Major Findings of the 2004 Study on Cruise Terminal Facilities Development for Hong Kong

(Study Conducted by Bermello-Ajamil & Partners, Inc. (B&A))

1. The Global Cruise Industry

A. Growth of the Industry

The cruise industry has emerged as one of the fastest growing and popular segments of the worldwide travel and leisure industry. Between 1990 and 2004, passenger levels expanded from 4.4 to 13.2 million worldwide. The industry's success over this period is primarily a result of the following –

- **Lines creating products that convert land-based resort guests into cruise passengers.** Cruise lines were able to package and market an all-inclusive resort package at sea that is highly price competitive against comparable land-based offerings.

- **Introduction of new vessel inventory and development of onboard products that generated sustained interest in cruising.** A total of 19 new cruise vessels representing an industry investment of $US 9.67 billion are scheduled for delivery by 2009.

- **Effective control of competition, operational costs and revenue streams.** Innovations in cruise ship design and the move toward larger vessels allowed lines to reap increased economies of scale.

- **Delivery of a high level of passenger satisfaction.** Several cruise lines report passenger retention levels of well over 45%.

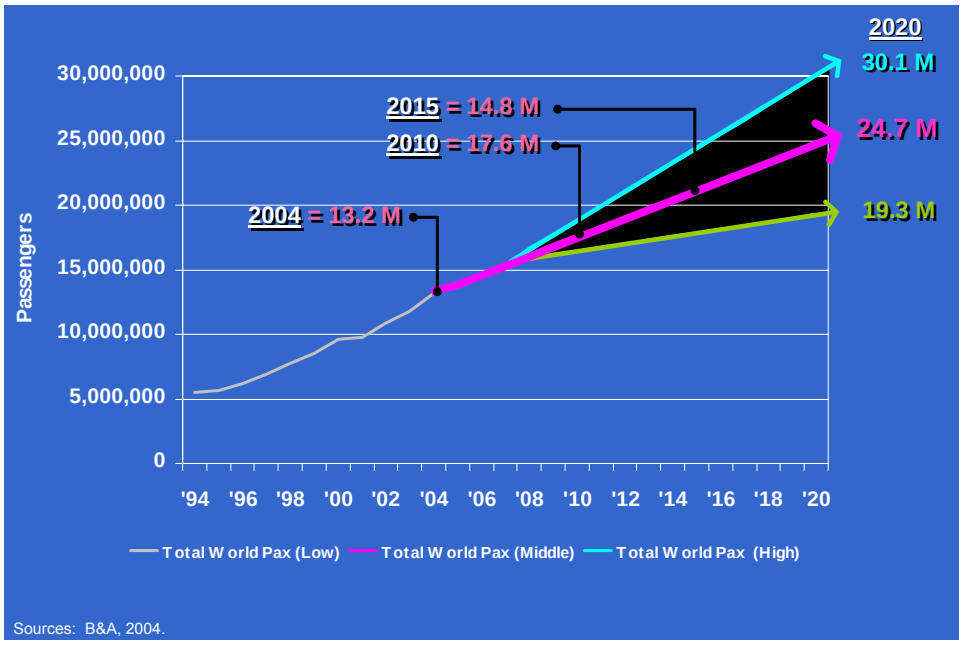
With many of the fundamentals that contributed to the success of the industry still in place and barring any major and negative unforeseen event, cruise passenger volumes are expected to continue their positive growth trend.[1] Projection of the worldwide industry suggests passenger carrying levels could expand from the present 13.2 million to between 19.3 and 30.1 million by 2020 (see Figure ES-1). This growth will create demand for expansion of the number of present homeport and port-of-call facilities – especially within the industry's most popular and

[1] Acts of terrorism and health outbreaks remain major risk factors to cruise industry growth on a global and regional level.

profitable regions. Over the mid- to long-term, industry capacity growth will encourage expansion into new market regions.

