

**For discussion
on 23 June 2003**

LegCo Panel on Economic Services

Helicopter Traffic Demand and Heliport Development in Hong Kong

Introduction

Members were last briefed about helicopter services in Hong Kong at the Panel meeting on 17 July 2001. This paper briefs Members on the findings of the Consultancy on Helicopter Traffic Demand and Heliport Development in Hong Kong commissioned by the Civil Aviation Department (CAD).

Background

2. Commercial helicopter operations can be categorized into two types: cross-boundary and domestic helicopter services. Cross-boundary services refer to helicopter services between Hong Kong and the Pearl River Delta (PRD), with Macau being the main serviced point. Domestic services comprise mainly local tourism and scenic tours, air lifting, aerial surveying and photography.

3. There has been continuous growth in helicopter services between Hong Kong and other parts of the PRD as well as domestic tourism flights. To assist the Government in formulating a strategy on the further development of helicopter services, CAD commissioned a Consultancy Study on “Helicopter Traffic Demand and Heliport Development in Hong Kong” (the Consultancy Study) in April 2001. The objectives of the study are –

- (a) to assess the future demand for cross-boundary and domestic

helicopter services in Hong Kong;

- (b) to examine the suitability of two potential heliport sites, namely the outer pier of the Macau Ferry Terminal and the former Kai Tak Airport;
- (c) to identify the best development options for heliports in the urban area; and
- (d) to propose a comprehensive plan for the development, funding and future management of heliports.

4. The Consultancy Study was completed in August 2002. A copy of the Executive Summary of the Consultancy Report is attached for Members' reference.

Findings of the Consultancy Study

Continued growth in helicopter services

5. Over the last decade, helicopter services between Hong Kong and Macau have exhibited significant growth from around 14,000 passenger trips in 1991 to some 108,000 passenger trips in 2001, an average annual growth rate of 23%. Domestic helicopter services, in particular tourism/charter flights have also increased steadily. It was estimated that in 2001, 60% of the total 3,600 commercial flight movements were tourism/charter flights.

6. The Consultancy Study projects that there would be continued growth in both cross-boundary and domestic helicopter services. The continuing economic development and increasing integration in the PRD region accords a market for cross-boundary helicopter travel, in particular for time-sensitive travelers. The Consultancy Study estimates that cross-boundary helicopter services will grow at an average growth rate of about 9.4% per annum over the period 2001 to 2020, reaching some 597,000 passenger trips by end 2020. Potential demand for domestic commercial helicopter services is estimated to grow by an average rate of 5.3% over the same period,

reaching some 9,600 movements by 2020, with tourism/charter flights being the main driver for growth.

Demand for heliports

7. Facilities for the operation of cross-boundary helicopter services are currently available at the rooftop of the inner pier of the Macau Ferry Terminal (MFT). The one landing/take-off pad thereat provides for up to about 30,700 flight movements per year. Based on the forecast demand, this heliport will reach maximum capacity in 2005. A small number of cross-boundary helicopter flights to Guangzhou use the Business Aviation Centre at the Hong Kong International Airport. Domestic helicopter services currently operate from the Central Heliport at Lung Wui Road which provides two landing/take-off pads and four parking pads. The Central Heliport will need to be vacated in November 2003 as the site is required for works under Central Reclamation Phase III works.

8. The Consultancy Study affirms the need for additional heliports to cater for the forecast growth in both cross-boundary and domestic helicopter services. Cross-boundary heliports and domestic heliports each have unique site requirements aside from the common need for unobstructed flight paths. For example, customs, immigration and quarantine (CIQ) facilities are required for cross-boundary services. For domestic helicopter services, since most services are operated by single-engine helicopters which consume less fuel and are smaller in size (with all seats being window seats to cater for scenic tours), according to safety requirements set by the International Civil Aviation Organization, a surface-level heliport is required.

Cross-boundary heliport

9. In the short term, demand for cross-boundary heliport facilities in the urban area is expected to exceed the existing capacity, and to meet the anticipated growth, the Consultancy Study recommends that the existing facilities at the roof-top of the MFT be expanded by adding a taxiway and a landing/take-off pad. With the proposed expansion, the capacity at MFT will be expanded by 80% and can handle an additional

24,500 movements each year. This is the development option which can enhance the operations of the MFT heliport in the shortest possible time to meet the anticipated demand up to 2015.

10. Additional facilities will be required beyond 2015 to cater for the expected continuing strong growth in cross-boundary services to 2020 and beyond. For the medium to long term, the Study assessed the two other site options which can meet anticipated demand beyond 2020:

- (a) development of the western half of the MFT outer pier. An additional landing/take-off pad and two parking pads can be built. The capacity at MFT will be further expanded by 63% and can handle a further 34,500 helicopter movements a year. CIQ facilities are available from the existing cross-boundary heliport and ferry operations but retro-fitting of the existing pier to accommodate the development will be required; or
- (b) building of a new heliport on the roof-top of the proposed cruise terminal at the tip of the ex-Kai Tak runway. A heliport consisting of one landing/take-off pad and a maximum of seven parking pads can be built on the rooftop of the proposed cruise terminal building, providing up to 99,600 helicopter movements per year. CIQ facilities will be available with the development of the cruise terminal. There is also possible synergy from the neighbouring planned tourism uses. A number of problems e.g. potential visual impact of an elevated heliport on top of a multi-storey cruise terminal building will have to be addressed to ensure overall visual compatibility for both Southeast Kowloon and Victoria Harbour.

As a long term option, the Study recommends the development of the eastern half of the MFT outer pier, if demand so warrants.

Domestic heliport

11. To spur the development of domestic commercial helicopter services and in turn lend support to the development of tourism in Hong

Kong, the Consultancy Study recommends that a permanent surface level heliport be developed in the urban area. Given the nature of the expanding market i.e. premium and tourism/charter services, an easily-accessible heliport in close proximity to major hotels and business and conference facilities is considered necessary. It is recognized in the Study the difficulty of identifying sites in the urban area which can meet the technical requirements for a domestic heliport. Nevertheless, the Study recommends that opportunities may still exist in areas where the land uses are currently being reviewed by Government. A case in point is the West Kowloon Reclamation (WKR), which could potentially accord a well-placed site for the development of a surface-level heliport. We, however, note that the operation of a heliport there may not be entirely compatible with the design of the arts and cultural facilities being planned.

12. The industry has also requested the Government to allow commercial uses at the helipad planned outside the Hong Kong Convention and Exhibition Centre but we fully understand the clear views of the Legislative Council that the helipad should be confined to Government and emergency uses.

13. The Government has been actively searching for suitable sites on both sides of the harbour to provide for a permanent domestic heliport. However, given the strong public objection to further reclamation in the harbour for commercial uses and the potential clashes with other existing waterfront uses, it is unlikely that an ideal site for a permanent domestic heliport can be identified. Some form of compromise in terms of location or size will probably be required.

Development mode

14. The Consultancy Study recognizes that expertise is already available in the private sector in the development of cross-boundary heliports. However, private sector interest in building and operating a large-scale cross-boundary heliport infrastructure can be limited given its low financial return relative to the size of the required investment at least from the perspective of private investors. The Study therefore recommends that Government encourages the participation of the private

sector in developing a cross-boundary heliport by structuring a mechanism to facilitate a reasonable return to private investors under an appropriate form of public-private partnership framework. Over time, when the state of development of the helicopter market is more firmly established, private sector participation in the development of larger scale heliports is likely to be more easily pursued.

15. As regards development of a permanent domestic heliport, similar to the case of cross-boundary heliport where the development would unlikely be attractive to private investors especially if land cost is also factored in, Government could play a catalyst role in sustaining and enhancing growth through timely provision of a suitable site and supporting infrastructure for a dedicated surface level heliport. The development and management of the heliport could be left to the private sector through competitive bidding.

Economic Benefits

16. A broad-brush economic assessment carried out as part of the Consultancy Study indicated that the development of a large-scale heliport facility could generate fairly substantial economic benefits to the community in terms of value added. It is estimated that partial expansion of the MFT heliport (inner pier and western half of outer pier) could potentially generate net economic contributions (in present value terms in 2001 prices) in the region of HK\$400 million to HK\$2,400 million and broadly creating some 700 to 4,100 jobs. Other intangible but no less important benefits to the community at large include the reinforcement of Hong Kong as an international and regional aviation hub and the enhancement of tourism by expanding the portfolio of tourism products available.

Way Forward

17. Since completion of the Consultancy Study, we have been taking action to address the more immediate development issues identified in the Study. We are actively exploring options in the urban area for developing a permanent domestic heliport which can cater to

both the operational requirements of operators as well as address any potential environmental concerns. In the interim, with the imminent closure of the Central Heliport in November 2003, we have identified a site on the WKR for temporary use as a heliport. A tender exercise will be conducted very shortly to identify a developer-cum-operator for the temporary heliport.

18. As regards the recommendations for cross-boundary helicopter services, we take on board the recommendation to expand the existing heliport facilities on the rooftop of the MFT inner pier to cater for anticipated demand in the short term. We are considering the appropriate institutional arrangement. In parallel, we are actively looking into the feasibility of a cross-boundary heliport at the proposed cruise terminal.

Views sought

19. Members are invited to comment on the findings and recommendations of the Consultancy Study.

Civil Aviation Department
June 2003



香港民航處
Civil Aviation Department
of Hong Kong

Helicopter Traffic Demand and Heliport Development in Hong Kong

Executive Summary



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1 INTRODUCTION

- 1.1 The Study on Helicopter Traffic Demand and Heliport Development in Hong Kong (the Study) was commissioned by the Civil Aviation Department of Hong Kong (CAD) in April 2001 to formulate a comprehensive strategy on the development, funding and future management of heliport facilities in the Hong Kong Special Administrative Region (HKSAR).
- 1.2 The Study took place against the backdrop of an earlier site search initiated by the Government in early 2000 given the need to re-provision the domestic commercial helicopter facilities at the existing Central Heliport before its closure in mid 2003 as well as the requirement for additional helicopter landing facilities in the urban area to cater for the potential traffic growth between Hong Kong and destinations in the Pearl River Delta (PRD).
- 1.3 The comprehensive search resulted in the identification of five potential sites, of which two sites, one at the outer pier of the Macau Ferry Terminal (MFT) and the other on the rooftop of the planned cruise terminal at the tip of the ex-Kai Tak runway as part of the Southeast Kowloon Development (SEKD), have been considered to be worth further investigation. Both sites have been subject to further evaluation in the present Study.

