction in land premium given up in the packages of over $6.7 billion

5.9.2 The results of the financial analysis for the comparison of different procurement approaches therefore suggest that:

- The negative returns on most WKCD project components reduce the scope for "whole-life" PSI procurement modes which significantly transfer risk to the private sector. Private sector involvement in operations, with operating subsidies, has more potential
- Most procurement should take the form of traditional Design and Build contracts – albeit some could be subject to international architectural design competition(s) as appropriate. Scenario 1A is the best measure of the cost of this approach.
- The most effective way of reducing up-front construction costs to Government is through project packaging. However, the loss of commercial and residential land value to the Government and the loss of transparency and control over private sector interests in the building and operation of CACF should be assessed by the proposed statutory body if adopting this approach

5.9.3 A combination of primarily Design and Build construction contracts, Operate/Manage/Maintain operating contracts with private or Not for Profit Organisations and packaging of some more commercial facilities such as the MPV does **not** qualify as a strict PPP approach to private sector involvement set out in **Annex M** on PPP approaches – and these results for WKCD confirm the limitations of PPP (and specifically

of private finance initiative (PFI[14]) type approaches) for the development and operation of cultural and arts facilities as discussed in detail in **Annex M**.

5.9.4 Adopting this less radical approach to private sector involvement also reduces the overall gap funding requirement to Government and, importantly, maintains more transparency in contracting arrangements and reduces concerns about private sector control over the provision and operation of arts facilities. The FA is conscious that the Government has stated publicly that it does not plan to invite private developers to develop the arts and cultural facilities in the WKCD and that this function could be vested in the proposed statutory body in future.

5.9.5 The financial analysis of procurement options therefore suggests that most CACF procurement should take the form of traditional Design and Build contracts let by the proposed statutory body whilst maximising opportunities for private and not-for-profit sector involvement in operations, with operating subsidies from the proposed statutory body where necessary. Whilst the scenarios comprise different combinations of procurement options and only represent broadly different approaches to private sector involvement, **Scenario 1A is the best measure of the cost of this approach and the FA recommends that this scenario is used, where appropriate, as the basis for sensitivity testing and assessment of financing options**. These scenarios, however, are only a basis for the testing of procurement options and **it is important that the proposed statutory body is also able to assess the potential for private sector involvement through 'whole life', packaging and other approaches on a case by case basis based on the master plan and development briefs they prepare**.

5.9.6 This approach to procurement and private sector involvement would:

- Maintain overall control for the development of WKCD – and of most arts and cultural facilities – in the hands of the proposed statutory body which would be responsible for all master planning, development packaging and construction and operating contracts
- Maintain control over decisions on opportunities for packaging – where some measure of control is passed to the private developer/operator – for facilities which are more commercial in nature, such as the MPV, in the hands of the proposed statutory body
- Maximise the opportunity for private sector involvement in the operation of CACF whilst keeping control over their operation – which will require continuing subsidy – through the terms of OMM contracts to be set by the proposed statutory body
- Remove the requirement for any form of new PFI initiative for the WKCD and the potentially controversial financial implications and consequences of PFI procurement

[14] The Private Finance Initiative (PFI) was introduced in the UK in the early 1990's. It codified a new funding approach for PPPs

6. SENSITIVITY TESTS

6.1 Approach

6.1.1 The focus of the analysis and this assignment is on alternative PSI/PPP arrangements. However, as established in Chapter 5, the choice of procurement option did little to affect the broad order of magnitude of the WKCD funding gap; irrespective of scenario, be it PSC or PSI, the overall deficit remained considerable. There therefore exists greater potential for reducing the funding gap through changes to the physical development parameters than through changes to the PSI/PPP procurement arrangements.

6.1.2 This chapter examines this relationship between the key parameters and the size of the overall funding gap. It investigates the scale of the funding gap that might be expected to arise and if the size of gap is sensitive to changes to certain key parameters. It also investigates which parameters have the greatest effect and how much that effect might be. For the purposes of this report, the funding gap is defined as the deficit after land sales are taken into consideration.

6.1.3 Since the choice of scenario was shown to have little significant effect on the size of the total deficit, conducting the same sensitivity tests on the different PSI and PSC scenarios would not have provided significant additional information. As noted in section 5.9 above Scenario 1A was selected as the most appropriate scenario on which to conduct most of the tests[15].

6.1.4 All of the tests were undertaken on the basis of "*ceteris paribus*" or "all other things being equal" – only the factor being tested and directly related variables change, everything else was held constant. However, in all sensitivity tests, the maximum GFA of 726,285 sq.m. was developed. In cases where the GFA for CACF was reduced, the GFA for commercial floor space was increased such that the maximum GFA of 726,285 sq.m. was still developed[16].

6.2 Scope of the Tests

6.2.1 Nine sets of tests were carried out covering a range of different issues including:

- How the results may differ in accordance with more optimistic or pessimistic cost and revenue base case estimates
- So-called 'strict' sensitivity tests, namely the sensitivity of the results to a range of factors beyond the proposed statutory body's control, such as changes in the inflation rate
- Those development parameters that the proposed statutory body may be able to influence, such as the phasing of facilities. The reader should note that the development parameters of plot ratio and residential cap are assumed to be fixed

[15] Tests which affected the financing costs were undertaken using Scenario 1B since, under Scenario 1A, the procurement options do not include private finance at risk and there is therefore no financing cost. Scenario 2 was less appropriate for running sensitivity tests since some of the facilities are subsumed into the land sales residual value as part of a package.

[16] For example, in the sensitivity tests for NOFA to GFA ratios, the total GFA for CACF was reduced and as such the GFA for commercial was increased such that the maximum GFA was developed. Costs and revenues that were directly linked to GFA e.g. capital construction, maintenance and major overhaul, cleaning, electricity supplies were adjusted in the sensitivity test. However, the impact of reduced NOFA to GFA ratio on the iconic design of the building and possible impacts on visitor numbers and other indirect but potential consequences were not factored into the sensitivity test.

since they formed part of the October 2005 Package and thus sensitivity tests on these parameters have not been included in the analysis presented here

6.2.2 Detailed results of the sensitivity tests are reported in **Annex K.** The full list of tests comprised:

- Optimistic and pessimistic outcomes in terms of cost and revenue estimates
- Land Premium
- Weighted Average Cost of Capital
- Inflation and Escalation Rates for Staff and Construction Costs
- Discount Rate
- Project Delay
- Scaling down the size of M+
- NOFA to GFA ratios
- Mix of commercial uses (retail/dining/entertainment, hotels and offices)

6.2.3 In particular, attention is drawn to consideration of the land premium estimates which increased considerably over the course of this FA consultancy. If it is assumed that the land sales revenue will accrue to the proposed statutory body then the sensitivity of the final results to changes in the property valuation is substantial and the relative viability of the overall project will be affected by the state of the property market at the time land sales are undertaken. The assumptions and parameters for each sensitivity test are described in the following sections. The assumptions were selected to test the sensitivity of variables but also, for some variables, to reflect potential realistic changes in the assumptions used for the WKCD Base Case, i.e. they are not mechanical sensitivity tests but intended to reflect possible outcomes. For example, under the sensitivity test for land premium, the upside is taken as 10% and the downside as -50%. This reflects the relatively strong position of the current property market relevant to the WKCD and the increase in the land sales estimation as a result of land auctions and a strengthening of the market since the beginning of this FA assignment.

6.2.4 The results of the sensitivity tests are presented in NPV terms so that the impacts can be compared between tests and within tests (capital, operations, finance or land sales impacts). All of the test results are presented in exactly the same way so that it is clear what aspects have changed and what have not and for ease of comparison.

6.3 Results of the Sensitivity Tests

The Range of the WKCD Base Case Estimate, Optimistic and Pessimistic Outcomes

6.3.1 The first set of tests considered the range of the base case estimates for the CACF and communal facilities in terms of more positive outcomes (lower costs and higher revenues) and less positive outcomes (higher costs and lower revenues). The purpose of these tests was to demonstrate the potential variation in the WKCD Base Case estimates. The tests for the CACF are <u>not</u> undertaken using a simple +X% or –X% of costs and revenues. Rather, for the CACF, the FA used the risk assessment to estimate a more positive (optimistic) and less positive (pessimistic) outcome. The reader will recall from Chapter 4 that the risk assessment considers the probability of an outcome and the cost and revenue implications of that outcome occurring. Thus, the FA prepared three sets of estimates – one to reflect the Base Case, one more optimistic case and one more pessimistic. The optimistic case reflects a scenario where all expected outcomes are as positive as possible, e.g. for the operation of PA venues this meant higher utilisation, better attendance, higher ticket price, higher rental etc. The pessimistic case reflects a scenario where all the expected outcomes are as negative as possible, e.g. there is considerable

delay and changes in scope during construction.[17]. In this way, for the CACF, the sensitivity test reflects a more project focused assessment of what the outcome might be than would be the case with a +X% and –X% type of test. For simplicity, for communal and other facilities, the more straightforward plus or minus 10% additional contingency for capital costs was adopted.

Table 6-1: Results of Optimistic and Pessimistic Outcomes, NPV at 2006, $ million

Scenario 1A	Risk adjusted All capital	Risk adjusted Operations	Finance	Total Deficit	Total Deficit difference from Base Case	Land Sales	Funding Gap	Funding Gap difference from Base Case
Base Case	(21,618)	(8,333)	na	(29,950)	0%	20,901	(9,050)	0%
Optimistic Outcome	(17,998)	(5,948)	na	(23,945)	-20%	20,901	(3,045)	-66%
Pessimistic Outcome	(25,416)	(10,255)	na	(35,671)	19%	20,901	(14,771)	63%

6.3.2 The results of the tests show the range of the estimates in NPV terms. Capital and operation costs are affected. The range of the total deficit is -20% to +19%. Land sales premiums are not affected by the sensitivity test but comparing the overall funding gap (including land sales) reveals quite large variations from the base case. Under the optimistic scenario, the funding gap decreases by 66% ($9.1 billion to $3.0 billion) and under the pessimistic scenario the funding gap increases by 63% ($9.1 billion to $14.8 billion).

Changes in the Revenue from Land Sales

6.3.3 The second set of tests concerned the premium earned from land sales. The purpose of these tests was to consider the overall impact if the land market were either stronger or weaker than is the case under the present situation which is assumed in the base case, particularly as in Hong Kong the land market is recognised as being volatile. Since the beginning of this assignment land premiums for relevant residential development have increased significantly. The test demonstrates the inherent weakness of using property/land receipts to support specific projects (see **Annex H**). The sensitivity tests adopted an increase of 10% and a decrease of 50% in the land premium to reflect realistic changes based on the FA's surveyors view of the current state of the land/property market and recent transactions and consideration of market fluctuations over the last 10 years.

Table 6-2: Results of Sensitivity Tests on Land Premium, NPV at 2006, $ million

Scenario 1A	Risk adjusted All capital	Risk adjusted Operations	Finance	Total Deficit	Total Deficit difference from Base Case	Land Sales	Funding Gap	Funding Gap difference from Base Case
Base Case	(21,618)	(8,333)	na	(29,950)	0%	20,901	(9,050)	0%
Land Premium Increase by 10%	(21,618)	(8,333)	na	(29,950)	0%	22,991	(6,960)	-23%
Land Premium Decrease by 50%	(21,618)	(8,333)	na	(29,950)	0%	10,450	(19,500)	115%

6.3.4 The results of the tests are shown in NPV terms. Capital and operation costs of CACF and communal facilities are not affected - only land sales premiums are affected by the

[17] See operating assumptions for the CACF under base case, optimistic case and pessimistic case in Annexes C and D, and Annex J for the Risk Assessment

sensitivity test. Comparing the overall funding gap (including land sales) reveals quite a large variation from the base case in the case of the 50% decrease. Under the test in which the land premium increases by 10%, the funding gap decreases by 23% ($9.1 billion to $7.0 billion) and under test in which land premium decreases by 50%, the funding gap increases by 115% ($9.1 billion to $19.5 billion).

Changes in the Weighted Average Cost of Capital (WACC)

6.3.5 The third set of tests concerns the WACC under Scenario 1B. The purpose of this test was to consider the impact of changes in a variable that, whilst a reasonable range is relatively certain, a specific value was difficult to estimate – and indeed changes from developer to developer. The tests adopted 10% and 15% around the base case estimate of 12.5%.

Table 6-3: Results of Sensitivity Tests on WACC, NPV at 2006, $ million

Scenario 1B	Risk adjusted All capital	Risk adjusted Operations	Finance	Total Deficit	Total Deficit difference from Base Case	Land Sales	Funding Gap	Funding Gap difference from Base Case
Base Case	(22,008)	(8,333)	(1,349)	(31,690)	0%	20,901	(10,789)	0%
WACC Decrease to 10%	(22,008)	(8,333)	(1,079)	(31,420)	-1%	20,901	(10,519)	-3%
WACC Increase to 15%	(22,008)	(8,333)	(1,619)	(31,960)	1%	20,901	(11,059)	3%

6.3.6 The results of the tests are shown in NPV terms. Only the finance costs are affected. The costs vary by some $270 million plus and minus compared to the base case. Overall the impact is minimal at only +/-1% compared to the total deficit and slightly more +/- 3% compared to the overall funding gap (including land sales).