Figure ES-1: Projected Worldwide Passenger Levels, 2004 – 2020

Source: B&A, 2004



B. Other Global Cruise Industry Highlights

- There are 3 major cruise operators dominate the worldwide cruise industry. The Carnival Corporation is the largest cruise conglomerate, controlling more than 41% of total berth capacity worldwide. RCCL (22%) and Star Cruises (9%) are the other major industry participants. The remaining 28% of industry capacity is shared among over 50 cruise lines.

- Analysis of the current international cruise fleet indicates the average cruise ship is approximately 200m long, carries 1,090 passengers and is 17 years old. With the annual increase in length of new vessels and the retirement of older, smaller vessels, it is likely that within the next decade cruise ships with lengths between 250m and 300m will become the operational norm.

- Although the cruise industry has continued to strive toward globalization, the majority of cruise passengers are still sourced from two significant locations – North America and the United Kingdom.

- Almost 45-million North Americans have cruised at least once; and of these, nearly 23-million (51%) have cruised within the past three years. The 2004 CLIA Market Profile states the most likely number of North American cruisers over the next three years is 29-million with the high potential 48-million.[2]

- European interest in cruising continues to increase. Critical to success in the European marketplace are products tailored to meet divergent consumer market tastes.

- For all cruise lines, the long-term prospect of tapping into the expected growth of travel by Chinese Nationals has created long-term interest in the Asia-Pacific region. Beyond China, demographic and economic indicators in India, Malaysia, Japan and other Asia-Pacific nations are expected to bring greater prospects for domestic and outbound tourism.

- Consumers embarking on cruises operated by Star Cruises are generally younger than those observed from their counterpart European and North American markets. It is reported that the majority of cruise passengers range from 25 to 50 years of age and generally include young, middle class married couples. Offering products appealing to families is also an important consideration for Star Cruise Lines. It is suggested that Asian consumers prefer to take longer vacations as part of a land-based offering and consider cruise holidays as a more preferred way of getting away for a couple of days.

2. The Asia-Pacific Cruise Region

A. Growth of the Asia Pacific Activities

The Asia-Pacific region covers countries within and bordering the South and West Pacific, excluding those with a South American seaboard. The market is divided into four broad sectors consisting of the South Pacific, South East Asia, Far East (Orient) and Trans-Pacific. Round-the-world cruises are also prevalent in the region.

[2] Cruise Industry Overview, CLIA, May 2004. This estimate does not factor cruise industry capacity; Estimates are based solely on consumer intentions.

Capacity (bed-nights) data for each of the primary Asia Pacific sectors is presented in Table ES-1.[3] As illustrated, data indicate that the underlying trend for the entire period reviewed is one of growth. Capacity in the region grew from 1,751,100 bed-nights in 1996 an estimated 4,353,363 for 2004, or by 148.6%. Similar to the trend observed for Hong Kong, capacity levels declined slightly between 2000 and 2004. Declines are generally a result of North American and European operator deployment drawbacks due to the impact of terrorist attacks worldwide and within the region, concerns over SARS, and the limited supply of cruise ships available to deploy in emerging markets where the risk of profitable cruise offerings is greater and vessel repositioning costs are high.

Star Cruises is the largest operator in the Asia-Pacific region. Of the North American operators, Princess Cruises is currently the market leader, with Crystal and Cunard also making significant contributions.

Table ES-1: Cruise Capacity Placement for the Asia-Pacific Region, All Worldwide Operators

Source: GP Wild, 2004

Region	Bed-Nights									% Change 96 to 04
	96	97	98	99	00*	01*	02*	03*	04*	
South Pacific	-	-	-	-	1,740,400	1,578,300	1,410,300	1,446,774	1,880,205	-
Southeast Asia	-	-	-	-	2,559,600	2,177,000	1,656,200	889,058	1,143,910	-
Trans-Pacific*	-	-	-	-	-	-	-	50,660	223,190	-
Far East (Orient)‡	-	-	-	-	Incl. in SE Asia	Incl. in SE Asia	512,800	350,824	378,392	-
Round the World (1/3)†	-	-	-	-	460,600	750,300	638,300	531,160	727,666	-
*Totals***	*1,751,100*	*2,641,800*	*2,946,100*	*3,113,200*	*4,760,600*	*4,505,600*	*4,217,600*	*3,268,476*	*4,353,363*	*148.6%*