- 1.4 This Executive Summary summarises the main findings and conclusions of the Study, a full account of which is contained in two separately bound volumes – the Final Report, and the follow-on, Further Technical Research Paper.



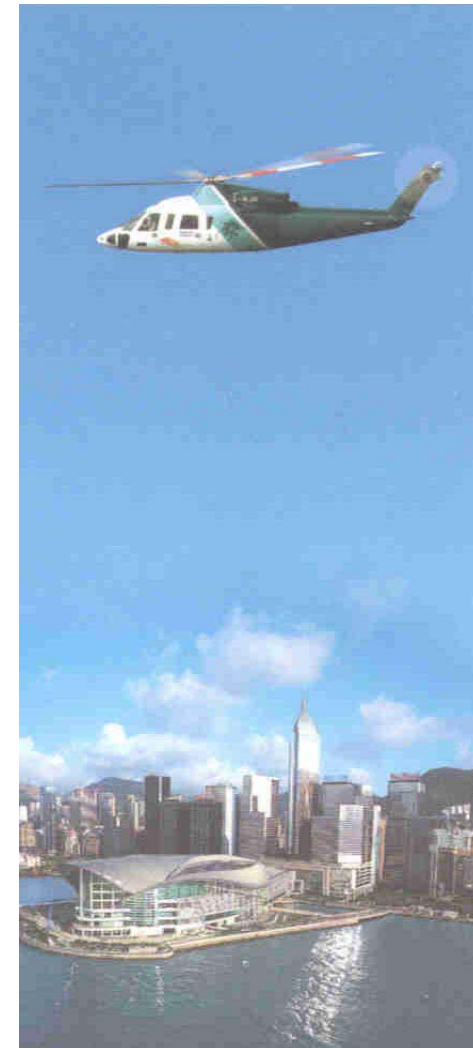
City of Hong Kong

Source: HKSAR Government

2 STUDY OBJECTIVES

2.1 In essence, the main thrusts of the Study are four-fold:

- to conduct a detailed investigation into the future demand for domestic and cross-boundary helicopter services in Hong Kong;
- to evaluate the two potential elevated heliport sites (i.e. the MFT outer pier and rooftop of the planned cruise terminal at the tip of the ex-Kai Tak runway at SEKD) and other potential surface level sites;
- to identify the best option(s) for heliport development in the urban area; and
- to formulate a comprehensive strategy for the development, funding and future management of the helicopter facilities.



Helicopter Services in HK

Source: HelHongKong

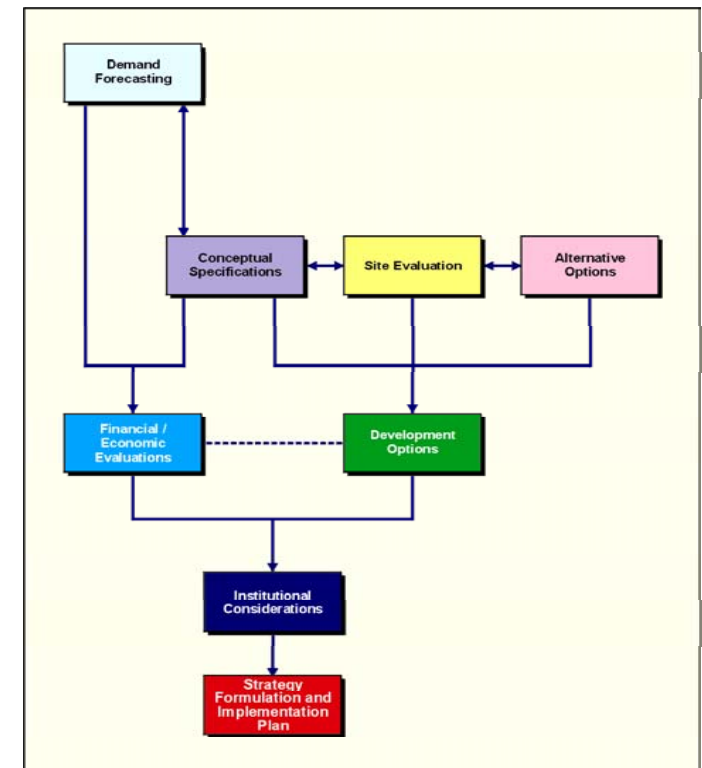
3 STUDY APPROACH

3.1 The Study methodology has been developed around four main activities: desk research, industry consultations, discussions with relevant Government agencies and analysis of findings.

3.2 These activities formed the basis of the adopted Study process, which revolved around the following major tasks:

- assessment of the future demand for cross-boundary and domestic helicopter services by market segments;
- establishment of the operational and facility requirements taking into account, amongst others, the results of the demand assessment and internationally recognised standards and guidelines for elevated and surface level heliports;
- evaluation of the comparative advantages and constraints of the two proposed elevated heliport sites – MFT outer pier and on the rooftop of the proposed cruise terminal at the tip of the ex-Kai Tak runway at SEKD – and other potential surface level sites;
- examination of alternative options to meet any shortfall in capacity where appropriate, and the identification of the best option(s) for heliport development in the urban area;
- broad brush economic impact assessment and financial analysis;

- assessment of potential funding and management options; and
- formulation of a comprehensive strategy for the development of the helicopter industry in Hong Kong.



Study Process

Source: MVA

4 PRINCIPAL FINDINGS OF MARKET ASSESSMENT

Cross-boundary Services

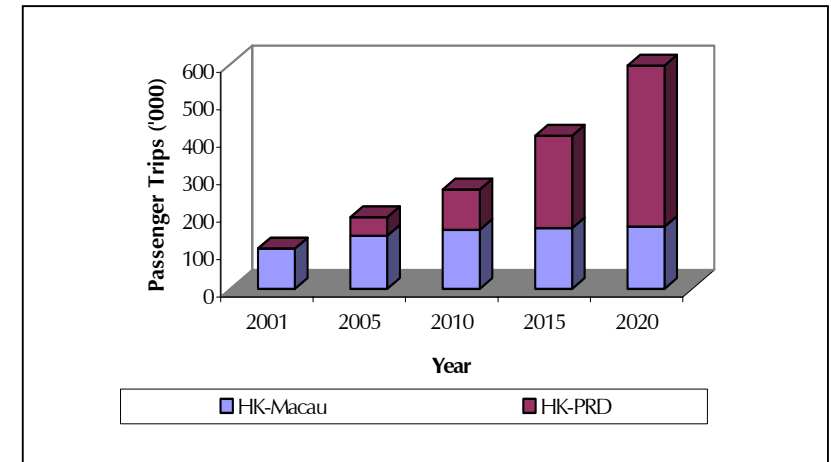
- 4.1 Over the last decade, the cross-boundary helicopter shuttle service between Hong Kong and Macau has exhibited continued growth since its commencement towards the end of 1990. The number of passenger trips have increased from around 14,000 in 1991 to some 108,000 passenger trips in 2001, with growth averaging some 23% per annum over the period.
- 4.2 The growth momentum in the Hong Kong – Macau service is expected to continue to be sustained with the continuing economic development as well as new planned attractions at both destinations, including amongst others, the Hong Kong Disneyland and the resort and tourism infrastructure developments associated with the new gaming franchises in Macau.
- 4.3 Other than to Macau, the demand for helicopter travel to new destinations in the PRD is at present very much an undeveloped market offering potential for tremendous growth in the face of increasing business, social, economic and political ties between Hong Kong and the PRD as well as the increasing affluence of the general population in the PRD.
- 4.4 This development of the Hong Kong/PRD as an increasingly integrated region has resulted in dramatic increase in demand for cross-boundary travel, coupled with significant development of transport infrastructure and services within the PRD. Although foreign investment in the PRD slowed slightly in the late 1990s, the demand for cross-boundary travel has grown at an average of 14% per annum since 1995, reaching some 108 million passenger trips in 2000. This sheer number of people crossing the boundary potentially accords a market for helicopter travel, in particular for time-sensitive business travellers as well as a proportion of leisure travellers seeking a hassle-free way to cross the boundary.



Hong Kong – Macau Shuttle

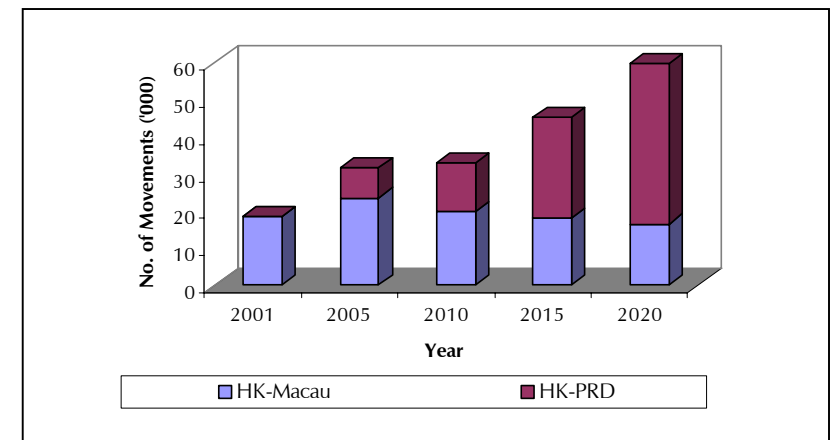
Source: HeliHongKong

- 4.5 Whilst there are several cross-boundary travel options, which are mostly of reasonable quality and relatively inexpensive, they are nevertheless relatively time consuming especially given the congestion at cross-boundary control points and that most of these travel options require interchanges to reach their destinations. Thus helicopter travel, despite its higher cost, has the potential to offer speed, reliability and akin to a point-to-point service, at least for certain “higher worth” and “time-sensitive” market segments;
- 4.6 The recent entry into the market of a new cross-boundary helicopter operator is further testament to the potential of this market.
- 4.7 Assuming that the appropriate heliport facilities could be made available in Hong Kong to aid operators’ plans to continue to expand the existing Hong Kong-Macau service and progressively open up new cross-boundary destinations in the PRD, future demand in cross-boundary helicopter services has been estimated at about 192,000 passenger trips by 2005, representing an average growth of some 16% per annum over the period 2001 to 2005.
- 4.8 Demand for cross-boundary helicopter services are expected to grow to 266,000 passenger trips by 2010, 409,000 by 2015 and reaching some 597,000 by the end of the forecasting period in 2020. Overall, the demand for cross-boundary services is expected to grow at an average growth rate of about 9.4% per annum over the period 2001 to 2020.