Changes in Inflation and Escalation Rates

6.3.7 The fourth set of tests concerned inflation and escalation rates. The purpose of this test was to consider the impact of changes in costs that may rise faster or slower than inflation and the effect of inflation itself being higher or lower than the 2% assumed in the base case[18]. Two variables were considered: staff costs and construction costs. Staff costs historically have risen faster than inflation but particularly in relevant employment sectors, have slowed considerably in real terms in recent years. Construction costs tend to fluctuate and, this being a construction project, may have proved to be sensitive. The first test increased the rates adopted to 2.5% for inflation and a 2.75% nominal escalation rate for staff and construction costs. The second test decreased the rates adopted to 1.5% for inflation and 1.25% for staff and construction costs[19].

[18] The inflation rate will not affect the NPV since any increase in costs as a result of inflation will be equally compensated for in discounting the cash flow - the nominal discount rate is (1+r)*(1+i)-1. It will affect the MOD reported in Annex K.

[19] Changes in escalation rates will have an increasing impact over time such that only small differentials from inflation are adopted in this sensitivity test given the more than 50 year time horizon of the analysis.

Table 6-4: Results of Sensitivity Tests on Inflation & Other Escalation Rates, NPV at 2006, $ million

Scenario 1A	Risk adjusted All capital	Risk adjusted Operations	Finance	Total Deficit	Total Deficit difference from Base Case	Land Sales	Funding Gap	Funding Gap difference from Base Case
Base Case	(21,618)	(8,333)	na	(29,950)	0%	20,901	(9,050)	0%
Inflation, Staff and Construction Rates Increase	(21,910)	(8,627)	na	(30,537)	2%	20,901	(9,636)	6%
Inflation, Staff and Construction Rates Decrease	(21,328)	(8,057)	na	(29,385)	-2%	20,901	(8,484)	-6%

6.3.8 The results of the tests are shown in NPV terms. The capital and operations costs are affected but only by +/- 2% compared to the total deficit for the base case. The effect from differences in construction costs are about the same as from the effect from staff over the period expressed in NPV terms. Compared to the WKCD Base Case, the difference in the funding gap is +/- 6%.

Changes in Discount Rates

6.3.9 The fifth set of tests concerned discount rates. The purpose of this test was to consider the impact of changes in discount rates on the negative NPV for the WKCD project which represents a measure of the "up-front" funding which would be required to be invested to fund future deficits. The tests adopted 3% and 5% around the WKCD Base Case estimate of 4%.

Table 6-5: Results of Sensitivity Tests on Discount Rates, NPV at 2006, $ million

Scenario 1A	Risk adjusted All capital	Risk adjusted Operations	Finance	Total Deficit	Total Deficit difference from Base Case	Land Sales	Funding Gap	Funding Gap difference from Base Case
Base Case	(21,618)	(8,333)	na	(29,950)	0%	20,901	(9,050)	0%
Discount Rate Decrease to 3%	(24,183)	(10,669)	na	(34,852)	16%	21,724	(13,128)	45%
Discount Rate Increase to 5%	(19,542)	(6,613)	na	(26,155)	-13%	20,116	(6,039)	-33%

6.3.10 The results of the tests are shown in NPV terms. Under the test in which the discount rate is reduced to 3%, the funding gap increases by 45% ($9.1 billion to $13.1 billion) and under the test in which the discount rate increases to 5%, the funding gap decreases by 33% ($9.1 billion to $6.0 billion) – see Chapter 7.

Project Delay

6.3.11 The purpose of the sixth set of tests was to consider the impact of potential project delay. The test assumed project commencement and completion will be deferred by 2 years, such that master planning would not start until 2010, land sales would occur in 2012 and the analysis assessment period was extended to year 2061.

Table 6-6: Results of Sensitivity Tests on Project Delay, NPV at 2006, $ million

Scenario 1A	Risk adjusted All capital	Risk adjusted Operations	Finance	Total Deficit	Total Deficit difference from Base Case	Land Sales	Funding Gap	Funding Gap difference from Base Case
Base Case	(21,618)	(8,333)	na	(29,950)	0%	20,901	(9,050)	0%
Project Delay by 2 years	(19,987)	(7,704)	na	(27,691)	-8%	19,324	(8,367)	-8%

6.3.12 The results of the test are shown in NPV terms. As a result of discounting, in NPV terms, all costs and revenues decrease and the funding gap is reduced by 8%.

Reducing the Scale of M+

6.3.13 The seventh set of tests concerned the size of the M+. The NOFA for M+ and storage facilities in the WKCD Base Case was 75,000 sq.m. Of this 16,000 sq.m. was allocated for off-site storage and M+ was split into two phases: Phase 1 being 49,000 sq.m. (83% of NOFA) and Phase 2 a 10,000 sq.m. (17% of NOFA) extension. The purpose of the first two sensitivity tests were to consider the impact of reducing the overall size of the M+ NOFA by 10% and 20%. These tests assumed that the net gallery area would be reduced in proportion to the reduction in total NOFA and exhibition costs would be reduced by 5% to 15% (half of floor area reduction) under these scenarios. These tests assumed that the proportion of NOFA constructed in each phase would remain the same as under the WKCD Base Case. They also assume no changes in staffing and attendance levels and no changes in the revenue and costs that are not directly related to floor area or exhibitions. Under these tests, GFA released was assumed to be used for office development[20].

6.3.14 The third test assumed that M+ and its off-site uses would be scaled down by 30% whilst only 70% of NOFA (28,910 sq.m.) would be provided in Phase 1 and the remaining 30% (12,390 sq.m.) would be provided in Phase 2. In addition, the NOFA of off-site storage and conservation laboratory was reduced to 14,000 sq.m. The net gallery area was reduced by some 13% - 16,000 sq.m. in Phase 1 and 10,000 sq.m. in Phase 2. This test assumed that the attendance level, and all costs and revenues would reduce in proportion to the reduction in NOFA or net gallery area of M+. Under this test, GFA released was also assumed to be used for office development.

Table 6-7: Results of Sensitivity Tests on Reducing the Size of M+, NPV at 2006, $ million

Scenario 1A	Risk adjusted All capital	Risk adjusted Operations	Finance	Total Deficit	Total Deficit difference from Base Case	Land Sales	Funding Gap	Funding Gap difference from Base Case
Base Case	(21,618)	(8,333)	na	(29,950)	0%	20,901	(9,050)	0%
M+ Scaled Down by 10%	(21,124)	(7,999)	na	(29,123)	-3%	21,149	(7,974)	-12%
M+ Scaled Down by 20%	(20,631)	(7,665)	na	(28,295)	-6%	21,414	(6,882)	-24%
M+ Scaled Down by 30% + 70% of NOFA in Phase 1	(20,085)	(6,943)	na	(27,028)	-10%	21,670	(5,358)	-41%

6.3.15 The results of the test are shown in NPV terms. Capital and operation costs of the M+ are affected reducing the total deficit by 3% to 10% compared to the WKCD Base Case. Land

[20] Also assumed switching of 20% of RDE facilities to offices concurrently to provide an office development of the right scale (in the order of 40,000 sq.m. to 60,000 sq.m. GFA)

sales premiums are increased as a result of releasing GFA for commercial office development. The impact on the overall funding gap (including land sales) is to reduce the funding gap by 12% (about $8 billion) to 41% (about $5.4 billion).

Changes in the NOFA to GFA Ratios

6.3.16 The eighth set of tests concerned the ratio between the NOFA and the GFA which varies for different types of buildings. Office NOFA to GFA ratios are generally low at around 1:1.2 whilst cultural facilities such as museums and performing arts venues are higher, as are buildings with iconic building design. The assumed ratios for the WKCD Base Case were 1:1.67 for M+ (as set by MAG) and 1:1.5 for PA venues (FA assumption). The purpose of this sensitivity test was to determine the impact of reductions in these ratios which reduce the cost of the CACF but also free up a proportion of the fixed total of GFA for additional commercial development, so increasing revenues. However, what seems to be a commendable improvement in reducing costs and increasing revenues should be treated with caution. Significantly reducing the ratio of the NOFA to GFA may not be practical since cultural facilities have specific requirements which increase the ratio above that of more standard buildings such as offices. The implication of reducing the ratio significantly (if it is possible) would be to limit the functionality and design flexibility of the building and would likely result in a more "box like" structure; potentially compromising the requirement for iconic design, as specified by MAG and PATAG.

6.3.17 The sensitivity tests considered the effect of reducing the NOFA to GFA ratio of M+ down to 1:1.5, 1:1.4 and 1:1.25 and the performing arts venues down to 1:1.4, 1:1.3 and 1:1.25. The ratio of 1:1.25 was the ratio suggested in the original IFP but is considered by the FA to be too low to retain facility originality and functionality.

Table 6-8: Results of Sensitivity Tests on NOFA to GFA Ratios, NPV at 2006, $ million

Scenario 1A	Risk adjusted All capital	Risk adjusted Operations	Finance	Total Deficit	Total Deficit difference from Base Case	Land Sales	Funding Gap	Funding Gap difference from Base Case
Base Case	(21,618)	(8,333)	na	(29,950)	0%	20,901	(9,050)	0%
NOFA to GFA M+ 1:1.5 and PA Venues1:1.4	(20,605)	(7,878)	na	(28,483)	-5%	21,525	(6,959)	-23%
NOFA to GFA M+ 1:1.4 and PA Venues 1:1.3	(19,755)	(7,506)	na	(27,261)	-9%	22,038	(5,224)	-42%
NOFA to GFA M+ and PA Venues 1:1.25	(19,097)	(7,205)	na	(26,302)	-12%	22,456	(3,845)	-58%

6.3.18 The results of the test are shown in NPV terms. Capital and operation costs of CACF are changed resulting in a reduction of 5% to 12% in the total deficit compared to the base case. Land sales premiums increase as a result of releasing GFA for commercial office development. The impact on the overall funding gap (including land sales) is a reduction of 23% to 58% ($7.0 to $3.8 billion) when compared to the base case.

Changes in the Mix of Commercial Uses

6.3.19 The final set of tests concerns the mix of commercial uses. The GFA for commercial uses totalled 232,609 sq.m. under the WKCD Base Case. Of this 84,000 sq.m. was allocated for hotels and the remaining 148,609 sq.m. for retail/dining/entertainment (RDE) facilities. The purpose of the sensitivity test was to consider the impact of changing the mix of commercial uses – specifically reducing hotels and RDE facilities and releasing the GFA for commercial office development. The tests assumed the switching of 28,000 sq.m. (one third of total) of hotels and 29,609 sq.m. (20% of total) of RDE facilities to commercial office development.

Table 6-9: Results of Sensitivity Tests on the Mix of Commercial Uses, NPV at 2006, $ million

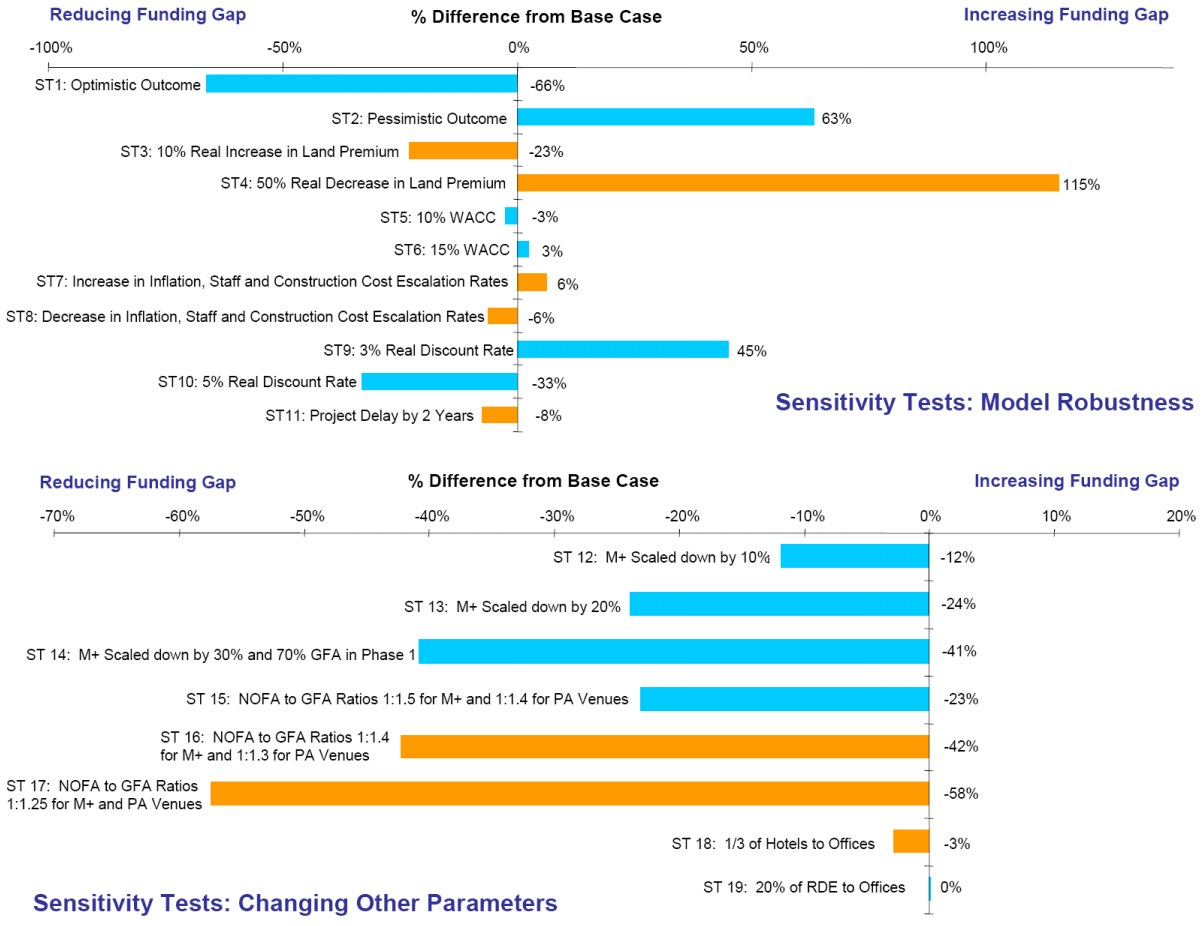
Scenario 1A	Risk adjusted All capital	Risk adjusted Operations	Finance	Total Deficit	Total Deficit difference from Base Case	Land Sales	Funding Gap	Funding Gap difference from Base Case
Base Case	(21,618)	(8,333)	na	(29,950)	0%	20,901	(9,050)	0%
One third of hotels to offices	(21,594)	(8,347)	na	(29,940)	0%	21,149	(8,792)	-3%
One fifth of RDE facilities to offices	(21,618)	(8,333)	na	(29,950)	0%	20,892	(9,058)	0%