Notes: *GP Wild estimate; **1995-1999 totals include Indian Ocean; † Estimate. ‡Due to varied data availability, some additional Japanese operations may be present in the Far East sector for 2004 beyond those shown. The 2003 and 2004 data covers the 2003/4 and 2004/5 seasons.

B. Projected Growth in the Asia-Pacific Region

Historical capacity data indicates regional fluctuations from year to year but long term trends of stability to growth (see Table ES-1). This positive outlook is further supported by the following regional trends:

- Global industry fundamentals remain positive.

[3] Table ES-1 includes various European and Asian lines omitted from the CLIA data. The voyages of Star Cruises have been included from 1995, though not on an entirely consistent basis. The data also includes a number of coastal and other regional operators. Figures take capacity on a basis of 100% occupancy of lower berths (double occupancy). Some of Star Cruises' products with a family appeal may cruise at well over 100% occupancy, whereas some up-market international cruises and round-the-world legs may sail at under 100% with a figure of 75% to 85% not being untypical.

- Cruise line decision makers interviewed as part of the *2004 Study* indicate they are actively considering expanding operations in the Asia/Pacific region.

- Expanding, more affluent Asian consumer markets are more willing to travel abroad and may be attracted to take a conventional cruise.

- Regional ports and destinations are actively pursuing infrastructure enhancement projects to support increased cruise vessel operations.

- The 2008 Olympics in Beijing are expected to deliver the same positive regional awareness and demand as was demonstrated during past Olympics.

While much uncertainty remains on the specific nature of future deployment in the region, mid- to long-term prospects are positive. Capacity, and thus, passenger growth is expected to climb from 732,000 passengers in 2004 to between 974,000 and 2,504,000 passengers by 2020.

3. Hong Kong – Current Situation

A. Hong Kong Cruise Statistics

Total passenger throughput increased by 53.4% between 1999 and 2004,[4] although conventional cruise activity suffered drawback mainly due to –

- Departure of Hong Kong's premier vessel, Star Cruises' the *Superstar Leo,* to North America to serve in its NCL fleet and replace the delayed *Pride of America* ship delivery.

- North American and European operator deployment drawbacks. This drawback was focused around serving their local markets' demand, which grew because of concerns about SARS and perceived increased international security threats and the associated concerns regarding long distance flight safety.

[4] Conventional Cruises are defined as leisure oriented voyages on deep-water, ocean-going cruise vessels of two-or-more nights often to a variety of destinations. Conventional cruises are offered either by regional or international operators marketing to a variety of consumer sectors and nationalities.

- A tightening of industry supply, with cruise lines having fewer vessels available to deploy in emerging markets where the risk of profitable cruise offerings is greater and vessel repositioning costs are high.

- Impact of terrorist attacks and SARS.

Hong Kong passenger levels are anticipated to stabilize in 2005 and improve in 2006 and onward.

B. Additional Hong Kong Cruise Statistics

Local residents constitute the largest portion of Hong Kong's cruise passenger throughput 1,979,678 (85.4%). Mainland Chinese have emerged as the largest group of international cruise passengers, contributing over 217,430 (9.4%) individuals in 2004

- The average length, size and passenger capacity of vessels operating from Hong Kong has increased.

- To date, 2 cruise vessels over 100,000 GRT – Princess Cruises' *Star Princess* and *Sapphire Princess* have called on Hong Kong. This list is expected to grow by 2005 and beyond, to include *Diamond Princess's* 3 visits in end 2005 (113,000 GRT).

- Star Cruises remains the primary Hong Kong operator, responsible for over 90% of all conventional cruise passengers.