Growth in Cross-boundary Helicopter Passenger Trips 2001-2020

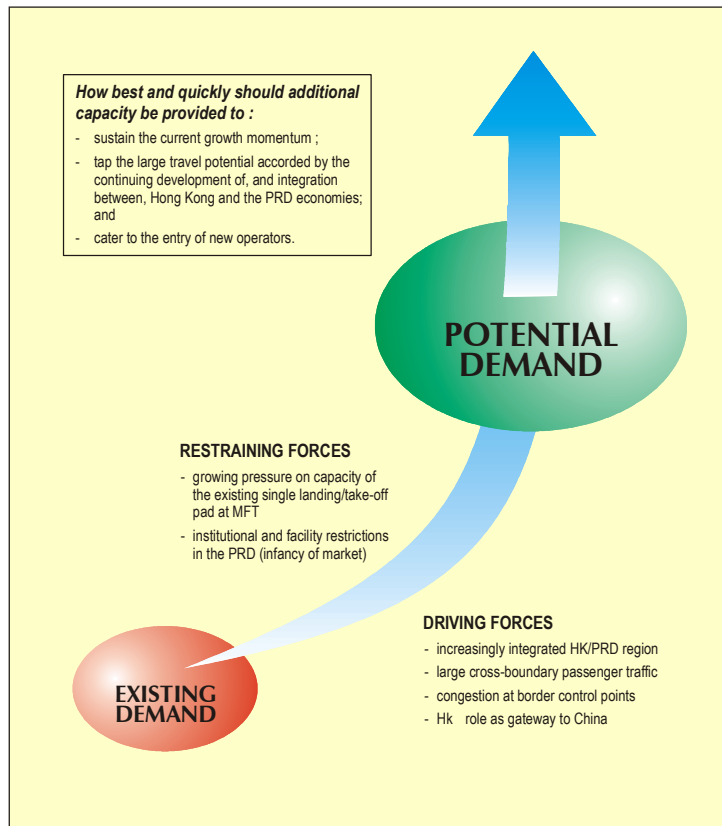
Source: MVA



Growth in Cross-boundary Helicopter Movements 2001-2020

Source: MVA

4.9 Notwithstanding the huge market potential for cross-boundary services, there are certain issues that need to be addressed in developing helicopter travel between Hong Kong and the PRD.



Implications of Potential Cross-boundary Helicopter Demand Growth for Hong Kong



MFT Heliport

Source: HeliHongKong



Passenger Amenities in Hong Kong & Macau

Source: MVA/HeliHongKong/EAA

Domestic Services

- 4.10 Traditionally, lifting services have represented a significant portion of helicopter operators' revenues from domestic operations, but this revenue mix has been changing in recent years as operators "diversify" into passenger carrying charter/sightseeing services.
- 4.11 In 2001, tourism/charter helicopter services have been estimated to account for some 60% of the total commercial movements for that year. This is consistent with the changing product scene in the last couple of years where increasingly there are more discrete and clearly defined tourism products being offered.
- 4.12 Internationally in several of the large tourism markets, non-Class 1 performance helicopters (which are mainly single-engine helicopters e.g. AS350) tend to form the backbone of domestic helicopter services due to the lower operating cost of smaller helicopters. However in Hong Kong, the current fleet of such helicopters (primarily of single engine) is still relatively small. This is largely a reflection of existing market conditions, which require operators to operate at least part of their services from elevated heliports, where non-Class 1 performance helicopters are not permitted to operate for regulatory and safety reasons.

- 4.13 However, given the opportunities to expand the charter/tourism related market segment, existing operators are actively exploring the possibility of increasing their fleet of non-Class 1 performance helicopters. To this end, one of the commercial helicopter operators has recently acquired two new 6-seater single engine helicopters, adding further impetus to provide on-going suitable facility to accord operators the opportunity to realise the expansion of the charter/tourism related market segment.



4.14 Sustaining the growth and development of this market segment is however potentially complicated by the following two restraining forces:

- the lack of passenger facilities and amenities at the current Central Heliport; and
- the planned closure of the Central Heliport by mid 2003, and the need thereafter to operate with severe restrictions at the Government Flying Service (GFS) temporary helipad facility in Wanchai public cargo working area (PCWA) to 2007.

4.15 The forecasts for domestic commercial helicopter services have thus been developed under two scenarios:

- assuming no dedicated surface level heliport is to be provided, with operators continuing to use alternative temporary facilities following the closure of the Central Heliport in mid 2003. In this scenario, no comprehensive range of helicopter tourism products is envisaged, with only a slow rate of investments in non-Class 1 performance helicopters by operators; and
- assuming a dedicated surface level heliport could be made available by 2005 together with major investments in non-Class 1 performance helicopters by operators. In this scenario, a comprehensive range of tourism products is envisaged to be developed.



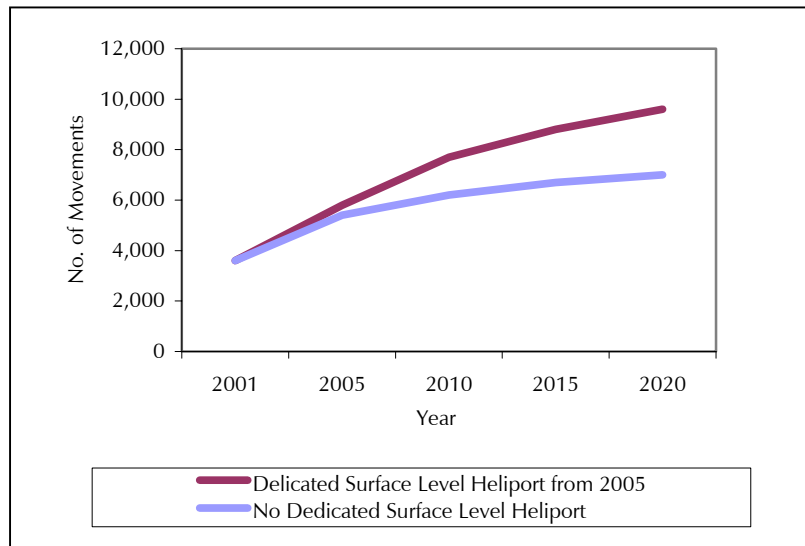
Central Heliport

Source: HeliServices

4.16 Assuming a dedicated surface level heliport could be made available by 2005, future demand for domestic commercial helicopter services could potentially reach some 5,800 movements by that year. This equates to an average annual growth of 12.8% over the period 2001 to 2005. Future domestic commercial movements are projected to grow to about 7,700 movements by 2010, 8,800 movements by 2015 and hitting some 9,600 movements by 2020, giving an annual average growth rate of 5.3% over the period 2001 to 2020.

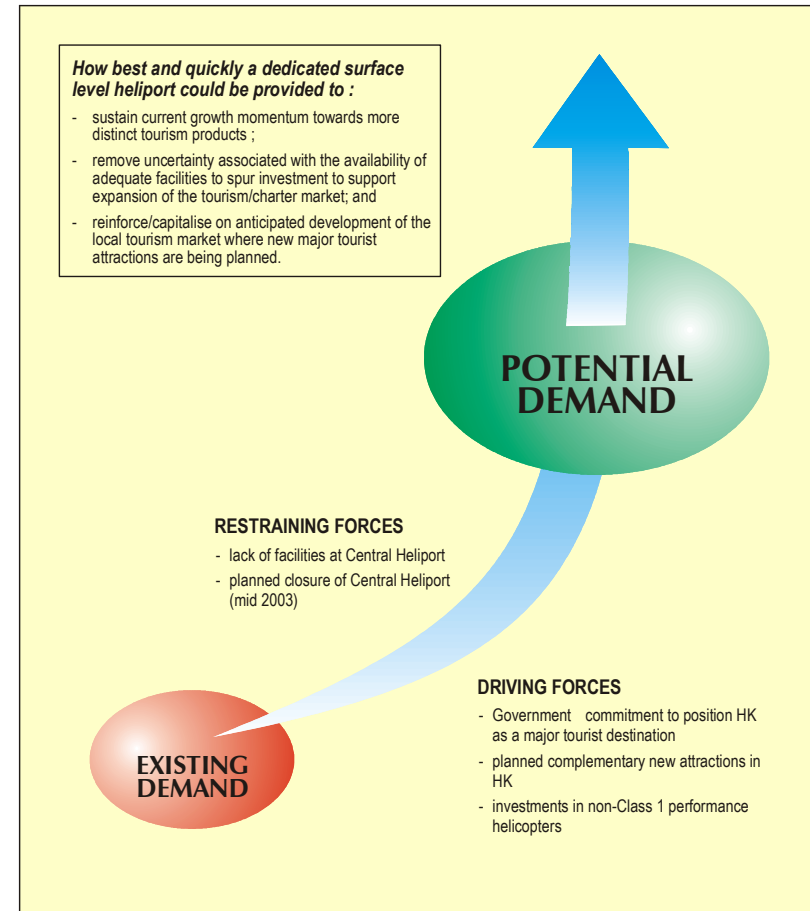
4.17 When viewed by tourism/charter movements, the potential rate of growth is even higher, expanding from an estimated 2,300 movements in 2001 to about 4,500 movements in 2005 and reaching nearly 8,100 movements by 2020. This gives an overall average annual growth rate of 6.8% over the period 2001 to 2020.