6.3.20 The results of the test are shown in NPV terms. When hotels are switched to offices, less public parking spaces will be required as offices will provide parking spaces for shared use with CACF users, leading to reduced capital costs which will be largely offset by a reduction in carpark rental. When RDE facilities are switched to offices, capital and operation costs are not affected. Land sales premiums are changed as a result of switching from hotels / RDE facilities to offices. The impact on the overall funding gap (including land sales) is to reduce the funding gap by 3% to about $8.8 billion if one third of hotel GFA is used for offices, and increase the funding gap very slightly if about 20% of RDE GFA is used for offices.

6.4 Discussion of Results

6.4.1 Figure 6-1 illustrates of the scale of the impact on the funding gap of each of the tests. Increases compared to the WKCD base case are unfavourable, reductions are favourable

Figure 6-1: Sensitivity Tests, Summary Results



6.4.2 The sensitivity tests covered a range of alternatives. They were undertaken independently to test the relevant variables. However, as discussed in section 6.2, factors that change the allocated GFA of CACF and subsequently alter the residual available for commercial/retail and dining are important in considering the sensitivity of the financial analysis and the funding gap for the WKCD. The net impact on the commercial development allowable under the set plot ratio and residential percentage cap was explicitly modelled and included in the sensitivity tests.

- None of the tests reduce the total deficit below NPV $23 billion and even assuming land sales accrue to WKDA, none of the sensitivity tests reduce the funding gap to zero
- The optimistic and pessimistic outcomes show the potential range of the results for the upside and downside of estimates of the CACF and communal facilities costs and revenues. The range of the total deficit is from $24.0 billion to $35.7 billion. Under this sensitivity test, the value of the land sales remain the same. Including land sales revenue, the funding gap ranges from about $3.0 billion to $14.7 billion compared to the WKCD Base Case of $9.1 billion. The range is -66% i.e. a favourable reduction in the funding gap to +63% i.e. an unfavourable increase in the funding gap
- Of the sensitivity tests undertaken, the land premium has the greatest influence on the funding gap, increasing it by some 115%. This is primarily because the chosen potential range of revenues is high: +10% and -50% which reflects the volatility of the land market in Hong Kong. The total deficit for the CACF and communal facilities remained the same as the WKCD Base Case but the subsequent deficit, including sales, under the reduced land premium sensitivity test is $19.5 billion
- As expected those factors that change both the total deficit and release GFA for commercial development have some considerable impact on the deficit less land sales
  - Assuming much lower ratios of NOFA to GFA ratios of 1:1.25 for M+ and PA venues reduces the deficit by some $3.6 billion and increases the land sales value by $1.6 billion. The overall impact is to reduce the funding gap to $3.8 billion – about 58% less than the WKCD Base Case. However, this will limit the functionality and design flexibility of the building and may potentially compromise the requirement for iconic design
  - Scaling down the NOFA of M+ by 30% plus providing only 70% of NOFA in Phase 1 also has a significant impact. The resultant funding gap is $5.4 billion, about 41% less than the WKCD Base Case
  - Changing the mix of commercial uses has no significant impacts on land sales revenue or the funding gap
- Factors such as the WACC and alternative escalation rates have some, but not a large, impact on the total deficit or the funding gap

7. FINANCING OPTIONS

7.1 Summary of the Financial Analysis

7.1.1 Chapter 5 set out the results of the financial analysis of the WKCD Base Case for the WKCD as a whole and of the individual facilities proposed. The project was appraised under a number of different procurement scenarios with varying levels of private sector involvement in the financing of capital construction and operations. The clear conclusion of the financial analysis is the presence of **a significant funding gap.** If donations, other than commercial sponsorship or fundraising activity, are received, then they could reduce the gap but the FA has prudently assumed that such donations are zero.

7.1.2 The clearest indicator of the cost of the funding gap is the **negative** NPV, which represents the sum that the Government would have to invest, in a 'seed fund' or through other measures at the beginning of the project in order to subsidise capital construction and ongoing operations. Expressed as negative NPVs, the funding gaps over the analysis period for the three PSI scenarios are:

- Scenario 1A: NPV ($9.1 billion)
- Scenario 1B: NPV ($10.8 billion)
- Scenario 2: NPV ($11.5 billion)

7.1.3 **None of the CACF and communal facilities are independently financially viable under any of the PSI Scenarios** since none of them has a positive NPV combining capital and operations. Putting aside the capital costs, only the EC and MPV show a surplus in operations. Subsidy or cross subsidy is therefore required for nearly all the facilities for operations alone.

7.2 Resultant Approaches to Financing WKCD

7.2.1 The principal questions arising from the analysis are therefore: how could the funding gap be minimized and how could any remaining funding gap be funded, through Government subsidies and/or other means? The consideration of approaches to financing WKCD are concerned with the funding arrangements for the proposed statutory body and the financial implications of these to the Government/ proposed statutory body.

7.2.2 Specifically the FA considered:

- The impact of different PSI procurement options – with reference to the results of the financial analysis set out in Section 5
- The potential for closing the funding gap – with reference to the sensitivity tests set out in Section 6
- Mechanisms and options for financing the funding gap, through the proposed statutory body
- The financial role and responsibilities of the proposed statutory body and how it could be funded

7.2.3 The reader should note that, the estimate of the funding gap includes commercial sponsorship and fundraising activities but does not include other contributions, such as significant philanthropic donations which, for planning purposes, should not be relied upon. The assessment of financing options therefore assumes that the financial implication to Government is equal to the calculated funding gap, i.e. before taking into account any such donations.

7.3 Closing the Funding Gap

7.3.1 The PSI scenarios leave a funding gap of between $9.1 billion to $11.5 billion but, as shown through the use of sensitivity tests in Section 6, there are a wide range of factors which could increase or decrease this gap. Whilst this means there is some uncertainty about the level of the funding gap which will have to be filled, it also provides some guidance on changes which are to some extent amenable to development and funding policies and decisions by Government or the proposed statutory body.

7.3.2 It should also be noted that, whilst the clearest indicator of the cost of the funding gap is the (negative) NPV, the NPV measure is always sensitive to the real discount rate used in its estimation. Thus, for example, the funding gap of $9.1 billion for Scenario 1A results from using a real discount rate of 4%. The results of the sensitivity tests in Chapter 6 shows that if this rate is reduced to 3% the negative NPV (and therefore the funding gap) rises to $13.1 billion and if this rate is increased to 5% the negative NPV falls to $6.0 billion. The financial analysis uses a 4% discount rate, making reference to the rate used by Government for public projects. Though this rate may be changed, it is set for wider economic management purposes and influenced by economic factors over which there is little policy control. The selection of discount rate is not therefore a tool for managing the size of the funding gap.

7.3.3 The sensitivity tests set out in Section 6 were categorised into two broad groups of parameters in terms of their likely impact on the funding gap and on how this gap could be closed. A third group of parameters is included here:

- Parameters Not Amenable to Development and Funding Policies such as:
  - Optimistic and pessimistic outcomes in terms of cost and revenue estimates
  - Changes in weighted average cost of capital
  - Inflation and escalation rates
  - Changes in land premium on residential and commercial land sales
- Parameters Amenable to Development and Funding Policies such as:
  - Scaling down M+
  - Reducing the NOFA to GFA ratio but this would have design and implementation consequences that may not be desirable
- A third group of parameters which Require Changes in Present Development and Planning Policies such as:
  - GFA cap on residential development
  - Plot ratio

7.3.4 The sensitivity tests suggested that favourable movements in parameters ***not amenable to development and funding policies*** could reduce the funding gap, but since the Government cannot control these factors they do not provide assistance in the development or funding policies for the WKCD project.

7.3.5 The sensitivity tests also suggested that favourable movements in parameters ***amenable to development and funding policies*** could reduce the funding gap; and subject to concerns about possible undesirable consequences of NOFA to GFA ratio reductions, there is merit in considering changes in these parameters to reduce the funding gap.

7.3.6 Parameters ***which require changes in present development and planning policies*** also offer scope to reduce the funding gap through increasing the value of land sales. However, these parameters are taken as given in the financial analysis because they were fixed in the October 2005 Package and not in question under the scope of the FA consultancy.

7.3.7 The magnitude of the funding gap suggests that, if development and planning policies are held constant, measures to reduce the funding gap and choice of procurement will not reduce the funding gap to zero. The FA therefore looked at possible ways to finance the capital and operating deficits.

7.4 Financing the Funding Gap

Role of the Proposed Statutory Body

7.4.1 Common to all the proposed options is the assumption that the proposed statutory body would be responsible for committing all revenues and expenditures incurred as part of constructing or operating the WKCD, for subsidising these expenditures where necessary, and that the proposed statutory body would therefore administer the arrangements to close the funding gap.

Possible Financing Options

7.4.2 The FA identified three potential financing mechanisms available to the proposed statutory body to finance gap funding, see Table 7-1: Potential Financing Mechanisms.

Table 7-1: Potential Financing Mechanisms

Mechanisms for Financing the WKCD Funding Gap from Government Subsidy	
Endowment	The total land area of WKCD is endowed to the proposed statutory body including the right to dispose and/or develop (part of) the site for commercial and residential development.
	The Government provides the proposed statutory body with a lump sum cash allocation of "seed capital". This sum can either be spent on initial construction projects or invested to yield an annual income stream for development subsidies and/or operation of cultural facilities.
Subvention	Periodic payments from Government to the proposed statutory body to cover the operation, maintenance and management of WKCD facilities. Subventions would be made on the basis of annual or other budget submissions by the proposed statutory body.
Generation of Funds by the Proposed Statutory Body for Financing the WKCD Funding Gap	
Income	Sale of the endowed land to the private sector for commercial and residential development.
	Profit sharing partnerships with the private sector in the operation of facilities that make a profit on operations.
	Profit sharing partnerships with the private sector in the development and/or operation of commercial development.
	Direct property development, holding and leasing/renting of commercial development.

Note: private sector donations should also be pursued to finance the WKCD funding gap

7.4.3 Using these mechanisms, the FA then identified four possible options to finance the capital and operating deficits. The pros and cons of these options are set out in Table 7-2.

Option 1: Funding of both the total capital and operating deficits through land and seed capital endowments

7.4.4 The Government endows the proposed statutory body with WKCD land and seed capital. The proposed statutory body then sells all the land allocated for residential and commercial use and uses the proceeds to start CACF construction. The seed capital is

invested and used to pay for the short-fall in construction capital and to subsidise CACF operating deficits through annual returns.

Option 2: Funding of capital costs by land and seed capital endowments. Operating deficits paid for through subventions

7.4.5 The Government endows the proposed statutory body with WKCD land and a smaller amount of seed capital. The proposed statutory body then sells all land allocated for residential and commercial use and uses the funds to finance CACF construction, including capital improvement and overhaul works to the CACF facilities, with the shortfall paid for by the seed capital. CACF operating deficits are then paid for through on-going Government subventions to the proposed statutory body. This option reduces the Government's up front capital commitment required in the form of seed capital but instead requires long term Government support for operations - on the basis of annual or other periodic budget projections by the proposed statutory body of anticipated CACF operating deficits - through to 2059.