- Hong Kong's cruise season is characterized by both year-round regional operations by Star Cruises and seasonal (October to May) operations by international cruise operators.

- Regional operator itineraries from Hong Kong are typically under 4 days within the South China Sea. International operators run an assortment of itinerary types with Hong Kong as a homeport or port-of-call.

C. Strengths and Areas for Improvements of Hong Kong's Cruise Offer

The Ocean Terminal – Hong Kong's primary cruise facility – and the entire Hong Kong cruise offer affords several positive and negative attributes for cruise operators conducting homeport and port-of-call operations. Strengths include –

- **Marine access features.** Channels, turning basins and ease of navigation are generally good for cruise vessel operations. Channel widths and depths are capable of accommodating most current and planned cruise vessels.

- **Position of the Ocean Terminal.** The Ocean Terminal's location within Hong Kong's Victoria Harbour provides passengers easy access to a majority of destination venues. Sailing through Victoria Harbour is considered by most passengers as a memorable and unique experience and constitutes a positive, cruise line marketing element.

- **Access to regional consumers.** According to the HKTB and Invest HK, Hong Kong is the most popular Asian city destination in terms of total visitation. Hong Kong welcomed over 21.8 million visitors in 2004, with the largest share coming from China (12.2 million). Hong Kong's position in the center of the actively growing Pearl River Delta and air connections to regional markets provide superior consumer access.

- **High quality tourism infrastructure and tourist offer.** Hong Kong's tourism infrastructure is well developed. Landside access, airport, airlift, hotels, attractions and Hong Kong's general appeal as a travel and leisure destination all serve as important strengths.

Areas for improvement include –

- **Structural and operational characteristics of the Ocean Terminal**. The Ocean Terminal's current structural capability of 50,000 displacement tons is a limiting factor due to the growing number of cruise vessels in operation above this weight dimension. Accordingly, two vessels fitting this profile – the *Sapphire Princess* and *Diamond Princess* – cannot be accommodated at the Ocean Terminal due to structural limitation of pier in 2005. The size and space allocations associated with ground transportation areas, terminal check-in, CIQ facilities – provided for the purpose of customs and excise, immigration and health control – and other operational areas are also limited.

- **Availability of berthing slots.** Cruises have difficulty in securing berthing slots particularly in peak season. Between 2001 and 2004, at least 7 instances requiring alternative berthing arrangements were reported. In 2005, at least 3 instances requiring alternative berthing

arrangements are expected while ships turned away due to unavailability of slots are not known. Growth of Hong Kong cruise traffic will likely increase the number of days a secondary facility is required and reinforce the continued need to seek expanded cruise berthing alternatives.

- **Terminal charges.** Hong Kong's terminal charges are among the highest observed in the Asia-Pacific region. Operational costs are considered to be on par with other regional homeports.

D. Asia-Pacific Cruise Sub-Regions and Itinerary Patterns

Hong Kong's strength in terms of strategic fit is to serve as both a homeport and port-of-call for any of the regional deployment areas reviewed, with the ones showing the most promise being China, the Far East, World Cruises and Cruises-to-Nowhere (see Table ES-2). As a port-of-call, Far East and World Cruise operations have a strong appeal given present deployment philosophies.

E. Competition for Cruise Operations in the Region

Competition for cruise operations in the region is expected to increase, with several regional ports also looking towards improving market prospects for homeport and port-of-call operations. Singapore, Xiamen, Tianjin, Qingdao, Shanghai and others in the region are expected to be increasingly competitive for regional homeport and port-of-call traffic, with each of these destinations working on terminal and berth expansion projects.

Conversely, an opportunity for increased collaboration among destinations is also growing. Improvements in port capabilities and cruise tourism infrastructure will undoubtedly make the region more appealing overall for operators, and thus, should work to expand market opportunities for all regional destinations. Asia-Pacific destinations need to increasingly work together to share information, collaborate on new cruise offerings and improve overall education of regional and international consumers.