4.18 However, under the scenario where no dedicated surface level heliport will be provided, the current growth momentum could only be sustained in the short term, resulting in only 7,000 movements expected to be reached by 2020. This equates to an average annual growth of only 3.5%. Similarly, tourism/charter movements are expected to post an average growth of only 4.7% per annum over the period 2001 to 2020.



Growth in Total Domestic Commercial Movements 2001-2020

Source: MVA



Source: MVA

Implications of Potential Domestic Commercial Helicopter Demand Growth for Hong Kong

5 DEVELOPMENT & APPRAISAL OF OPTIONS

5.1 Following from the results of the site search initiated by the Government, the Study has specifically examined the suitability of the two potential sites in the urban area of HKSAR, namely, the outer pier at MFT and on the rooftop of the proposed cruise terminal at SEKD. The results of the evaluation, carried out against a set of performance criteria, are summarised in the following table:



Source: HeliHongKong

MFT Heliport

Criteria	Heliport Site Options	
	Outer Pier at MFT	Rooftop of Cruise Terminal at SEKD
Ability to cater to 2020 demand	High	High
Ability to meet short term demand	Low	Impossible
Ability to meet a higher demand forecast	Low	High
Ability to meet design & operational requirements	Medium <ul style="list-style-type: none"> Need to retrofit an existing facility Need to examine feasibility of reprovisioning the existing Vessel Traffic Control/Marine Rescue Control Coordination facilities if eastern half of pier is to be developed 	High <ul style="list-style-type: none"> Essentially a "green field" site Potential adverse visual impact due to height of heliport required to clear cruise vessels berthed alongside the cruise terminal
Ability to cater to domestic passengers	Low <ul style="list-style-type: none"> Constraint on helicopter type using elevated facility Complications/inefficiencies on need to segregate from cross-boundary passengers 	Low to Medium <ul style="list-style-type: none"> Constraint on helicopter type using elevated facility Complications/inefficiencies on need to segregate from cross-boundary passengers, though this could be alleviated to an extent by design
Impact on timing	Medium to high <ul style="list-style-type: none"> Facility operational at the earliest by 2007/2008 	High <ul style="list-style-type: none"> Unlikely to be operational before 2012 Earlier availability timing of 2008 still unknown at time of Study
Impact on environmental issues	Low to medium	Low
Impact on land use procedures	Low to medium	Low
Level of transport accessibility	High <ul style="list-style-type: none"> Close to Central Business District Well served by public transport Availability of alternative cross-boundary transport mode in immediate vicinity i.e. ferry 	Medium <ul style="list-style-type: none"> Planned to be well served by public transport Unlikely to have alternative cross-boundary transport mode in immediate vicinity
Level of supporting facility	High <ul style="list-style-type: none"> CIQ and lounge facilities are available from existing heliport/ferry operations 	Medium to High <ul style="list-style-type: none"> Dependent on development of complementary facilities from cruise terminal operation Possible synergy from neighbouring planned tourism nodes

Source: MVA

5.2 In essence, the above evaluation results revealed the following critical issues:

Cross-boundary Services

- in the short term, demand for cross-boundary heliport facilities is expected to be greater than existing capacity;
- the existing cross-boundary facility at MFT would be under severe pressure if both cross-boundary flights (other than to Macau) and domestic flights are to be operated out of the existing facility. The pressure could however be alleviated if MFT is to be used exclusively for cross-boundary services only. Even so, some form of expanded heliport facility at the inner pier is required to be made available by 2005. In addition, the segregation of cross-boundary from domestic passengers, whilst technically feasible, is not preferred from an operation and security perspective;
- the outer pier at MFT is available for development but will require a lead-time of between 5-6 years, with the earliest possible schedule for operation estimated as 2008;



Class 1 Performance Helicopters

- outcome of the evaluation of the potential for reprovisioning the Vessel Traffic Control/Marine Rescue Control Coordination (VTC/MRCC) facilities at the outer pier of the MFT site will have an impact on the ultimate cost and timing of the eastern half of the MFT outer pier development; and
- although there are plans to fast-track development of the cruise terminal at SEKD to 2008, such development timeframe is not known with certainty and as such could not be relied upon at least at the time of this Study. The earliest timeframe indicated in the SEKD Study for the building of the cruise terminal is no earlier than 2012.

Domestic Services

- the restrictions on helicopter type to be used for an elevated heliport facility are not conducive to the development of tourism/charter flights, which are primarily single engine. In addition, as noted above, the need to segregate from cross-boundary passengers is a further complication, reflecting their different operational needs;
- following the closure of the Central Heliport in mid 2003, domestic services are required to operate with restriction at the GFS temporary helipad at Wanchai PCWA to 2007; and
- this state of development could thus stifle the longer term development potential of domestic helicopter services in Hong Kong, in particular in relation to sightseeing tours unless a dedicated surface level heliport could be earmarked for domestic services.



- 5.3 Against the above backdrop, an over-riding criterion has been to formulate a development strategy which provides adequate facilities in the short, medium and long term such that commercial helicopter services in Hong Kong have room to expand and develop to meet market needs and potential. The development options are outlined below:

Cross-boundary Services

- Addition of new landing/take-off pad and taxiway at the existing MFT inner pier heliport
- Development of western half of MFT outer pier – 1 landing/take-off pad & 2 parking stands
- Development of entire MFT outer pier – 2 landing/take-off pads & 3 parking stands
- Development on rooftop of SEKD cruise terminal - 1 landing/take-off pad & 7 parking stands

Domestic Services

- Development of a dedicated surface level heliport



Commercial Helicopter Operators in Hong Kong

6 MFT INNER PIER HELIPORT EXPANSION & IMPACTS ON FUTURE DEVELOPMENT OPTIONS

- 6.1 Given that in the short term the demand for cross-boundary heliport facilities is expected to be greater than existing capacity, the Study has focused on establishing the general feasibility of possible expansion options which have the potential to increase both the operating capacity and flexibility of the existing MFT inner pier heliport.
- 6.2 The Study has established that this could be achieved, from a general engineering and flight technical perspective, through the addition of a second landing/taking-off pad to the east of the existing landing/take-off pad, which are to be inter-connected by a new taxiway. This landing/take-off pad could potentially be built to cater to the next generation of large helicopters such as the S92 helicopter, the implementation of which could enable the inner pier heliport to meet the expected cross-boundary demand up to around 2015.
- 6.3 From the perspective of environmental acceptability, however, the expansion possibility could be limited to the addition of a new landing/take-off pad strong enough to cater to only S76C+ helicopters (- the existing largest commercial helicopter in operation in Hong Kong). Notwithstanding that, the introduction of a S92 landing/taking-off pad remains a distinct possibility subject to a detailed environmental impact assessment (EIA) to establish amongst others the extent of screening that could potentially be accorded by the two existing Shun Tak Commercial Towers.
- 6.4 In any event, as the addition of a second landing/taking-off pad at the MFT inner pier heliport constitutes a 'Designated Project' under the EIA Ordinance, besides the need to conduct an EIA, an 'Environmental Permit' would also need to be granted by the authorities for its construction and operation.
- 6.5 Given the urgency to provide additional capacity to meet the anticipated demand and the need to conduct an EIA under the EIA Ordinance, the preparatory work would need to be commenced as soon as possible with a view for the expanded facility to be available in the shortest possible time, currently anticipated to be by end 2005.
- 6.6 In order to meet the medium term demand up to 2020, new facilities would have to be introduced when the expanded inner pier heliport reaches capacity. There are two possibilities in the medium to longer term:
- developing the MFT western outer pier; or
 - building a new heliport on the rooftop of the planned cruise terminal in SEKD.
- 6.7 The medium-term development programme would need to be re-evaluated at around 2008 to 2010 to establish the appropriate development options and timing on the basis of the prevailing growth of the helicopter market in Hong Kong and PRD.

7 ECONOMIC BENEFITS

- 7.1 A broad-brush economic assessment carried out as part of this Study has indicated that the development of a large-scale heliport facility could generate fairly substantial economic benefits to the community in terms of value added.
- 7.2 For illustration purposes, the expansion of the MFT inner pier and development of the western outer pier could potentially generate net economic contributions (expressed in present value terms in constant 2001 prices, end 2002 NPV base year, assuming a real discount rate of 4% per annum) in the region of HK\$400 million to HK\$2,400 million and broadly creating some 700 to 4,100 jobs depending on the assumed multiplier and crowding-out effects.
- 7.3 There are also other intangible but no less important benefits to the community at large:

Promotion of HKSAR as an International and Regional Aviation Hub

- The provision of new/expanded heliport facilities will aid in the development of a larger range of helicopter services offered in Hong Kong, both domestic and cross-boundary. This is consistent with, and will reinforce, the current efforts in the SAR to provide world class infrastructure and thus will further enhance Hong Kong's role as a regional and international aviation hub;

Enhancement of the Tourism Industry

- The development of a heliport can also serve to enhance tourism in Hong Kong by expanding the portfolio of tourism products available. Such enhanced offering of new helicopter tourism products together with other new tourist attractions such as the Hong Kong Disneyland would play an important contributory role in Hong Kong's economic growth over the longer term; and

Government Policy Benefits

- The development of new/expanded heliport facilities is in line with the Government's commitment to position Hong Kong as a major tourist destination (with expanded tourism-oriented helicopter services) as well as a gateway to the PRD and its hinterland (with the advent of new and diversified cross-boundary helicopter services in the future). It also supports the overall vision of transforming Hong Kong into Asia's World City, and a major city in China.