Option 3: Funding of capital costs, including RDE facility, by land and seed capital endowments. Operating deficits paid for through RDE rental income

7.4.6 This option adopts the same approach for capital construction funding as Option 2, namely an endowed land sale and seed capital provision from Government. However, under this option, only the residential and hotel land is sold, whilst the Retail/Dining/Entertainment (RDE) land is vested with the proposed statutory body. The Government thus pays for the construction of the 148,609 sq.m. RDE facility and the proposed statutory body will manage and lease the development to generate income. The objective of this option is for the leased RDE facilities to provide a reliable and sustainable future income stream to subsidise CACF operating deficits on an ongoing basis under the control and management of the proposed statutory body. However, as a result of vesting the RDE land with the statutory body, the land premium of $3.9 billion (in NPV) for the RDE facility will be foregone.

7.4.7 Estimating an annual net rental return of $3,875 per sq.m. of RDE GFA and $14.9 million from the 496 parking spaces, annual rental revenues would total $591 million per annum. The NPV of this stream of annual incomes can then be compared against the NPV of CACF operational deficits. The objective would be to cover all capital and operating deficits for the 50-year project period. In this example the NPV of this stream of annual incomes ($9.4 billion) fully covers the $8.4 billion operating deficit and leaves a surplus of $1.0 billion - but this would be subject to the actual rental yield achieved.

Option 4: Public funding of capital costs and land endowed to the proposed statutory body. Operating deficits paid for through land premium and invested by the proposed statutory body to provide future income stream

7.4.8 Under this option, the Government pays upfront for all capital costs. The Government also endows the proposed statutory body with WKCD land, from which the proposed statutory body sells the land allocated for commercial and residential use, and invests the proceeds as per the seed capital fund in order to pay for CACF operating deficits. If all of the receipts from land sales were so invested, the NPV of this investment would significantly exceed the NPV of CACF operating deficits providing an income to cover operating deficits for the foreseeable future.

Table 7-2: Pros and Cons of Financing Options

Options	Pros	Cons
Option 1: Funding of both the total capital and operating deficits through land and seed capital endowments	Simple mechanism creating investment fund under direct control of the proposed statutory body No need for annual subvention budgeting and claims to Government Greater independence provides incentive for tighter budget control	Needs substantial up-front 'seed capital' funding Land sale revenues redistributed to cross subsidise deficits - land values uncertain due to market fluctuations
Option 2: Funding of capital costs by land and seed capital endowments. Operating deficits paid for through subventions	Reduces need for up-front 'seed capital' funding by Government	Need for annual subvention budgeting and claims to Government Less independence creates less incentive to control operational costs Potentially fluctuating revenue stream depending on prevailing public opinion of WKCD merits Land sale revenues redistributed to cross subsidise deficits - land values uncertain due to market fluctuations
Option 3: Funding of capital costs, including RDE facility, by land and seed capital endowments. Operating deficits paid for through RDE rental income	No need for annual subvention budgeting and claims to Government Greater independence provides incentive for tighter budget control Potential for greater synergy between the RDE facility and the wider WKCD for themeing and special events Option least dependent on land sale revenues	Need for up-front 'seed capital' funding by Government with loss of some land sales revenues The proposed statutory body becomes a public developer - needs a wider range of skills Takes time for the proposed statutory body to build up experience in running RDE facility Land sale revenues redistributed to cross subsidise deficits - land values uncertain due to market fluctuations
Option 4: Public funding of capital costs and land endowed to the proposed statutory body. Operating deficits paid for through land premium and invested by the proposed statutory body to provide future income stream	No need for annual subvention budgeting and claims to Government Significant NPV of land sale revenues has potential to fund operational deficits Greater independence provides incentive for tighter budget control	Need for greatest up front investment by Government Land sale revenues redistributed to cross subsidise deficits - land values uncertain due to market fluctuations

7.4.9 Adopting Scenario 1A to illustrate the impacts, Figure 7-1 summarises the overall financial implications to Government of the four gap funding options. Further details are in **Annex L**.

Figure 7-1: Summary of Financing Cost by Option, NPV at 2006 ($ billion)

Scenario 1A

Capital Costs	Option 1	Option 2	Option 3	Option 4
Capital Costs (Construction and Overhaul)	$21.6	$21.6	$24.7#	$21.6
Government Funding Through Land Sales	$20.9	$20.9	$17.0	-
Government Funds Required for Capital	$0.7	$0.7	$7.7	$21.6
Operating Costs				
Operating Deficit	$8.4	$8.4	$8.4	$8.4
Method of Financing Operating Deficit	Seed Capital	Subventions	Rental Income	Land Sales
Government Funds Required for Operations	$8.4	$8.4	-*	-**
Financial Implications to Govt				
Government Funding Through Land	$20.9	$20.9	$17.0	$20.9**
Land Premium Foregone (RDE Facility)	-	-	$3.9	-
Government Funding Through the Budget (Capital)	$9.1	$0.7	$7.7	$21.6
Government Funding Through the Budget (Recurrent)	-	$8.4	-	-
Total	$30.0	$30.0	$28.6	$42.5**

Notes:
The calculated funding gap refers to the financial implication to Government before taking into account donations, other than commercial sponsorship and fundraising. If such donations are received, the Government funding requirement could be reduced.
including NPV of capital cost of RDE facilities = HK$3.1 billion (covering construction and major overhaul costs)
* NPV of RDE rental income = HK$9.4 billion (~$591 million a year). This gives a margin over operating deficit in the order of 10%; ($9.4-$8.4)/($8.4) = 12%
** Government funding of operational deficits through land endowment under Option 4, gives a margin in the order of 150%; ($20.9-$8.4)/($8.4) = 148%

Options 1 requires the same total funding in NPV terms as Option 2 but the budgetary funding is through seed capital rather than through subventions.

Options 2 requires the least up front capital funding through the budget, since the operating costs are financed through on-going subventions.

Under Option 3, where rental income from RDE facilities is used to finance the operating cost, the total Government funding in NPV terms is the lowest, at about $29 billion.

Under Option 4, where land sales are used to finance the operational deficit, the total Government funding in NPV terms is the greatest but the operating deficits could be covered for the foreseeable future.

7.5 Funding Arrangements for the Proposed Statutory Body

7.5.1 It is apparent from the analysis of financing options that the proposed statutory body for the development and operation of WKCD would require appropriate financing powers – in the financing of WKCD, both during the capital development phase and for ongoing operations.

7.5.2 The analysis of international experience undertaken by the FA, summarised in Section 3 and **Annex M**, showed that the potential for increasing private sector involvement and for managing and financing a major public development on this scale requires a dedicated, area-based development and/or operating statutory body for WKCD. Recommendations on its establishment, role and responsibilities, organisational structure and the resultant cost estimates are provided in **Annex B**.

7.5.3 The principal financial roles, which the proposed statutory body would need to undertake, include:

- Grouping of cultural, commercial, and communal facilities and package development sites, as appropriate, in order to achieve the objectives of the master plan and to create the most financially viable packages of development
- Cross-subsidising development and, where necessary, subsidise and cross subsidise cultural facility operation through risk sharing PSI agreements
- Developing business propositions and procurement packages to be offered to private sector and other Not-for-Profit organisations
- Entering into risk sharing PSI contracts on behalf of the public sector ensuring that the public interest is maintained but at 'arm's length' from Government
- Holding a land bank comprising the developable area of WKCD
- Holding and distributing income arising from: any fund established for the WKCD; the leasing and development of sites on WKCD land; the operation of commercial or other facilities

7.5.4 **Annex B** recommends that the proposed statutory body is established as an independent body created under statute. It is the Government's stated intention to create such a body, the WKCD Authority (WKCDA), to take over the present Government role in taking forward the WKCD project at a suitable juncture. It is expected that the role and functions of the statutory body would reflect the financial roles above but it is stressed that these would be the subject of public consultation, and would be embodied in specific enabling legislation establishing the statutory body.

7.5.5 The establishment of a statutory body for the WKCD would be under a specific ordinance passed by the Legislative Council in a similar statute and process to that for the establishment of the other statutory bodies like the Urban Renewal Authority. The legislation will need to cover

- The establishment of the Board, purposes and general powers
- Public accountability
- Financial provisions
- Business planning and development roles and powers
- Any transitional provisions prior to, during and at the end of its life

7.5.6 With regard to the financial provisions as they affect the funding options set out in this report, the Ordinance would require the proposed statutory body to have powers and responsibilities which would include:

- Powers to make requests for and receive appropriations, and hold and spend these moneys in the WKCD
- Powers to lend, invest and borrow monies for the purposes of implementing a project of the WKCDA – this may be subject to direction by the Financial Secretary
- Resolution by the Legislative Council to authorise the Financial Secretary to grant Government guarantees on loans, debts and the payment of interest
- Powers to invest 'surplus funds' in forms of investment as the Financial Secretary may approve
- Responsibilities to keep proper accounts and financial statements to comply with standards authorised by the Financial Secretary
- Responsibilities to appoint an auditor, to have the financial statements audited and for the Financial Secretary to receive the audited statements, auditors report and a report on the affairs of the proposed statutory body

APPENDIX: CACF – HIGHLIGHT OF ASSUMPTIONS AND RESULTS

Appendix: CACF - Highlight of Assumptions and Results

M+

1	**Physical Parameters**		**Phase 1**		**Phase 2**		**Phases 1 and 2 Combined**	
	A free standing structure with iconic architecture. M+ should meet international standards on climate controls and security. A collecting institution, with appropriate storage facilities, conservation laboratories and staffing, and can manage artefact collections representing the full range of materials. Temporary exhibition galleries large enough for M+ to accept most major travelling shows from important museums around the world and to store exhibits to be put on display.							
	On-site Net Operating Floor Area (NOFA)		49,000	sq.m.	10,000	sq.m.	59,000	sq.m.
	On-site Gross Floor Area (GFA)		81,830	sq.m.	16,700	sq.m.	98,530	sq.m.
	On-site NOFA to GFA Ratio of	1	1.67		1.67		1.67	
	Including:							
	Net Gallery Area (NOFA)		20,000	sq.m.	10,000	sq.m.	30,000	sq.m.
	Catering Facilities (NOFA)		1,000	sq.m.	-	sq.m.	1,000	sq.m.
	Retailing Facilities (NOFA)		1,000	sq.m.	-	sq.m.	1,000	sq.m.
	Off-site Storage and Conservation Laboratory (NOFA)		16,000	sq.m.	-	sq.m.	16,000	sq.m.
	Off-site Storage and Conservation Laboratory (GFA)		19,200	sq.m.	-	sq.m.	19,200	sq.m.
	Off-site NOFA to GFA Ratio of	1	1.20		1.20		1.20	
2	**Key Development Assumptions**							
	Construction is to take place during		Phase 1		Phase 2			
	Design and Construction		6	years (including 2 years for an international architectural design competition)	3	years		
	Opening		2016		2031			
3	**Capital Costs under PSI 1A**							
	Construction and Related Costs (As if undertaken in 2006)		4,657	million HK$ (2006 prices)	692	million HK$ (2006 prices)	5,349	million HK$ (2006 prices)
	Other Costs (incl. collections, exhibition development, library set up and conservation laboratory equipment) (As if undertaken in 2006)		2,775	million HK$ (2006 prices)	255	million HK$ (2006 prices)	3,030	million HK$ (2006 prices)
	Major Overhaul Costs (As if undertaken in 2006)		2,697	million HK$ (2006 prices)	225	million HK$ (2006 prices)	2,922	million HK$ (2006 prices)
	Total Capital Costs (As if undertaken in 2006)		10,129	million HK$ (2006 prices)	1,172	million HK$ (2006 prices)	11,301	million HK$ (2006 prices)
4	**Key Operating Assumptions under PSI 1A**							
	Initial Broad Groupings will be Design, Moving Image, Popular Culture and Visual Art. M+ will build a world-class collection relating to each of the four broad groupings. M+ will offer a range of local, regional and international exhibitions and a full range of quality public and educational programmes as per international museum practice. All exhibitions and programmes will be to international standards.							
	Operator		Not for Profit Operator		-		Not for Profit Operator	
	Attendance		1,500,000	visitors	-		2,500,000	visitors
	Number of Blockbluster Exhibitions		5	per year	-		8	per year
	Admission Revenue from Visitors		27.5	HK$ per visitor (2006 prices)	-		30	HK$ per visitor (2006 prices)

Appendix: CACF - Highlight of Assumptions and Results

M+

5 Operating Costs under PSI 1A (Year 5, when cost and revenues have settled down into their long term trend)

Operational Revenue	87	million HK$ (2006 prices)	-	133	million HK$ (2006 prices)
Hire Income / Admissions	50%		-	73%	
Retail / Catering / Tenant Income	17%		-	9%	
Programmes	6%		-	7%	
Fundraising	23%		-	9%	
Other Income	5%		-	2%	
Operational Expenditure & Adjustments	496	million HK$ (2006 prices)		616	million HK$ (2006 prices)
Staff Cost	34%		-	29%	
Admin Overheads	4%		-	3%	
Building Maintenance	1%		-	1%	
Cleaning and Security	6%		-	6%	
Utilities	10%		-	10%	
Marketing	6%		-	6%	
Programmes	26%		-	33%	
Other Expenditure (incl. temp. staff, library costs, maintenance of electrical equipment, technical services such as sound and telecom systems, general and specialist supplies, maintenance contracts of office and other equipments, postal services etc.)	10%		-	9%	
Insurance	1%		-	1%	
Rates and Government Rents	2%		-	2%	
Annual Adjusted Operational Surplus / (Deficit)	(409)	million HK$ (2006 prices)	-	(483)	million HK$ (2006 prices)
Indicative Operational Cost Recovery Rate	17%		-	22%	

6 Financial Appraisals under PSI 1A (incl. all capital costs and operating surplus or (deficits) to year 2059)

Net Present Value (2006)	(11,551)	million HK$	(910)	million HK$	(12,461)	million HK$
All Capital (year 2006)	(5,492)	million HK$	(394)	million HK$	(5,885)	million HK$
Operations (year 2006)	(6,059)	million HK$	(517)	million HK$	(6,575)	million HK$
Financial Characteristics	Revenue generating development, but insufficient to cover operating costs					

7 Issues for Consideration

The sustained huge operating deficits of M+ will not attract a commercial operator.