Table ES-2: Fit of Hong Kong within Identified Target Markets
Source: B&A and GP Wild, 2004

Target Market	Hong Kong as a Port-of-Call	Hong Kong as a Homeport
China	■	↑
Far East	■ / ↑	■ / ↑
Southeast Asia	■	■
Trans-Pacific / Repositioning	■	■
World Cruises	↑	↑
Australia/Asia/N.Z.	↓	↓
Cruise to Nowhere	n/a	↑
Key: Strong (↑), Fair (■), Weak (↓)		

4. Stakeholder Outreach Overview

A number of individuals, agencies and businesses were contacted as part of the *2004 Study* to characterize Hong Kong's present cruise business and provide cruise industry insights on market prospects and required hardware improvements needed to support growth. Highlights from primary cruise lines stakeholder meetings include –

- Most of the leading international and regional cruise lines have or are formulating ambitious plans for the Asia-Pacific region. Some have made some level of commitment for upcoming cruise seasons.
- Lines contacted intend to place large vessels in the Asia-Pacific region.
- Cruise lines have varying opinions of Hong Kong as a cruise homeport and port-of-call. Some look to Hong Kong as an important homeport logistic point congruent with their deployment and brand philosophy. Others found Hong Kong lacking some of the venues and facilities found and/or planned at regional competing facilities discussed previously.
- Most cruise lines contacted felt improvement of Hong Kong's cruise facilities, inclusive of terminal and berthing area, would increase their potential perspective and consideration for homeport and port-of-call operations.

Feedback from Hong Kong based stakeholders included –

- Hong Kong needs a new cruise facility to accommodate larger vessels and anticipated growth of the business overall. Any new terminal facilities should be large, have efficient and comprehensive cruise facilities and allow for flexibility of operation. Emphasis should be placed on any new facilities being placed in Victoria Harbour area. The South East Kowloon (SEK) Kai Tak development site held in general positive regard.

- Hong Kong remains a "must see" destination for cruise lines.

- Regional cooperation and consumer understanding are integral to the Asia-Pacific regions emergence as the "next Caribbean."

- Cost of operations from Hong Kong is a critical determinant for cruise line selection.

5. Projection of Cruise Growth Opportunities for Hong Kong

A. Projection Formulation

As part of our *2002 Study*, four general scenarios were identified that reflected the anticipated future direction of cruise activity for Hong Kong. For the *2004 Study* these general scenarios remain basically intact but are revised and reduced to three in number. The growth scenarios are:

- **Natural Growth (Baseline);**

- **Approach A – Expansion of Regional Operators with Regional Focus; and**

- **Approach B – Expansion of International Operators with International and/or Regional Focus.**

In considering feedback from cruise lines, overall market trends, and the likelihood of success of Hong Kong using pulling strategies to attract high levels of market share, we anticipate future passenger throughput will fall between the Approach B low and medium scenarios.

B. Projection Ramifications to Hong Kong Facilities

A critical item working against Hong Kong's ability to accommodate the unconstrained growth projections presented is the capacity (supply) of adequate cruise designated berths, the structural loading capability of these berths and cruise terminal availability. Passenger and vessel demand suggests that a minimum of one new berth and terminal will be required over the medium term; and one to two additional berths and terminals may be required over the long term (see Table ES-3).

Table ES-3: General Facilities Demand under Growth Scenarios, 2004-2020
Source: B&A, 2004

Scenario	Existing Facilities	Additional Required Berths
Natural Growth		
Low	Challenged*	0 to 1**
Medium	Challenged*	0 to 1**
High	Challenged*	0 to 1**
Approach A		
Low	Challenged*	0 to 1**
Medium	Inadequate	1 Medium Term / 1- 2 Long Term
High	Inadequate	1 Medium Term / 1- 2 Long Term
Approach B		
Low	Inadequate	1 Medium Term / 1- 2 Long Term
Medium	Inadequate	1 Medium Term / 1- 2 Long Term
High	Inadequate	2 Medium Term / 3 Long Term
Notes: * Berth and terminal spaces will remain undersized to accommodate large vessel operations. **Assumes that any vessels over 50,000 displacement tonnes are accommodated at Hong Kong cargo facilities. Without additional berth, likelihood of berth unavailability (scheduling conflict) will increase.		