8 CONCLUSIONS

- 8.1 **There is potential for growth in the market for cross-boundary helicopter services in Hong Kong.** Over the last decade, the cross-boundary helicopter shuttle service between Hong Kong and Macau has exhibited continued growth since its commencement towards the end of 1990.
- 8.2 The estimated demand to 2020 has indicated a clear potential for growth in cross-boundary services to Macau and other destinations in the PRD. As soon as cross-boundary routes are available to new destinations in the PRD, the demand for helicopter services and, consequently, heliport facilities is expected to increase rapidly.
- 8.3 **Similarly, there is potential for domestic commercial helicopter services to exhibit strong growth especially if a permanent dedicated surface level heliport is made available.** Over the last 5 years, the growth in total helicopter movements at the Central Heliport averaged just over 18% per annum.



S92 Helicopter

Source: Sikorsky

- 8.4 The estimated demand to 2020 has indicated a clear potential for development of the market for domestic commercial helicopter services if a dedicated surface level heliport could be made available. This is expected to be underpinned by growth in the tourism/charter related market segment where the availability of a permanent surface level facility will help to remove the uncertainty associated with the availability of adequate facilities to spur the much needed critical investment in non-Class 1 performance helicopters to aid expansion of the tourism/charter market.
- 8.5 Furthermore, introducing domestic services together with cross-boundary services in MFT is not a preferred solution from an operating viewpoint due to the need to segregate the two types of passengers for the entire embarkation, disembarkation and waiting process.
- 8.6 **The expansion of heliport facilities could generate fairly substantial benefits to the Hong Kong economy** as well as other intangible but no less important benefits to the community at large.



MFT Heliport

Source: EAA

9 RECOMMENDATIONS – CROSS-BOUNDARY HELICOPTER SERVICES

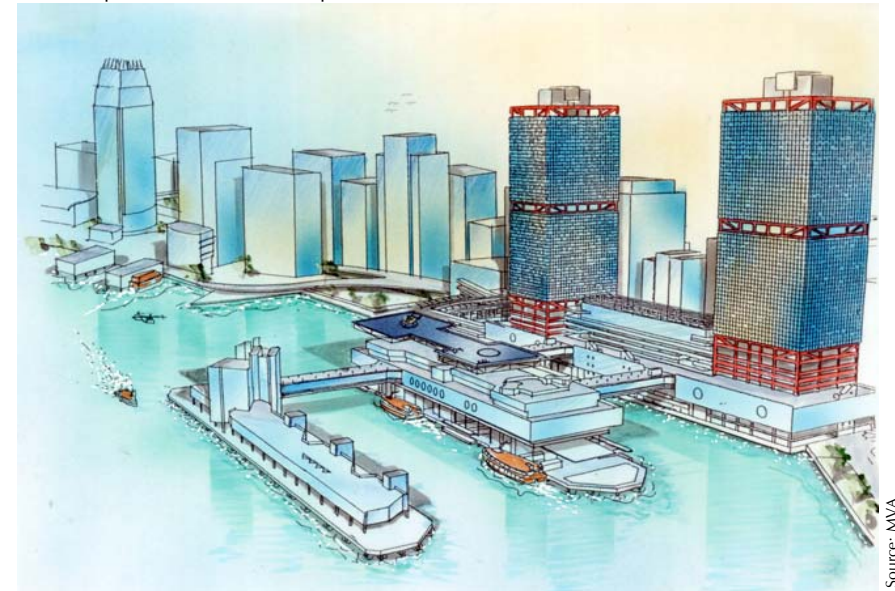
9.1 In the short term, demand for cross-boundary heliport facilities in the urban area is expected to exceed the existing capacity, and to meet this anticipated growth, critical expansion works have first to be carried out to the existing facility at the MFT inner pier as soon as possible. At a minimum, an additional landing/take-off pad, which is to be linked to the existing pad by a new taxiway, should be built.

- The addition of another landing/take-off pad will greatly facilitate the enhancement of both the operating capacity and flexibility of the existing MFT heliport.

9.2 Detailed environmental and other technical assessment should be undertaken as soon as possible to confirm the feasibility of introducing at the MFT inner pier heliport a landing/take-off pad that is able to cater, preferably, up to S92 helicopters, or alternatively at the minimum, S76C+ helicopters.

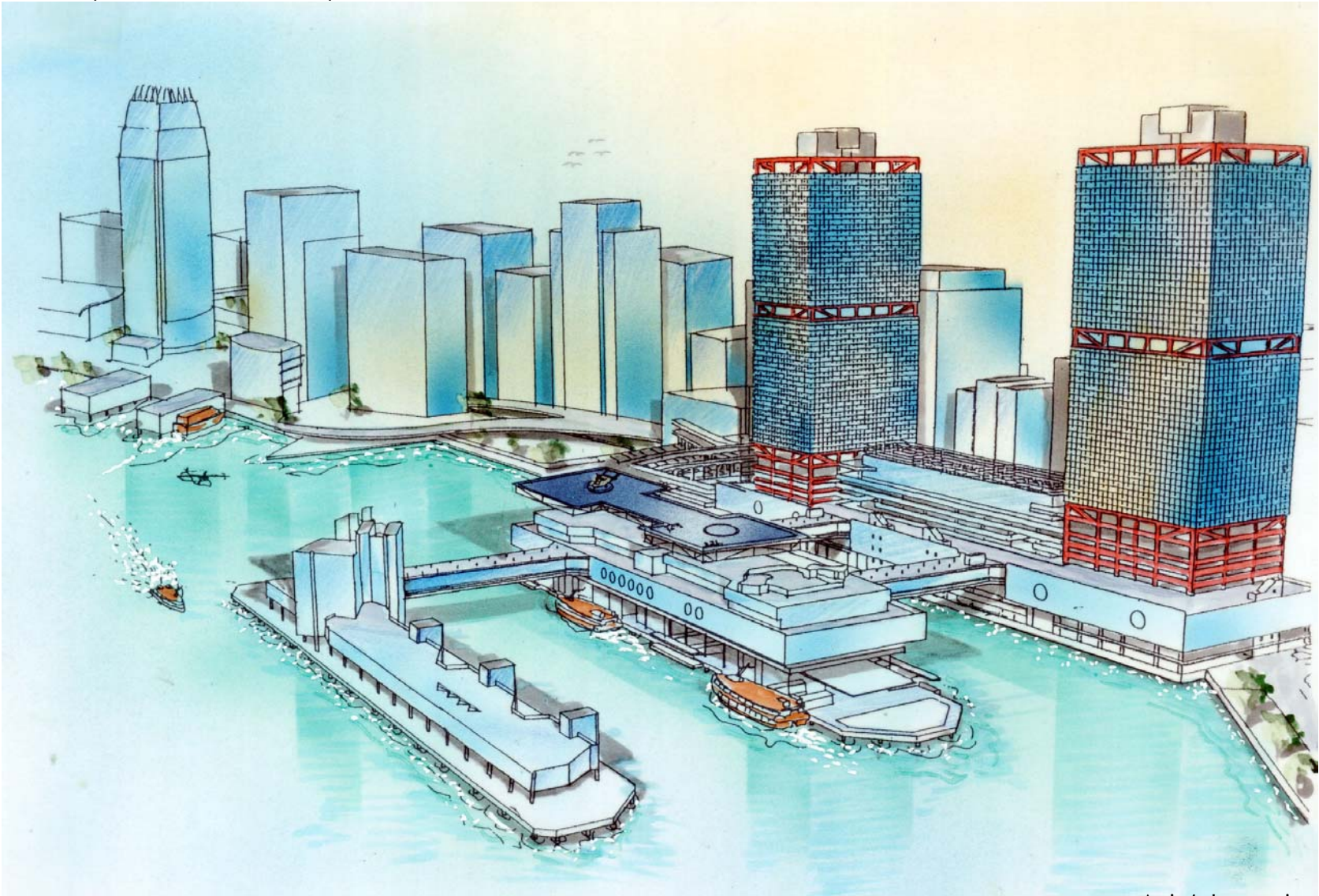
- The preparatory work to facilitate the provision of this much needed increase in capacity should be commenced by end 2002, with a view for the facility to be available in the shortest possible time, expected to be by end 2005.

MFT Heliport – Inner Pier Development



Artist's Impression

MFT Heliport – Inner Pier Development



Source: MVA

Artist's Impression

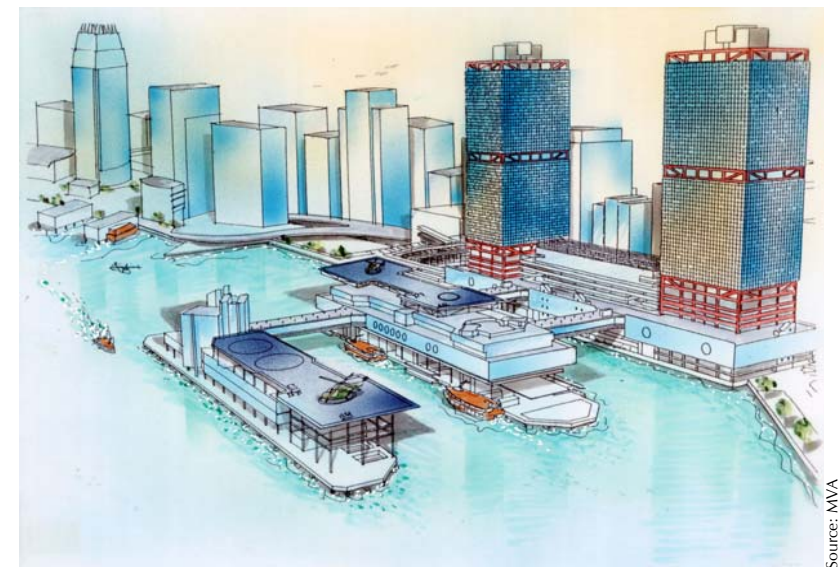
9.3 On the assumption that an additional taxiway and a S92 landing/take-off pad are to be built at the MFT inner pier, additional heliport facility is anticipated to be required at around 2016 to cater to the expected continuing strong growth in cross-boundary services to 2020 and beyond. The associated preparatory work for its provision should be commenced by 2011. This effectively allows a window of 2 years for statutory planning (including requirements of the EIA Ordinance) and 3 years for design and construction works.