8 Limitations and Potential Mitigation

The only direct local experience of large-scale museum operation lies with LCSD's operation of public museums. International museum operators will only consider running M+ if funds are available to cover its high operating costs.

9 Private Sector Involvement Options Selected for Testing in the Financial Analysis

Design Competition + Design and Build + Operate, Manage and Maintain

Note: All numbers are rounded to 0 decimal places for presentational ease.

Exhibition Centre

1 Physical Parameters

The Exhibition Centre (EC) will provide a mixed-use facility for cultural and commercial exhibitions, meeting international standards for climate control and security. The EC will have four galleries of different sizes, with the larger spaces capable of further subdivision. The EC will be supported by ancillary uses such as multi-purpose lecture theatres and meeting rooms. The EC will offer space for hire for large and small-scale events, as well as banquetting functions. The EC will not be a collecting institution.

Net Operating Floor Area (NOFA)		10,000	sq.m.
Gross Floor Area (GFA)		12,500	sq.m.
NOFA to GFA Ratio of	1:	1.25	
Including:			
Retail Facilities (NOFA)		100	sq.m.
Catering Facilities (NOFA)		-	sq.m. (galleries will be used for banquetting functions)

2 Key Development Assumptions

Construction is to take place during Phase 1.

Design and Construction	3	years
Opening	2014	

3 Capital Costs under PSI 1A

Construction and Related Costs (As if undertaken in 2006)	505	million HK$ (2006 prices)
Major Overhaul Costs (As if undertaken in 2006)	330	million HK$ (2006 prices)
Total Capital Costs (As if undertaken in 2006)	834	million HK$ (2006 prices)

4 Key Operating Assumptions under PSI 1A

The EC will accommodate exhibitions of art, antiquities, and a variety of other themes. The EC is not intended to rely on philanthropic donations. Priority will be given to arts and culture uses, uses by the creative industry and WKCD events. The EC aims to make a small profit.

Operator	Commercial Operator	
Utilisation	72%	based on days available for hire
Utilisation for Commercial Events	70%	
Utilisation for Cultural Events	30%	
Attendance	1,500,000	visitors

5 Operating Costs under PSI 1A (Year 10, when cost and revenues have settled down into their long term trend)

Operational Revenue 55 million HK$ (2006 prices)

Hire Income / Admissions	99%
Retail / Catering / Tenant Income	1%
Programmes	0%
Fundraising	0%
Other Income	0%

Exhibition Centre

Operational Expenditure & Adjustments	39	million HK$ (2006 prices)

Staff Cost	21%
Admin Overheads	3%
Building Maintenance	3%
Cleaning and Security	13%
Utilities	16%
Marketing	19%
Programmes	2%
Other Expenditure (incl. temp. staff, maintenance of electrical equipment, technical services such as sound and telecom systems, general and specialist supplies, maintenance contracts of office and other equipments, postal services etc.)	15%
Insurance	0%
Rates and Government Rents	9%

Annual Adjusted Operational Surplus / (Deficit)	16	million HK$ (2006 prices)
Indicative Operational Cost Recovery Rate	142%	

6 Financial Appraisals under PSI 1A (incl. all capital costs and operating surplus or (deficits) to year 2059)

Net Present Value (year 2006)	(226)	million HK$

All Capital (year 2006)	(476)	million HK$
Operations (year 2006)	250	million HK$

Financial Characteristics: Revenue generating development, cover operating costs but not expected to cover capital costs

7 Issues for Consideration

As the EC has the potential to generate sustained profit streams it may have the capacity to attract commercial investment into its operation (and possibly construction depending on the type and level of subsidy provided).

8 Limitations and Potential Mitigation

Locally there are commercial operators running exhibition centres for commercial events. Internationally, there are potential operators in Australia, UK, North America.

9 Private Sector Involvement Options Selected for Testing in the Financial Analysis

Design and Build + Operate, Manage and Maintain

Build Operate Transfer

Note: All numbers are rounded to 0 decimal places for presentational ease.

Mega Performance Venue

1 Physical Parameters

The MPV will be designed to international standards and will be a stand-alone facility, i.e. not physically clustered with other venues in the Cultural District.

Seating Capacity (maximum number of seats)		15,000	seats with flexible seating configuration to allow the venue to be converted into smaller seating capacity
Net Operating Floor Area (NOFA)		36,710	sq.m.
Gross Floor Area (GFA)		55,065	sq.m.
NOFA to GFA Ratio of	1:	1.5	
Including:			
Retail Facilities (NOFA)		500	sq.m.
Catering Facilities (NOFA)		1,000	sq.m.
VVIP Facilities for State Functions and Major Events (NOFA)		1,130	sq.m.
Resident Company Space (NOFA)*		-	sq.m.

2 Key Development Assumptions

Construction is to take place during Phase 1.

Design and Construction	4	years
Opening	2014	

3 Capital Costs under PSI 1A

Construction and Related Costs (As if undertaken in 2006)	2,664	million HK$ (2006 prices)
Major Overhaul Costs (As if undertaken in 2006)	1,841	million HK$ (2006 prices)
Total Capital Costs (As if undertaken in 2006)	4,504	million HK$ (2006 prices)

4 Key Operating Assumptions under PSI 1A

The MPV will be reserved for stadium-style mega shows, entertainment events and pop concerts, with occasional non-arts activities. The MPV will be as financially self-sustaining as possible. Besides rental income, the MPV will enjoy additional income from bars, catering, merchandise sales and advertising. The MPV will operate an independent sponsorship/business partnership unit to cultivate income from the corporate sector. The MPV will close for 2 weeks p.a. for maintenance.

Operator	Commercial Operator	
Utilisation	90%	based on days available for hire
Utilisation by Hirers	100%	
Number of Programmes	189	performances
Average Attendance Rate	72%	based on seating capacity
Average Ticket Price	300	HK$

Mega Performance Venue

5 Operating Costs under PSI 1A (Year 10, when cost and revenues have settled down into their long term trend)

Operational Revenue	171	million HK$ (2006 prices)

Hire Income / Admissions	80%
Retail / Catering / Tenant Income	14%
Programmes	0%
Fundraising	6%
Other Income	0%

Operational Expenditure & Adjustments	118	million HK$ (2006 prices)

Staff Cost	9%
Admin Overheads	1%
Building Maintenance	4%
Cleaning and Security	14%
Utilities	19%
Marketing	3%
Programmes	0%
Other Expenditure (incl. temp. staff, library costs, maintenance of electrical equipment, technical services such as sound and telecom systems, general and specialist supplies, maintenance contracts of office and other equipments, postal services etc.)	43%
Insurance	0%
Rates and Government Rents	7%

Annual Adjusted Operational Surplus / (Deficit)	53	million HK$ (2006 prices)
Indicative Operational Cost Recovery Rate	145%	

6 Financial Appraisals under PSI 1A (incl. all capital costs and operating surplus or (deficits) to year 2059)

Net Present Value (year 2006)	(1,733)	million HK$

All Capital (year 2006)	(2,576)	million HK$
Operations (year 2006)	843	million HK$

Financial Characteristics	Revenue generating development, cover operating costs but not expected to cover capital costs

7 Issues for Consideration

As the MPV has the potential to generate sustained profit streams it may have the capacity to attract commercial investment into its operation (and possibly construction depending on the type and level of subsidy provided).

8 Limitations and Potential Mitigation

The direct local experience of MPV operation lies with LCSD's operation of HK Coliseum and the commercial operators of HK Convention and Exhibition Centre and Asia World-Expo Arena. Internationally, there are potential operators in Australia, UK, North America.

9 Private Sector Involvement Options Selected for Testing in the Financial Analysis

Design and Build + Operate, Manage and Maintain

Design Build Finance Maintain + Operate and Manage

Packaged with Commercial Facilities (assumed to be Build Own Operate)

Note: All numbers are rounded to 0 decimal places for presentational ease.
* Except Concert Hall/Chamber Music Hall which is assumed to make full provisions for resident companies and Mega Performance Venue where no provision is required for resident company, all other performing arts venues are assumed to make only basic provisions for resident companies given PATAG recommended that facilities for resident companies could be provided outside the performing arts venues in WKCD. The FA has assumed the OACF will provide 12,000 sq.m. of space for resident companies.

Great Theatre 1

1 Physical Parameters

The theatre will be designed to international standards and will be a stand-alone facility, i.e. not physically clustered with other venues

Seating Capacity (maximum number of seats)		2,200	seats
Net Operating Floor Area (NOFA)		14,800	sq.m.
Gross Floor Area (GFA)		22,200	sq.m.
NOFA to GFA Ratio of	1:	1.5	
Including:			
Retail Facilities (NOFA)		190	sq.m.
Catering Facilities (NOFA)		1,000	sq.m.
VVIP Facilities for State Functions and Major Events (NOFA)		-	sq.m.
Resident Company Space (NOFA)*		600	sq.m.

2 Key Development Assumptions

Construction is to take place during Phase 1.

Design and Construction	4	years
Opening	2014	

3 Capital Costs under PSI 1A

Construction and Related Costs (As if undertaken in 2006)	1,197	million HK$ (2006 prices)
Major Overhaul Costs (As if undertaken in 2006)	843	million HK$ (2006 prices)
Total Capital Costs (As if undertaken in 2006)	2,040	million HK$ (2006 prices)

4 Key Operating Assumptions under PSI 1A

The theatre will be primarily for long-run commercial productions, with occasional other cultural/entertainment uses. The Theatre will be available for occasional non-arts hires . The theatre will be as financially self-sustaining as possible. The theatre will have a programming/enterprenuring budget for presenting venue's own programmes. Besides rental income, the theatre will enjoy additional income from bars, catering and merchandise sales. The theatre will operate an independent sponsorship/business partnership unit to cultivate income from the corporate sector. The theatre will close for 2 weeks p.a. for maintenance.

Operator	Commercial Operator	
Utilisation	90%	based on days available for hire
Utilisation by Hirers	90%	
Number of Programmes	304	performances
Average Attendance Rate	72%	based on seating capacity
Average Ticket Price	350	HK$

5 Operating Costs under PSI 1A (Year 10, when cost and revenues have settled down into their long term trend)

Operational Revenue	71	million HK$ (2006 prices)

Hire Income / Admissions	56%
Retail / Catering / Tenant Income	9%
Programmes	23%
Fundraising	11%
Other Income	0%

Great Theatre 1

Operational Expenditure & Adjustments	72	million HK$ (2006 prices)

Staff Cost	14%
Admin Overheads	2%
Building Maintenance	2%
Cleaning and Security	9%
Utilities	11%
Marketing	3%
Programmes	24%
Other Expenditure (incl. temp. staff, library costs, maintenance of electrical equipment, technical services such as sound and telecom systems, general and specialist supplies, maintenance contracts of office and other equipments, postal services etc.)	33%
Insurance	0%
Rates and Government Rents	1%

Annual Adjusted Operational Surplus / (Deficit)	(1)	million HK$ (2006 prices)
Indicative Operational Cost Recovery Rate	98%	

6 Financial Appraisals under PSI 1A (incl. all capital costs and operating surplus or (deficits) to year 2059)

Net Present Value (year 2006)	(1,198)	million HK$
All Capital (year 2006)	(1,162)	million HK$
Operations (year 2006)	(36)	million HK$
Financial Characteristics	Revenue generating development, but insufficient to cover operating costs	

7 Issues for Consideration

Experienced commercial management is best placed to connect the Great Theatre with available commercial product globally, and to secure efficiencies of scale through integration with their other operations, beyond HK. Along with the MPV, this facility is likely to be the most attractive to existing commercial operators, as it has the potential (though not the certainty) of generating surpluses if sufficient quality commercial product is available.
If the operator has theatre experience (as distinct from MPV or Convention Centre experience) they may also have the capacity and interest to run some of the smaller theatre facilities to a program specification agreed with the proposed statutory body (although these would not be sufficiently attractive by themselves). This would help to spread the overall risk, by having several management models at play across the WKCD: some facilities could be commercially run and some run by independent non-profit entities.

8 Limitations and Potential Mitigation

No obvious commercial operators in HK – however, internationally, there are potential operators in Australia, UK, North America.

9 Private Sector Involvement Options Selected for Testing in the Financial Analysis

Design and Build + Operate, Manage and Maintain

Design Build Finance Maintain + Operate and Manage

Note: All numbers are rounded to 0 decimal places for presentational ease.
* Except Concert Hall/Chamber Music Hall which is assumed to make full provisions for resident companies and Mega Performance Venue where no provision is required for resident company, all other performing arts venues are assumed to make only basic provisions for resident companies given PATAG recommended that facilities for resident companies could be provided outside the performing arts venues in WKCD. The FA has assumed the OACF will provide 12,000 sq.m. of space for resident companies.

Concert Hall and Chamber Music Hall

1	**Physical Parameters**	**Concert Hall**	**Chamber Music Hall**

A Concert Hall and a Chamber Music Hall co-located in a free standing structure with iconic architecture. The two venues will share both facilities and staff. The Concert Hall will be designed to a standard commensurate with major international concert venues, with facilities and acoustic adjustment reflecting this. The Concert Hall will be equipped for recording and for broadcast of the performances staged in the venue. The Chamber Music Hall will be designed to a standard commensurate with international Chamber Music venues, with facilities and acoustic adjustment reflecting this. The Chamber Music Hall will also be equipped for recording and for broadcast live performance.

Seating Capacity (maximum number of seats)	2,000 seats	800 seats
Net Operating Floor Area (NOFA)	16,800 sq.m.	(combined total)
Gross Floor Area (GFA)	25,200 sq.m.	(combined total)
NOFA to GFA Ratio of 1:	1.5	
Including:		
Retail Facilities (NOFA)	190 sq.m.	100 sq.m.
Catering Facilities (NOFA)	1,000 sq.m.	- sq.m.
VVIP Facilities for State Functions and Major Events (NOFA)	- sq.m.	- sq.m.
Resident Company Space (NOFA)*	1,300 sq.m.	525 sq.m.

2 Key Development Assumptions

Construction is to take place during Phase 1.

Design and Construction	4 years
Opening	2014

3 Capital Costs under PSI 1A

Construction and Related Costs (As if undertaken in 2006)	1,399 million HK$ (2006 prices)
Major Overhaul Costs (As if undertaken in 2006)	957 million HK$ (2006 prices)
Total Capital Costs (As if undertaken in 2006)	2,357 million HK$ (2006 prices)

4 Key Operating Assumptions under PSI 1A

The Concert Hall will be used for Western and Chinese orchestral music, and may accommodate occasional non-arts events. Besides rental income, the Concert Hall will enjoy additional income from bars, catering and merchandise sales. The Chamber Music Hall will be used for Western Chamber music, recitals and other small ensembles performances for Western and Chinese music. There will be a strong strand of education usage. The Chamber Music Hall will be operated by the Concert Hall's management. The venues will have a programming/enterprenuring budget for presenting venue's own programmes including education and ancillary programs. In combination with the Concert Hall, the Chamber Music Hall will operate an independent sponsorship/business partnership unit to cultivate income from the corporate sector. The venues will be as financially self-sustaining as possible. The venues will close for 2 weeks p.a. for maintenance.

Operator	Not for Profit Operator	
Utilisation	82% based on days available for hire	82% based on days available for hire
Utilisation by Hirers	80%	70%
Number of Programmes	296 performances	296 performances
Average Attendance Rate	67% based on seating capacity	67% based on seating capacity
Average Ticket Price	300 HK$	125 HK$

Concert Hall and Chamber Music Hall

5 Operating Costs under PSI 1A (Year 10, when cost and revenues have settled down into their long term trend)

Operational Revenue	75	million HK$ (2006 prices)

Hire Income / Admissions	37%
Retail / Catering / Tenant Income	13%
Programmes	39%
Fundraising	11%
Other Income	0%

Operational Expenditure & Adjustments	93	million HK$ (2006 prices)

Staff Cost	11%
Admin Overheads	1%
Building Maintenance	2%
Cleaning and Security	7%
Utilities	9%
Marketing	2%
Programmes	40%
Other Expenditure (incl. temp. staff, library costs, maintenance of electrical equipment, technical services such as sound and telecom systems, general and specialist supplies, maintenance contracts of office and other equipments, postal services etc.)	26%
Insurance	0%
Rates and Government Rents	1%

Annual Adjusted Operational Surplus / (Deficit)	(18)	million HK$ (2006 prices)
Indicative Operational Cost Recovery Rate	81%	

6 Financial Appraisals under PSI 1A (incl. all capital costs and operating surplus or (deficits) to year 2059)

Net Present Value (year 2006)	(1,678)	million HK$

All Capital (year 2006)	(1,351)	million HK$
Operations (year 2006)	(327)	million HK$

Financial Characteristics	Revenue generating development, but insufficient to cover operating costs

7 Issues for Consideration

Because concerts are one-night or short-run events (whereas theatre productions tend to run for weeks or months) concert halls tend to have a higher proportion of concert-free time to sell. An experienced commercial venue manager may be best placed to take advantage of this, and possibly to secure efficiencies of scale through integration with their other operations, beyond HK. If the operator has theatre experience (as distinct from MPV or Convention Centre experience) they may also have the capacity and interest to run one or more of the smaller theatre facilities to a program specification agreed with the proposed statutory body. This would be particularly valuable if any of the black box venues is intended to accommodate a significant amount of music activity, as there could be programming and staffing synergies.

8 Limitations and Potential Mitigation

No obvious commercial operators in HK – however, internationally, there are potential operators in Australia, UK, North America. Concert Hall operation is generally less demanding and complex than operation of a large commercial theatre.

9 Private Sector Involvement Options Selected for Testing in the Financial Analysis

Design and Build + Operate, Manage and Maintain

Design Build Finance Maintain + Operate and Manage

Note: All numbers are rounded to 0 decimal places for presentational ease.
* Except Concert Hall/Chamber Music Hall which is assumed to make full provisions for resident companies and Mega Performance Venue where no provision is required for resident company, all other performing arts venues are assumed to make only basic provisions for resident companies given PATAG recommended that facilities for resident companies could be provided outside the performing arts venues in WKCD. The FA has assumed the OACF will provide 12,000 sq.m. of space for resident companies.

Xiqu Centre

1	**Physical Parameters**		**Main Theatre**		**Small Theatre**	
	A Main Theatre, a Small Theatre and a Tea House co-located in a free standing structure with iconic architecture. Ancillary facilities which emphasise its distinctive cultural identity will be provided. The venues will share both facilities and staff.					
	Seating Capacity (maximum number of seats)		1,400	seats	400	seats
	Net Operating Floor Area (NOFA)		14,955	sq.m.	(combined total)	
	Gross Floor Area (GFA)		22,433	sq.m.	(combined total)	
	NOFA to GFA Ratio of	1:	1.5			
	Including:					
	Retail Facilities (NOFA)		100	sq.m.	-	sq.m.
	Catering Facilities (NOFA)		3,220	sq.m.	-	sq.m.
	VVIP Facilities for State Functions and Major Events (NOFA)		-	sq.m.	-	sq.m.
	Resident Company Space (NOFA)*		300	sq.m.	-	sq.m.
2	**Key Development Assumptions**					
	Construction is to take place during Phase 1.					
	Design and Construction		4	years		
	Opening		2014			
3	**Capital Costs under PSI 1A**					
	Construction and Related Costs (As if undertaken in 2006)		1,156	million HK$ (2006 prices)		
	Major Overhaul Costs (As if undertaken in 2006)		794	million HK$ (2006 prices)		
	Total Capital Costs (As if undertaken in 2006)		1,949	million HK$ (2006 prices)		
4	**Key Operating Assumptions under PSI 1A**					
	The Main Theatre will be used for traditional, professional productions, instrumental performances, and occasionally other uses. The Small Theatre will be used for emerging artists, student productions and training purposes, and occasionally for children's Cantonese opera. The Xiqu Centre will be as financially self-sustaining as possible. Besides rental income, the Xiqu Centre will enjoy additional income from bars, catering and merchandise sales. The Xiqu Centre will have a programming/enterprenuring budget for presenting venue's own programmes including education and ancillary programs. The Xiqu Centre will operate an independent sponsorship/business partnership unit to cultivate income from the corporate sector. The Xiqu Centre will close for 2 weeks p.a. for maintenance.					
	Operator		Commercial Operator			
	Utilisation		90%	based on days available for hire	90%	based on days available for hire
	Utilisation by Hirers		90%		75%	
	Number of Programmes		325	performances	325	performances
	Average Attendance Rate		72%	based on seating capacity	67%	based on seating capacity
	Average Ticket Price		200	HK$	100	HK$

Xiqu Centre

5 Operating Costs under PSI 1A (Year 10, when cost and revenues have settled down into their long term trend)

Operational Revenue	50	million HK$ (2006 prices)

Hire Income / Admissions	42%
Retail / Catering / Tenant Income	29%
Programmes	18%
Fundraising	11%
Other Income	0%

Operational Expenditure & Adjustments	63	million HK$ (2006 prices)

Staff Cost	16%
Admin Overheads	2%
Building Maintenance	3%
Cleaning and Security	10%
Utilities	12%
Marketing	3%
Programmes	16%
Other Expenditure (incl. temp. staff, library costs, maintenance of electrical equipment, technical services such as sound and telecom systems, general and specialist supplies, maintenance contracts of office and other equipments, postal services etc.)	37%
Insurance	0%
Rates and Government Rents	1%

Annual Adjusted Operational Surplus / (Deficit)	(13)	million HK$ (2006 prices)
Indicative Operational Cost Recovery Rate	79%	

6 Financial Appraisals under PSI 1A (incl. all capital costs and operating surplus or (deficits) to year 2059)

Net Present Value (year 2006)	(1,352)	million HK$

All Capital (year 2006)	(1,117)	million HK$
Operations (year 2006)	(235)	million HK$

Financial Characteristics	Revenue generating development, but insufficient to cover operating costs

7 Issues for Consideration

The scale of the Xiqu Centre Main Theatre creates opportunity for commercial return on some of its productions – the venue may be expected to operate in a similar fashion to a large-scale commercial theatres. However, the distinctive nature of the content, and the responsibility for operating a small venue and engaging with training and industry development suggests that no existing commercial management may be well-suited to operating the Centre. For this reason a customized commercial management entity may be established.

8 Limitations and Potential Mitigation

Establishment of a new entity to operate would require close and experienced supervision. May be a need to buy in expertise to achieve skills transfer in early years of operation.

9 Private Sector Involvement Options Selected for Testing in the Financial Analysis

Design and Build + Operate, Manage and Maintain

Design Build Finance Maintain + Operate and Manage

Note: All numbers are rounded to 0 decimal places for presentational ease.
* Except Concert Hall/Chamber Music Hall which is assumed to make full provisions for resident companies and Mega Performance Venue where no provision is required for resident company, all other performing arts venues are assumed to make only basic provisions for resident companies given PATAG recommended that facilities for resident companies could be provided outside the performing arts venues in WKCD. The FA has assumed the OACF will provide 12,000 sq.m. of space for resident companies.

Medium Theatre 1

1 Physical Parameters

The theatre will be integrated with commercial developments in WKCD and have a fly-tower and orchestra pit.

Seating Capacity (maximum number of seats)		800	seats
Net Operating Floor Area (NOFA)		6,750	sq.m.
Gross Floor Area (GFA)		10,125	sq.m.
NOFA to GFA Ratio of	1:	1.5	
Including:			
Retail Facilities (NOFA)		100	sq.m.
Catering Facilities (NOFA)		250	sq.m.
VVIP Facilities for State Functions and Major Events (NOFA)		-	sq.m.
Resident Company Space (NOFA)*		300	sq.m.

2 Key Development Assumptions

Construction is to take place during Phase 1.

Design and Construction	3	years
Opening	2014	

3 Capital Costs under PSI 1A

Construction and Related Costs (As if undertaken in 2006)	514	million HK$ (2006 prices)
Major Overhaul Costs (As if undertaken in 2006)	362	million HK$ (2006 prices)
Total Capital Costs (As if undertaken in 2006)	876	million HK$ (2006 prices)

4 Key Operating Assumptions under PSI 1A

The theatre will be primarily for theatre and dance, with occasional other cultural/entertainment uses, including opera, music, stand-up comedy and all-day round shows for tourists. Besides rental income, the theatre will enjoy additional income from bars, catering and merchandise sales. The theatre will be as financially self-sustaining as possible. The theatre will have a programming/enterprenuring budget for presenting venue's own programmes including education and ancillary programs. The theatre will operate an independent sponsorship/business partnership unit to cultivate income from the corporate sector. The Theatre will close for 2 weeks p.a. for maintenance.