9.4 In order to safeguard future expansion possibilities, the development of the medium and long term heliport options would need to be re-evaluated at around 2008 to 2010, several years following the opening of the expanded MFT inner pier heliport.

- This would need to take into consideration, amongst others, the prevailing state of development of the helicopter market in Hong Kong and PRD, the experience gained from operating cross-boundary services, the associated institutional and regulatory issues, trend in helicopter mix, heliport facilities in the PRD, etc.

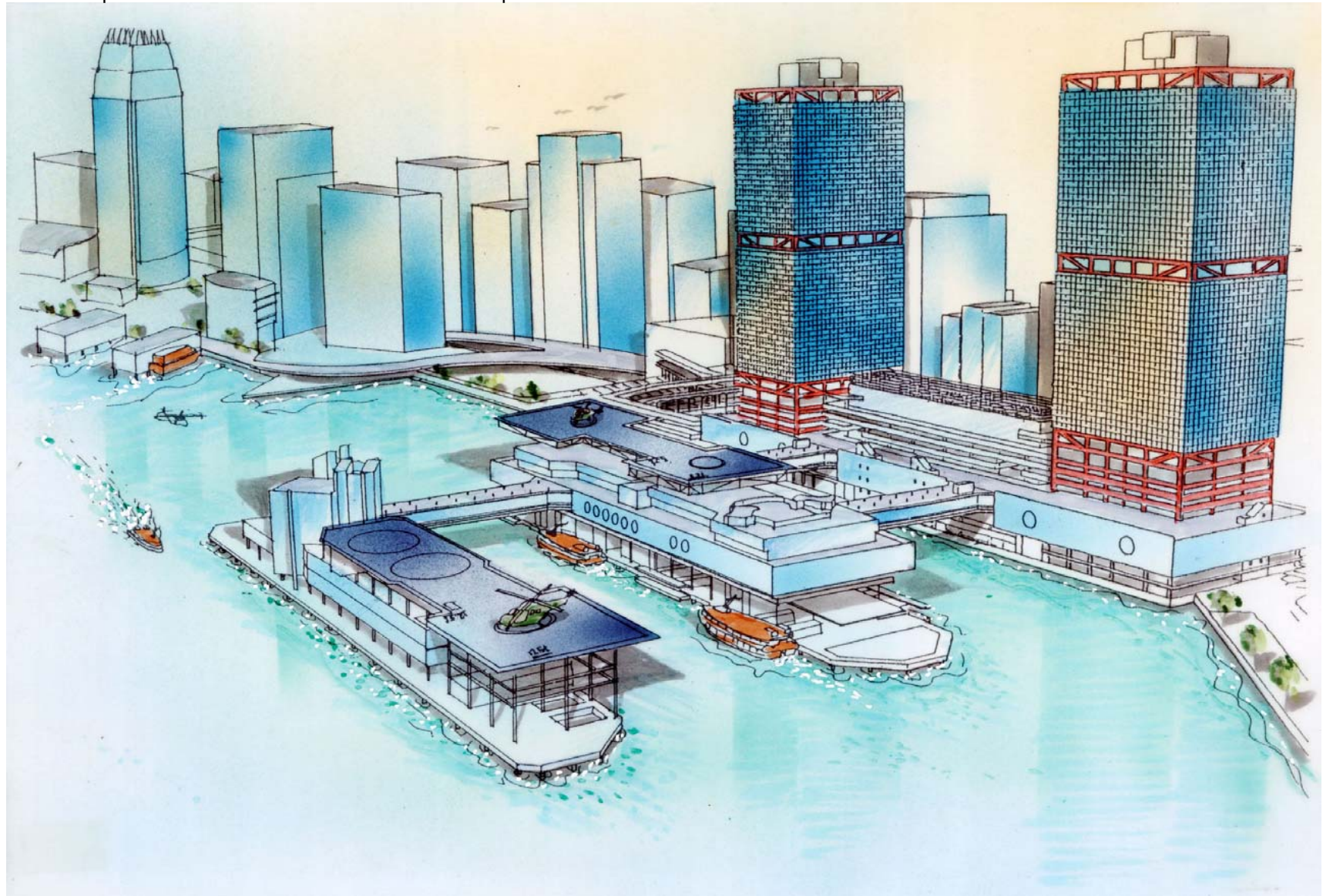
- The medium to long term development options are:
 - (i) development of the western half of the MFT outer pier heliport;
 - (ii) as noted above, build another heliport in a different location i.e. at the SEKD site on the rooftop of the planned cruise terminal.

MFT Heliport – Inner & Western Outer Pier Development



Artist's Impression

MFT Heliport – Inner & Western Outer Pier Development



Source: MVA

Artist's Impression

SEKD Heliport



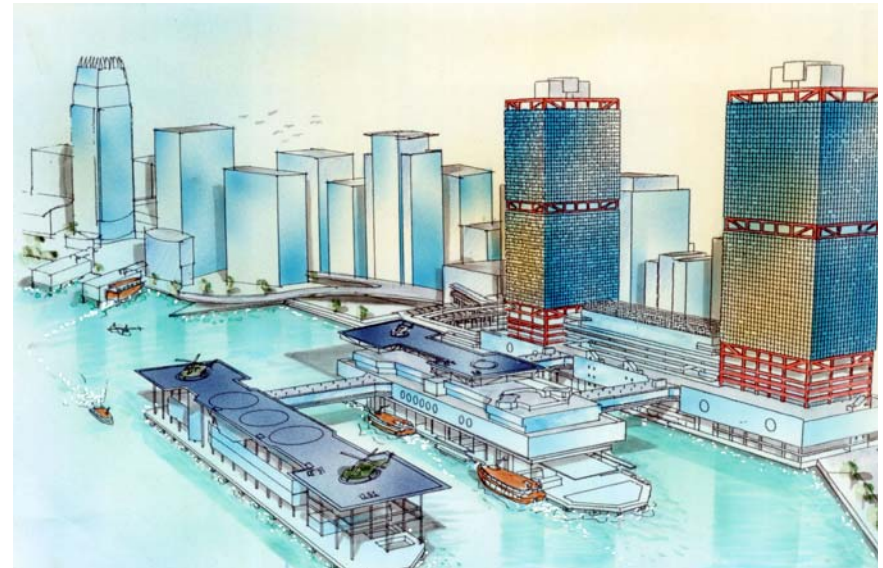
Source: MVA

Artist's Impression

- In order to ensure that the additional heliport facility is operational by 2016, preliminary design and statutory planning would need to commence in 2011.

- The development of the eastern half of the MFT outer pier remains a further development option. This is however likely to be a long term option on account of the need to establish the feasibility of re-provisioning the existing Vessel Traffic Control/Marine Rescue Coordination facilities, which have only been upgraded in recent times.

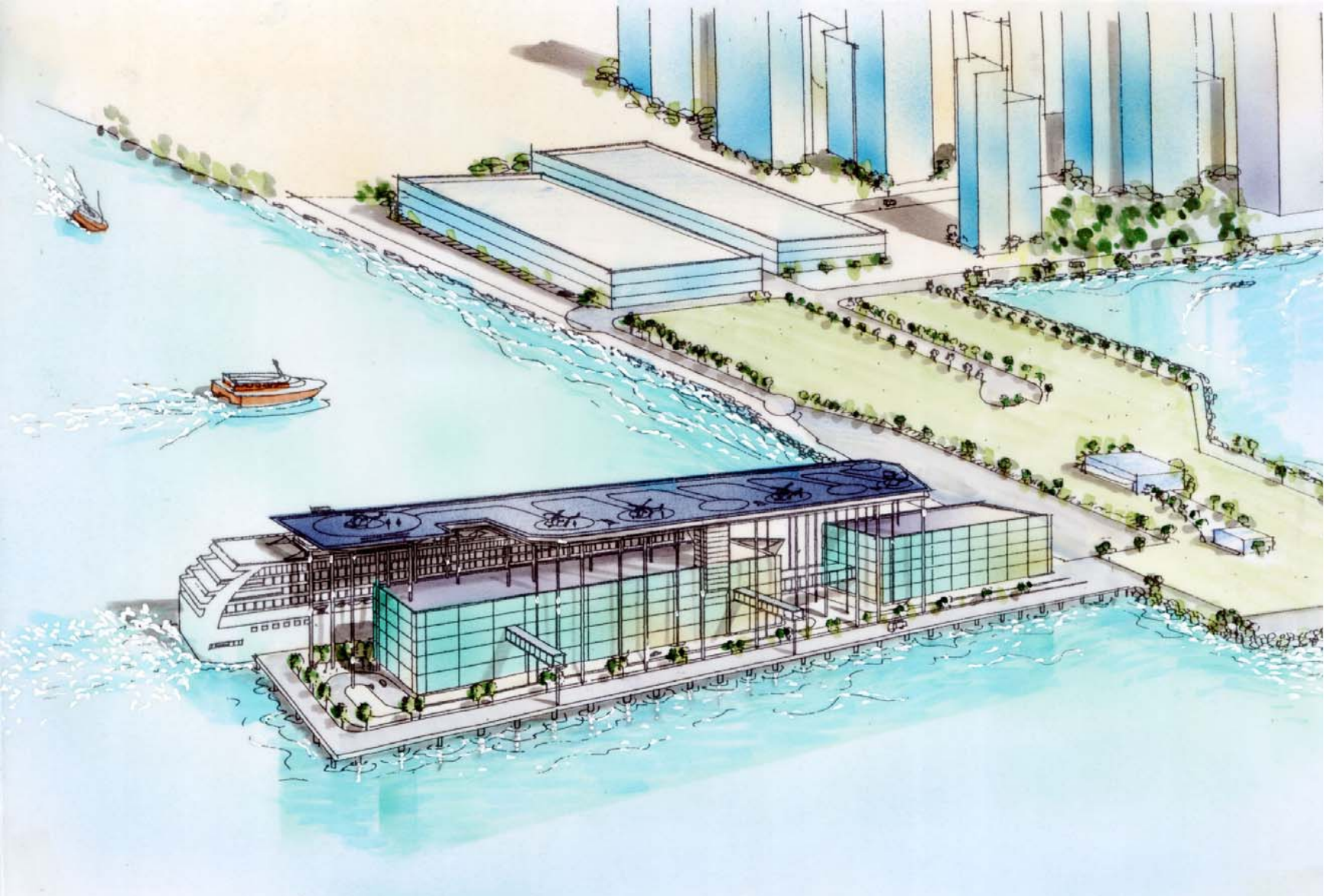
MFT Heliport – Inner & Outer Pier Development