Operator	Not for Profit Operator	
Utilisation	82%	based on days available for hire
Utilisation by Hirers	90%	
Number of Programmes	296	performances
Average Attendance Rate	72%	based on seating capacity
Average Ticket Price	150	HK$

Medium Theatre 1

5 Operating Costs under PSI 1A (Year 10, when cost and revenues have settled down into their long term trend)

Operational Revenue	16	million HK$ (2006 prices)

Hire Income / Admissions	59%
Retail / Catering / Tenant Income	14%
Programmes	16%
Fundraising	11%
Other Income	0%

Operational Expenditure & Adjustments	25	million HK$ (2006 prices)

Staff Cost	18%
Admin Overheads	2%
Building Maintenance	3%
Cleaning and Security	11%
Utilities	13%
Marketing	4%
Programmes	9%
Other Expenditure (incl. temp. staff, library costs, maintenance of electrical equipment, technical services such as sound and telecom systems, general and specialist supplies, maintenance contracts of office and other equipments, postal services etc.)	38%
Insurance	0%
Rates and Government Rents	1%

Annual Adjusted Operational Surplus / (Deficit)	(9)	million HK$ (2006 prices)
Indicative Operational Cost Recovery Rate	63%	

6 Financial Appraisals under PSI 1A (incl. all capital costs and operating surplus or (deficits) to year 2059)

Net Present Value (year 2006)	(649)	million HK$

All Capital (year 2006)	(491)	million HK$
Operations (year 2006)	(158)	million HK$

Financial Characteristics	Revenue generating development, but insufficient to cover operating costs

7 Issues for Consideration

Individually, not attractive to a commercial operator because of small earning capacity and because the Theatres are largely dedicated to presenting product which is not commercially-driven. Could be bundled with the Great Theatre 1, or may require establishment of a customized non-profit entity to operate.

8 Limitations and Potential Mitigation

Establishment of a new entity to operate would require close and experienced supervision. May be a need to buy in expertise to achieve skills transfer in early years of operation.

9 Private Sector Involvement Options Selected for Testing in the Financial Analysis

Design and Build + Operate, Manage and Maintain

Design Build Finance Maintain + Operate and Manage

Packaged with Commercial Facilities (assumed to be Build Own Operate)

Note: All numbers are rounded to 0 decimal places for presentational ease.
* Except Concert Hall/Chamber Music Hall which is assumed to make full provisions for resident companies and Mega Performance Venue where no provision is required for resident company, all other performing arts venues are assumed to make only basic provisions for resident companies given PATAG recommended that facilities for resident companies could be provided outside the performing arts venues in WKCD. The FA has assumed the OACF will provide 12,000 sq.m. of space for resident companies.

Medium Theatre 2 and Black Box Theatre 1

1	**Physical Parameters**		**Medium Theatre 2**		**Black Box Theatre 1**	
	The theatres will be integrated with commercial developments in WKCD. The two venues will share both facilities and staff. The Medium Theatre will have a fly-tower and orchestra pit. The Black Box Theatre will be studio style, with no fly-tower or orchestra pit but will have film screening capability.					
	Seating Capacity (maximum number of seats)		800	seats	250	seats which can be configured end-stage, traverse, thrust or in the round
	Net Operating Floor Area (NOFA)		9,480	sq.m.	(combined total)	
	Gross Floor Area (GFA)		14,220	sq.m.	(combined total)	
	NOFA to GFA Ratio of	1:	1.5			
	Including:					
	Retail Facilities (NOFA)		100	sq.m.	50	sq.m.
	Catering Facilities (NOFA)		250	sq.m.	70	sq.m.
	VVIP Facilities for State Functions and Major Events (NOFA)		-	sq.m.	-	sq.m.
	Resident Company Space (NOFA)*		300	sq.m.	225	sq.m.
2	**Key Development Assumptions**					
	Construction is to take place during Phase 1.					
	Design and Construction		4	years		
	Opening		2014			
3	**Capital Costs under PSI 1A**					
	Construction and Related Costs (As if undertaken in 2006)		688	million HK$ (2006 prices)		
	Major Overhaul Costs (As if undertaken in 2006)		475	million HK$ (2006 prices)		
	Total Capital Costs (As if undertaken in 2006)		1,163	million HK$ (2006 prices)		
4	**Key Operating Assumptions under PSI 1A**					
	The Medium Theatre will be primarily for theatre and dance, with occasional other cultural/entertainment uses, including opera, music, stand-up comedy and all-day round shows for tourists. The Black Box Theatre will be for all art forms delivered at small scale. Besides rental ioncome, the theatres will enjoy additional income from bars, catering and merchandise sales. The theatres will be as financially self-sustaining as possible. The theatres will have a programming/enterprenuring budget for presenting venue's own programmes including education and ancillary programs. The theatres will operate an independent sponsorship/business partnership unit to cultivate income from the corporate sector. The theatres will close for 2 weeks p.a. for maintenance.					
	Operator		Not for Profit Operator			
	Utilisation		82%	based on days available for hire	82%	based on days available for hire
	Utilisation by Hirers		90%		90%	
	Number of Programmes		296	performances	296	performances
	Average Attendance Rate		72%	based on seating capacity	72%	based on seating capacity
	Average Ticket Price		150	HK$	100	HK$

Medium Theatre 2 and Black Box Theatre 1

5 Operating Costs under PSI 1A (Year 10, when cost and revenues have settled down into their long term trend)

Operational Revenue	20	million HK$ (2006 prices)

Hire Income / Admissions	57%
Retail / Catering / Tenant Income	16%
Programmes	16%
Fundraising	11%
Other Income	0%

Operational Expenditure & Adjustments	32	million HK$ (2006 prices)

Staff Cost	17%
Admin Overheads	2%
Building Maintenance	3%
Cleaning and Security	12%
Utilities	14%
Marketing	4%
Programmes	9%
Other Expenditure (incl. temp. staff, library costs, maintenance of electrical equipment, technical services such as sound and telecom systems, general and specialist supplies, maintenance contracts of office and other equipments, postal services etc.)	38%
Insurance	0%
Rates and Government Rents	1%

Annual Adjusted Operational Surplus / (Deficit)	(12)	million HK$ (2006 prices)
Indicative Operational Cost Recovery Rate	61%	

6 Financial Appraisals under PSI 1A (incl. all capital costs and operating surplus or (deficits) to year 2059)

Net Present Value (year 2006)	(877)	million HK$

All Capital (year 2006)	(665)	million HK$
Operations (year 2006)	(212)	million HK$

Financial Characteristics: Revenue generating development, but insufficient to cover operating costs

7 Issues for Consideration

Not attractive to a commercial operator because of small earning capacity and because the theatres are largely dedicated to presenting product which is not commercially-driven. Requires management with knowledge of the small-scale sector.

8 Limitations and Potential Mitigation

Establishment of a new entity to operate would require close and experienced supervision. May be a need to buy in expertise to achieve skills transfer in early years of operation.

9 Private Sector Involvement Options Selected for Testing in the Financial Analysis

Design and Build + Operate, Manage and Maintain

Design Build Finance Maintain + Operate and Manage

Note: All numbers are rounded to 0 decimal places for presentational ease.
* Except Concert Hall/Chamber Music Hall which is assumed to make full provisions for resident companies and Mega Performance Venue where no provision is required for resident company, all other performing arts venues are assumed to make only basic provisions for resident companies given PATAG recommended that facilities for resident companies could be provided outside the performing arts venues in WKCD. The FA has assumed the OACF will provide 12,000 sq.m. of space for resident companies.

Black Box Theatre 2 and Black Box Theatre 3

		Black Box Theatre 2		Black Box Theatre 3	
1	**Physical Parameters**				
	The theatres will be integrated with commercial developments in WKCD. The two venues will share both facilities and staff. The theatres will be studio style, with no fly-tower or orchestra pit but will have film screening capability.				
	Seating Capacity (maximum number of seats)	250	seats which can be configured end-stage, traverse, thrust or in the round	250	seats which can be configured end-stage, traverse, thrust or in the round
	Net Operating Floor Area (NOFA)	5,195	sq.m.	(combined total)	
	Gross Floor Area (GFA)	7,793	sq.m.	(combined total)	
	NOFA to GFA Ratio of 1:	1.5			
	Including:				
	Retail Facilities (NOFA)	50	sq.m.	50	sq.m.
	Catering Facilities (NOFA)	70	sq.m.	70	sq.m.
	VVIP Facilities for State Functions and Major Events (NOFA)	-	sq.m.	-	sq.m.
	Resident Company Space (NOFA)*	225	sq.m.	225	sq.m.
2	**Key Development Assumptions**				
	Construction is to take place during Phase 1.				
	Design and Construction	3	years		
	Opening	2014			
3	**Capital Costs under PSI 1A**				
	Construction and Related Costs (As if undertaken in 2006)	323	million HK$ (2006 prices)		
	Major Overhaul Costs (As if undertaken in 2006)	214	million HK$ (2006 prices)		
	Total Capital Costs (As if undertaken in 2006)	537	million HK$ (2006 prices)		
4	**Key Operating Assumptions under PSI 1A**				
	The theatres will be for all art forms delivered at small scale. Besides rental income, the theatres will enjoy additional income from bars, catering and merchandise sales. The theatres will be as financially self-sustaining as possible. The theatres will have a programming/enterprenuring budget for presenting venue's own programmes including education and ancillary programs. The theatres will operate an independent sponsorship/business partnership unit to cultivate income from the corporate sector. The theatres will close for 2 weeks p.a. for maintenance.				
	Operator	Not for Profit Operator			
	Utilisation	82%	based on days available for hire	82%	based on days available for hire
	Utilisation by Hirers	90%		90%	
	Number of Programmes	296	performances	296	performances
	Average Attendance Rate	72%	based on seating capacity	72%	based on seating capacity
	Average Ticket Price	100	HK$	100	HK$

Black Box Theatre 2 and Black Box Theatre 3

5 Operating Costs under PSI 1A (Year 10, when cost and revenues have settled down into their long term trend)

Operational Revenue	8	million HK$ (2006 prices)

Hire Income / Admissions	50%
Retail / Catering / Tenant Income	25%
Programmes	14%
Fundraising	11%
Other Income	0%

Operational Expenditure & Adjustments	16	million HK$ (2006 prices)

Staff Cost	23%
Admin Overheads	3%
Building Maintenance	3%
Cleaning and Security	13%
Utilities	14%
Marketing	3%
Programmes	8%
Other Expenditure (incl. temp. staff, library costs, maintenance of electrical equipment, technical services such as sound and telecom systems, general and specialist supplies, maintenance contracts of office and other equipments, postal services etc.)	32%
Insurance	0%
Rates and Government Rents	1%

Annual Adjusted Operational Surplus / (Deficit)	(8)	million HK$ (2006 prices)
Indicative Operational Cost Recovery Rate	49%	

6 Financial Appraisals under PSI 1A (incl. all capital costs and operating surplus or (deficits) to year 2059)

Net Present Value (year 2006)	(440)	million HK$

All Capital (year 2006)	(305)	million HK$
Operations (year 2006)	(135)	million HK$

Financial Characteristics	Revenue generating development, but insufficient to cover operating costs

7 Issues for Consideration

Not attractive to a commercial operator because of small earning capacity and because the theatres are largely dedicated to presenting product which is not commercially-driven. Requires management with knowledge of the small-scale sector.

8 Limitations and Potential Mitigation

Establishment of a new entity to operate would require close and experienced supervision. May be a need to buy in expertise to achieve skills transfer in early years of operation.

9 Private Sector Involvement Options Selected for Testing in the Financial Analysis

Design and Build + Operate, Manage and Maintain

Design Build Finance Maintain + Operate and Manage

Packaged with Commercial Facilities (assumed to be Build Own Operate)

Note: All numbers are rounded to 0 decimal places for presentational ease.
* Except Concert Hall/Chamber Music Hall which is assumed to make full provisions for resident companies and Mega Performance Venue where no provision is required for resident company, all other performing arts venues are assumed to make only basic provisions for resident companies given PATAG recommended that facilities for resident companies could be provided outside the performing arts venues in WKCD. The FA has assumed the OACF will provide 12,000 sq.m. of space for resident companies.

Black Box Theatre 4

1 Physical Parameters

The theatre will be integrated with commercial developments in WKCD. The theatre will be studio style, with no fly-tower or orchestra pit but will have film screening capability.

Seating Capacity (maximum number of seats)		250	seats which can be configured end-stage, traverse, thrust or in the round
Net Operating Floor Area (NOFA)		3,160	sq.m.
Gross Floor Area (GFA)		4,740	sq.m.
NOFA to GFA Ratio of	1:	1.5	
Including:			
Retail Facilities (NOFA)		50	sq.m.
Catering Facilities (NOFA)		70	sq.m.
VVIP Facilities for State Functions and Major Events (NOFA)		-	sq.m.
Resident Company Space (NOFA)*		225	sq.m.