Source: MVA

Artist's Impression

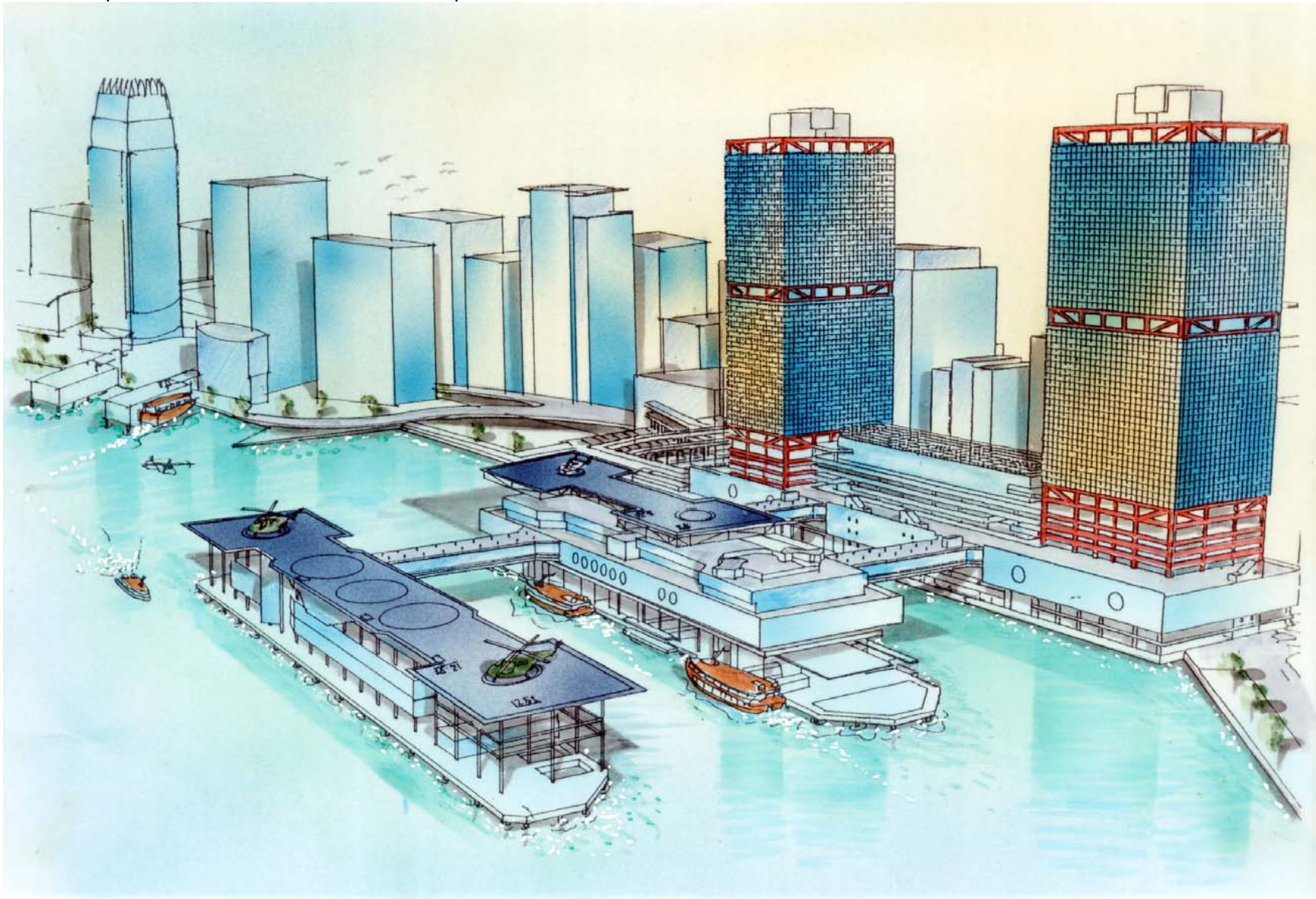
SEKD Heliport



Source: MVA

Artist's Impression

MFT Heliport – Inner & Outer Pier Development



Source: MVA

Artist's Impression

9.5 Government could play an initial critical strategic role in spurring and sustaining the momentum and development of the cross-boundary helicopter industry through facilitating the participation of the private sector in the timely provision of adequate facilities, in particular where demand is anticipated to exceed capacity over the course of the next few years.

- As much expertise already rests in the private sector, the availability of such major resource should be cultivated, encouraged and tapped for the purposes of developing expanded and new cross-boundary heliport facilities.
- Private sector interest in building and operating the expanded MFT inner pier heliport as a straightly privately funded infrastructure investment is likely to be small given its low financial return from a private sector perspective.



S92 Helicopters

Source: Sikorsky



Source: EAA



S76C+ Helicopters



Source: HelixHongKong

Source: CK Airways

- However as heliport development could provide positive economic benefits to Hong Kong, Government should consider structuring a mechanism to facilitate a reasonable return to private investors in developing the MFT inner pier heliport through competitive tendering under an appropriate form of public-private partnership (PPP) framework.
- In structuring a suitable PPP arrangement, due consideration should be given to fast-track the process as necessary to ensure the timely provision of additional capacity to meet demand.
- Beyond the expansion of the MFT inner pier heliport and over time when the state of development of the helicopter market is more firmly established, private sector participation in the development of a larger scale heliport (i.e. expanding development to the western outer pier) is likely to be more easily pursued.

Summary of Heliport Development Options

	EXISTING HELIPORT	DEVELOPMENT OPTIONS			
		Short-term	Medium to Long term (either one of the following options)		
	MFT Inner Pier	MFT Inner Pier Expansion	MFT Western Outer Pier Development	Rooftop of Cruise Terminal at SEKD	MFT Eastern Outer Pier Development ⁽¹⁾
Facilities	1 landing/take-off pad	1 landing/take-off pad & taxiway	1 landing/take-off pad & 2 parking stands	1 landing/take-off pad & up to 7 parking stands	1 landing/take-off pad & 1 parking stands
Available year	1990	2005/2006	2016	2016	2027
Capital cost (HK\$, 2001 prices)	-	\$90 million	\$170 million	up to \$320 million	\$100 million
Additional hourly capacity (movements)	8 (existing capacity)	8	10	up to 26	10
Additional annual capacity (movements)	30,700 (existing capacity)	24,500	34,500	up to 99,600	34,500
Meet demand forecasts up to	2004/2005	2015	Beyond 2020; dependent on medium and long-term growth in demand		

Source: MVA

Note: (1) Likely to be a long-term heliport development option on account of the need to establish the feasibility of re-provisioning the existing Vessel Traffic Control/Marine Rescue Coordination facilities which have only been upgraded in recent times.

10 RECOMMENDATIONS – DOMESTIC COMMERCIAL HELICOPTER SERVICES

10.1 A permanent surface level heliport is to be found as soon as possible to spur the development of domestic commercial helicopter services, and in turn, to lend support to the development of tourism sector in Hong Kong.

- Following the closure of the Central Heliport in mid 2003, domestic services are required to operate with restriction at the GFS temporary helipad at Wanchai PCWA to 2007.
- This state of development could thus stifle the longer term development potential of domestic helicopter services in Hong Kong, in particular in relation to sightseeing tours unless a dedicated surface level heliport could be earmarked for domestic services.



AS355N (Twin Squirrel)

Source: Eurocopter



Tourism in HKSAR

Source: HKSAR Government

10.2 Whilst potential suitable sites for a surface level heliport in the greater urban area in Hong Kong are generally difficult to identify, opportunities may still exist in areas where the land uses are currently being reviewed by Government.

- A case in point is the West Kowloon Reclamation, which could potentially accord a well-placed site for the development of a surface level heliport at least from the perspective of flight operations and surface level transport access requirements. It is also potentially compatible from a tourism planning context although this would be dependent to a large extent on the outcome of Government's forthcoming master planning study following the recent announcement of the results of the design competition for the proposed integrated arts, cultural and entertainment district. Accordingly, it may take another year from now before the types of facilities and amenities to be provided within the area could be finalised, and hence before the compatibility of any heliport in the district could be ascertained with a degree of certainty.