2 Key Development Assumptions

Construction is to take place during Phase 1.

Design and Construction	3	years
Opening	2014	

3 Capital Costs under PSI 1A

Construction and Related Costs (As if undertaken in 2006)	196	million HK$ (2006 prices)
Major Overhaul Costs (As if undertaken in 2006)	130	million HK$ (2006 prices)
Total Capital Costs (As if undertaken in 2006)	327	million HK$ (2006 prices)

4 Key Operating Assumptions under PSI 1A

The theatre will be for all art forms delivered at small scale. Besides rental income, the theatre will enjoy additional income from bars, catering and merchandise sales. The theatres will be as financially self-sustaining as possible. The theatre will have a programming/enterprenuring budget for presenting venue's own programmes including education and ancillary programs. The theatre will operate an independent sponsorship/business partnership unit to cultivate income from the corporate sector. The theatre will close for 2 weeks p.a. for maintenance.

Operator	Not for Profit Operator	
Utilisation	82%	based on days available for hire
Utilisation by Hirers	90%	
Number of Programmes	296	performances
Average Attendance Rate	72%	based on seating capacity
Average Ticket Price	100	HK$

Black Box Theatre 4

5 Operating Costs under PSI 1A (Year 10, when cost and revenues have settled down into their long term trend)

Operational Revenue	4	million HK$ (2006 prices)

Hire Income / Admissions	50%
Retail / Catering / Tenant Income	25%
Programmes	14%
Fundraising	11%
Other Income	0%

Operational Expenditure & Adjustments	10	million HK$ (2006 prices)

Staff Cost	26%
Admin Overheads	3%
Building Maintenance	3%
Cleaning and Security	13%
Utilities	14%
Marketing	2%
Programmes	6%
Other Expenditure (incl. temp. staff, library costs, maintenance of electrical equipment, technical services such as sound and telecom systems, general and specialist supplies, maintenance contracts of office and other equipments, postal services etc.)	32%
Insurance	0%
Rates and Government Rents	1%

Annual Adjusted Operational Surplus / (Deficit)	(6)	million HK$ (2006 prices)
Indicative Operational Cost Recovery Rate	39%	

6 Financial Appraisals under PSI 1A (incl. all capital costs and operating surplus or (deficits) to year 2059)

Net Present Value (year 2006)	(284)	million HK$

All Capital (year 2006)	(185)	million HK$
Operations (year 2006)	(98)	million HK$

Financial Characteristics	Revenue generating development, but insufficient to cover operating costs

7 Issues for Consideration

Not attractive to a commercial operator because of small earning capacity and because the theatres are largely dedicated to presenting product which is not commercially-driven. Requires management with knowledge of the small-scale sector.

8 Limitations and Potential Mitigation

Establishment of a new entity to operate would require close and experienced supervision. May be a need to buy in expertise to achieve skills transfer in early years of operation.

9 Private Sector Involvement Options Selected for Testing in the Financial Analysis

Design and Build + Operate, Manage and Maintain

Design Build Finance Maintain + Operate and Manage

Note: All numbers are rounded to 0 decimal places for presentational ease.
* Except Concert Hall/Chamber Music Hall which is assumed to make full provisions for resident companies and Mega Performance Venue where no provision is required for resident company, all other performing arts venues are assumed to make only basic provisions for resident companies given PATAG recommended that facilities for resident companies could be provided outside the performing arts venues in WKCD. The FA has assumed the OACF will provide 12,000 sq.m. of space for resident companies.

Great Theatre 2 and Medium Theatre 3

1	**Physical Parameters**		**Great Theatre 2**		**Medium Theatre 3**	
	The cluster of theatres will be designed to international standards and will be a stand-alone facility, i.e. not physically clustered with other venues in the Cultural District. The two venues will share both facilities and staff.					
	Seating Capacity (maximum number of seats)		1,900	seats	800	seats
	Net Operating Floor Area (NOFA)		20,325	sq.m.	(combined total)	
	Gross Floor Area (GFA)		30,488	sq.m.	(combined total)	
	NOFA to GFA Ratio of	1:	1.5			
	Including:					
	Retail Facilities (NOFA)		150	sq.m.	100	sq.m.
	Catering Facilities (NOFA)		1,000	sq.m.	250	sq.m.
	VVIP Facilities for State Functions and Major Events (NOFA)		-	sq.m.	-	sq.m.
	Resident Company Space (NOFA)*		600	sq.m.	300	sq.m.
2	**Key Development Assumptions**					
	Construction is to take place during Phase 2.					
	Design and Construction		4	years		
	Opening		2026			
3	**Capital Costs under PSI 1A**					
	Construction and Related Costs (As if undertaken in 2006)		1,644	million HK$ (2006 prices)		
	Major Overhaul Costs (As if undertaken in 2006)		579	million HK$ (2006 prices)		
	Total Capital Costs (As if undertaken in 2006)		2,223	million HK$ (2006 prices)		
4	**Key Operating Assumptions under PSI 1A**					
	Great Theatre 2 will be used for commercial productions (as an overflow facility complementing Great Theatre 1), but will also accommodate major international and local companies. Great Theatre 2 will be available for occasional non-arts hires. Medium-Sized Theatre 3 will be primarily for theatre and dance, with occasional other cultural/entertainment uses, including opera, music and stand up comedy. The theatres will be as financially self-sustaining as possible. Besides rental income, the theatres will enjoy additional income from bars, catering and merchandise sales. The theatres will have a programming/enterprenuring budget for presenting venue's own programmes including education and ancillary programs. The theatres will operate an independent sponsorship/business partnership unit to cultivate income from the corporate sector. The theatres will close for 2 weeks p.a. for maintenance.					
	Operator		Commercial Operator			
	Utilisation		82%	based on days available for hire	82%	based on days available for hire
	Utilisation by Hirers		70%		80%	
	Number of Programmes		296	performances	296	performances
	Average Attendance Rate		72%	based on seating capacity	72%	based on seating capacity
	Average Ticket Price		250	HK$	150	HK$

Great Theatre 2 and Medium Theatre 3

5 Operating Costs under PSI 1A (Year 10, when cost and revenues have settled down into their long term trend)

Operational Revenue	81	million HK$ (2006 prices)

Hire Income / Admissions	35%
Retail / Catering / Tenant Income	11%
Programmes	44%
Fundraising	11%
Other Income	0%

Operational Expenditure & Adjustments	112	million HK$ (2006 prices)

Staff Cost	10%
Admin Overheads	1%
Building Maintenance	2%
Cleaning and Security	8%
Utilities	9%
Marketing	2%
Programmes	39%
Other Expenditure (incl. temp. staff, library costs, maintenance of electrical equipment, technical services such as sound and telecom systems, general and specialist supplies, maintenance contracts of office and other equipments, postal services etc.)	27%
Insurance	0%
Rates and Government Rents	1%

Annual Adjusted Operational Surplus / (Deficit)	(31)	million HK$ (2006 prices)
Indicative Operational Cost Recovery Rate	72%	

6 Financial Appraisals under PSI 1A (incl. all capital costs and operating surplus or (deficits) to year 2059)

Net Present Value (year 2006)	(1,250)	million HK$

All Capital (year 2006)	(939)	million HK$
Operations (year 2006)	(311)	million HK$

Financial Characteristics	Revenue generating development, but insufficient to cover operating costs

7 Issues for Consideration

Experienced commercial management is best placed to connect the Great Theatres with available commercial product globally, and to secure efficiencies of scale through integration with their other operations, beyond HK. If the operator has theatre experience (as distinct from MPV or Convention Centre experience) they may also have the capacity and interest to run some of the smaller theatre facilities to a program specification agreed with the proposed statutory body (although these would not be sufficiently attractive by themselves). This would help to spread the overall risk, by having several management models at play across the WKCD: some facilities could be commercially run and some run by independent non-profit entities.
Individually, Medium Theatre 3 is not attractive to a commercial operator because of small earning capacity and because the theatre is largely dedicated to presenting product which is not commercially-driven. However, bundled with Great Theatre 2, likely to be attractive to commercial operator.

8 Limitations and Potential Mitigation

Current absence of mature commercial operator market in HK. However, by the time Phase 2 of WKCD is triggered, it is likely that there will be either international operators who have established a presence in HK or that suitable local operators will have become established.

9 Private Sector Involvement Options Selected for Testing in the Financial Analysis

Design and Build + Operate, Manage and Maintain

Design Build Finance Maintain + Operate and Manage

Note: All numbers are rounded to 0 decimal places for presentational ease.
*Except Concert Hall/Chamber Music Hall which is assumed to make full provisions for resident companies and Mega Performance Venue where no provision is required for resident company, all other performing arts venues are assumed to make only basic provisions for resident companies given PATAG recommended that facilities for resident companies could be provided outside the performing arts venues in WKCD. The FA has assumed the OACF will provide 12,000 sq.m. of space for resident companies.

Medium Theatre 4

1 Physical Parameters

The theatre will be integrated with commercial developments in WKCD and have a fly-tower and orchestra pit.

Seating Capacity (maximum number of seats)		800	seats
Net Operating Floor Area (NOFA)		6,750	sq.m.
Gross Floor Area (GFA)		10,125	sq.m.
NOFA to GFA Ratio of	1:	1.5	
Including:			
Retail Facilities (NOFA)		100	sq.m.
Catering Facilities (NOFA)		250	sq.m.
VVIP Facilities for State Functions and Major Events (NOFA)		-	sq.m.
Resident Company Space (NOFA)*		300	sq.m.

2 Key Development Assumptions

Construction is to take place during Phase 2.

Design and Construction	3	years
Opening	2026	

3 Capital Costs under PSI 1A

Construction and Related Costs (As if undertaken in 2006)	514	million HK$ (2006 prices)
Major Overhaul Costs (As if undertaken in 2006)	181	million HK$ (2006 prices)
Total Capital Costs (As if undertaken in 2006)	695	million HK$ (2006 prices)

4 Key Operating Assumptions under PSI 1A

The theatre will be primarily for theatre and dance, with occasional other cultural/entertainment uses, including opera, music, stand-up comedy and all-day round shows for tourists. Besides rental income, the theatre will enjoy additional income from bars, catering and merchandise sales. The theatre will be as financially self-sustaining as possible. The theatre will have a programming/enterprenuring budget for presenting venue's own programmes including education and ancillary programs. The theatre will operate an independent sponsorship/business partnership unit to cultivate income from the corporate sector. The Theatre will close for 2 weeks p.a. for maintenance.

Operator	Not for Profit Operator	
Utilisation	82%	based on days available for hire
Utilisation by Hirers	80%	
Number of Programmes	296	performances
Average Attendance Rate	72%	based on seating capacity
Average Ticket Price	150	HK$

Medium Theatre 4

5 Operating Costs under PSI 1A (Year 10, when cost and revenues have settled down into their long term trend)

Operational Revenue	17	million HK$ (2006 prices)

Hire Income / Admissions	46%
Retail / Catering / Tenant Income	13%
Programmes	30%
Fundraising	11%
Other Income	0%

Operational Expenditure & Adjustments	30	million HK$ (2006 prices)

Staff Cost	15%
Admin Overheads	2%
Building Maintenance	2%
Cleaning and Security	9%
Utilities	11%
Marketing	3%
Programmes	24%
Other Expenditure (incl. temp. staff, maintenance and operation of electrical equipment, provision, maintenance and operation of stage lighting services, provision of technical sound services, maintenance and operation of electrical, mechanical, electronic, telecommunication equipment and systems, stores, equipment, professional services, materials, supplies etc.)	32%
Insurance	0%
Rates and Government Rents	1%

Annual Adjusted Operational Surplus / (Deficit)	(13)	million HK$ (2006 prices)
Indicative Operational Cost Recovery Rate	57%	

6 Financial Appraisals under PSI 1A (incl. all capital costs and operating surplus or (deficits) to year 2059)

Net Present Value (year 2006)	(412)	million HK$

All Capital (year 2006)	(289)	million HK$
Operations (year 2006)	(123)	million HK$

Financial Characteristics	Revenue generating development, but insufficient to cover operating costs

7 Issues for Consideration

Individually, not attractive to a commercial operator because of small earning capacity and because the theatre is largely dedicated to presenting product which is not commercially-driven.

8 Limitations and Potential Mitigation

Establishment of a new entity to operate would require close and experienced supervision. May be a need to buy in expertise to achieve skills transfer in early years of operation.

9 Private Sector Involvement Options Selected for Testing in the Financial Analysis

Design and Build + Operate, Manage and Maintain

Design Build Finance Maintain + Operate and Manage

Note: All numbers are rounded to 0 decimal places for presentational ease.
* Except Concert Hall/Chamber Music Hall which is assumed to make full provisions for resident companies and Mega Performance Venue where no provision is required for resident company, all other performing arts venues are assumed to make only basic provisions for resident companies given PATAG recommended that facilities for resident companies could be provided outside the performing arts venues in WKCD. The FA has assumed the OACF will provide 12,000 sq.m. of space for resident companies.