Cyberport in Telegraph Bay



West Kowloon Reclamation

Source: HKSAR Government

- The ITBB proposal for a heliport in the waterfront promenade in Cyberport in Telegraph Bay may also accord a potential site although there could be certain planning issues which need to be addressed, such as, the need to amend the land use zoning, the issue of other planned use of the waterfront promenade (pedestrian/bicycle connection), requirements under the EIAO and the final design of Route 7. In addition, whilst there appears that the proposed location of the heliport associated with the use of AS355N helicopters will likely meet the relevant HKPSG noise planning standard on the basis of a preliminary environmental review, more detailed environmental assessment would be required, in particular in relation to flight paths or where larger helicopters are to use the heliport facility.
- Notwithstanding the above, consideration should be given, at least in the interim period, to utilise any of the two sites as a short-term accommodation for domestic surface level heliport until such time the sites are required for long-term development in accordance with their ultimate planned land use. As the two locations are not necessarily incompatible given, at least in part, their tourism-related focus, and coupled with the urgency to locate a permanent site so as not to stifle the long term growth potential of the local tourism/charter helicopter market, consideration should be given by Government to examine the feasibility of integrating, as a permanent solution, a heliport development with the other planned land uses in any of the two sites.

10.3 Government could play a catalyst role in sustaining and enhancing the current growth momentum towards more distinct helicopter tourism products through the timely provision of a suitable site for the development of a dedicated surface level heliport.

- Given that the development of a surface level heliport is not likely to be attractive to private investors especially if land cost is also factored in, Government should take a leading role in facilitating the development of such a supply-driven infrastructure to serve domestic commercial helicopter movements. As with other tourism infrastructure projects, without the heliport and the ancillary facilities to support the helicopter operations, the demand for tourism/charter helicopter services cannot manifest itself.
- Specifically, the Government could play a critical role in providing the heliport land and supporting infrastructure (e.g. road access and utilities) within a timeframe which could better reinforce/capitalise on the anticipated development of the local tourism market, where new major tourist attractions are being planned to be introduced in the coming years such as the Hong Kong Disneyland in 2005.



AS350B3 Helicopter

Source: Eurocopter

10.4 Once a suitable site is made available by the Government, private sector participation in the building of the heliport passenger and helicopter operation facility and its management and operation should be encouraged and actively pursued through competitive tendering.

- Given the basic facility requirement for a dedicated surface level heliport for domestic helicopter services and hence the relatively low associated capital cost (- in the region of HK\$ 3 million excluding land cost), any impetus from the private sector towards building and management of the heliport facility through competitive tendering should be strongly supported.

10.5 In the interim period, efforts need to be made to provide support to facilitate and sustain the growth of domestic helicopter services.

- Upon closure of the Central Heliport, the commercial operators will be allowed to share the use of the temporary GFS helipad at the Wanchai PCWA with restrictions. Discussions and agreement need to be reached with GFS to allow for more flexibility in catering to demand needs until such time a permanent surface level heliport could be found.

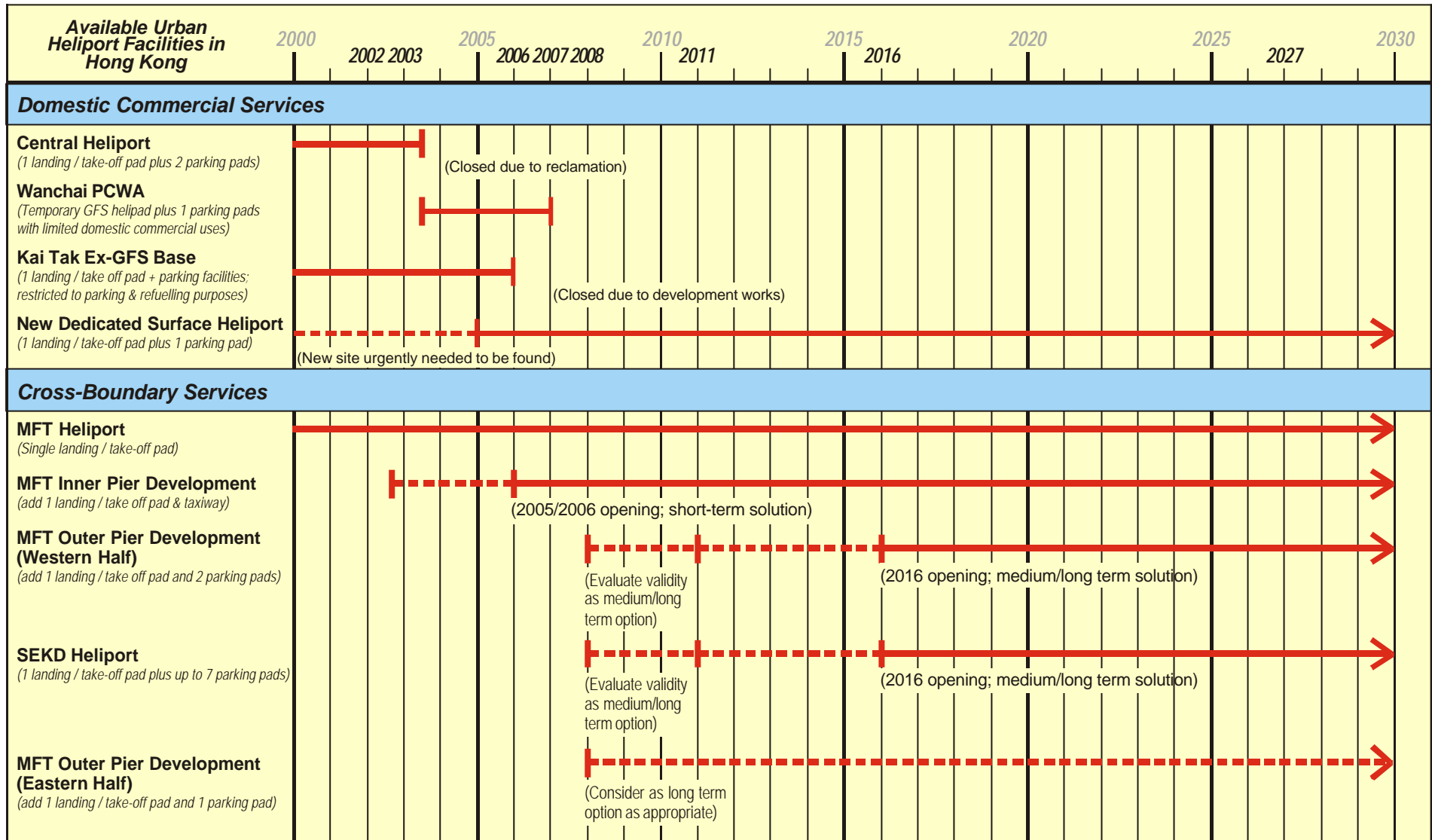


SA315B Helicopter (Lama)

Source: Eurocopter

11 IMPLEMENTATION PLAN

- 11.1 The proposed heliport implementation plan closely mirrors the above recommended phased options for heliport development. Accordingly, the objective of the plan is to alleviate the pressure on cross-boundary heliport capacity in the short-term and embark on a timely development programme to cater to the expected continuing strong growth in cross-boundary services in the medium term.
- 11.2 In addition, there would also be a need to embark on an effective yet prudent course for development of heliport facilities in the longer term.
- 11.3 Given the urgent need to provide additional capacity in the next few years, and the time frame required for development (statutory, detailed design and construction) through some form of PPP arrangement, the present implementation plan has assumed the preparatory work of the MFT inner pier expansion will be commenced by end 2002. This expanded facility is currently anticipated to be available by end 2005 to early 2006.
- 11.4 To cater for future cross-boundary helicopter demand beyond the capacity of the expanded MFT inner pier heliport, the medium and longer-term heliport development programme would need to be re-evaluated to establish the appropriate options, timing and funding/institutional arrangements on the basis of market needs. For the development of the western outer pier and SEKD heliport options, a review is tentatively envisaged would be required at around 2008 to 2010.
- 11.5 At the same time, a permanent surface level heliport is to be provided as soon as possible to spur the development of domestic commercial helicopter services, and in turn, to lend support to the development of tourism sector in Hong Kong.



Source: MVA

Implementation Plan

12 ACKNOWLEDGEMENTS

12.1 The Consultants wish to thank the Steering Group and Working Group, chaired by the Civil Aviation Department, for the strategic guidance provided during the course of the Study, and the many people from both the public and private sectors who have provided original data or assistance during the Study.

12.2 Steering Group Members

- Civil Aviation Department
- Economic Development and Labour Bureau
- Housing, Planning and Lands Bureau
- Architectural Services Department
- Environmental Protection Department
- Hong Kong Observatory
- Marine Department
- Planning Department
- Territory Development Department

12.3 Working Group Members

- Civil Aviation Department
- Economic Development and Labour Bureau
- Architectural Services Department

12.4 Commercial Helicopter & Heliport Operators

- Helicopters Hong Kong Limited
- East Asia Airlines Limited
- Heliservices (Hong Kong) Limited
- Zhuhai Helicopters Limited
- CR Airways Limited
- Hawaii Airport System, US

- Juneau International Airport, Alaska, US
- Downtown Manhattan Heliport (NYC, Port Authority of New York & New Jersey), US
- New Orleans Downtown Heliport, US
- Chicago Meigs Field, US
- Portland Downtown Heliport, US
- London Battersea Heliport, UK
- TEMSCO Helicopter Inc.
- ERA Aviation
- Helijet International Inc.

12.5 Others

- Government Property Agency
- Financial Services and the Treasury Bureau
- Government Flying Service
- Fire Services Department
- Electrical & Mechanical Services Department
- Hong Kong Tourism Board
- Hong Kong Business Aviation Centre Limited
- Hong Kong Aviation Club Limited
- Airport Authority, Hong Kong
- Sir Elly Kadoorie & Sons Limited
- China Travel Service
- Macau Government Tourist Office
- Civil Aviation Authority of Macau
- Hotel Lisboa
- Shenzhen Airport
- Heli Air
- Business corporations, travel agents and helicopter passengers in Hong Kong who took part in structured interview surveys and/or focus group discussions carried out by the Consultants

12.6 Study Consultants



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- RMJM Hong Kong
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