6. Economic Impact and Benefit of Hong Kong Cruise Activities

From the analysis prepared, a projection of the potential economic impacts and benefits associated with cruise operations was prepared. As presented, the estimated economic impact and benefit associated with cruise operations to Hong Kong is substantial for each of the projection scenarios reviewed. For 2010, the cruise industry is estimated to support HK$748.8 million to HK$2,896.8 million in

tourism expenditure[5], and 1,454 to 6,228 jobs, under different scenarios reviewed. Tourism expenditure is forecast to climb to HK$ 954.1 million and support approximately 2,051 jobs by 2020 under the Natural Growth scenario. As expected, more significant projected throughput levels under Approach B generate substantial increases in estimated tourism expenditure and job creation. For Approach B (low), a projected throughput of 776,700 passengers could generate HK$ 2,884.7 million in tourism expenditure and support as many as 6,907 jobs by 2020. For Approach B (medium), 1,234,400 throughput passengers could increase tourism expenditure to HK$ 4,574 million and support nearly 11,000 jobs. It is estimated that the value added contribution[6] for 2010 is estimated to support HK313.9 million to HK$1,317.3 million from expanded cruise facilities; for 2020, the value added contribution is estimated to range from HK422.3 million to HK$2,205 million, under different scenarios reviewed.

Beyond those direct economic impacts assessed above, other economic benefits associated with the cruise industry are likely to accrue to Hong Kong, including:

- Expenditure induced tourism expenditure associated with further spending in the local economy (multiplier effects);
- Government revenues generated from taxes on fuels and others sources;
- Visitation by cruise passengers to Hong Kong as part of a land based vacation; and.
- Social and recognition benefits associated with having the cruise business as part of Hong Kong's world class Victoria Harbour and waterfront.

The Natural Growth scenario represents passenger and vessel throughput expansion within the limits of Hong Kong's present cruise offer. Expansion of cruise infrastructure to support passenger and vessel throughput envisioned under Approach B low and medium will result in a net increase in these throughput levels, and correspondingly, incremental economic impacts.

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[5] "Tourism expenditure" refers to visitor (including tourists and crew) spending on shopping, hotel and boarding houses, restaurants, local tour services, local transportation, entertainment, services on travel agents, airline ticketing agents, etc. (Tourist expenditure is different from income of the tourism industry. Tourist expenditure is a gross concept that covers spending on goods purchased for sale to tourists that may or may not have local contents. Income or economic benefits of the tourism industry is a net concept that deduct all intermediate expenses. So tourist spending the economy receives is not equivalent to income the economy generates from tourism.)

[6] "Value added contribution" refers to income directly and indirectly generated to the economy from visitor spending. Value added is tourism expenditure minus intermediate consumptions of goods for sale to tourists.

While preparation of a full cost/benefit assessment is beyond the scope of the *2004 Study*, development of additional cruise facilities for a total cost of HK$ 1,200 million could generate an economic benefit under Approach B (low) 6.1 times greater than total costs between 2010 and 2020.[7] For Approach B (medium), economic benefit could be 12.9 times greater than total costs for the same period.

7. Case Study of Similar Cruise Homeports

Review of the workings of other leading cruise homeports can present important insights useful in facility planning. For the *2004 Study,* six facilities similar to Hong Kong were reviewed.

- Port of Vancouver's Canada Place;
- Port of Miami's Terminals 3/5;
- Port of Barcelona's Moll Adossat Terminal 4;
- City of New York's cruise terminals along the Hudson River and planned for Brooklyn;
- Singapore Cruise Centre; and
- Port of Yokohama's Osanbashi Pier.

Several general parameters were identified as part of our case study analysis that were taken into consideration as part of the preparation of options for cruise facility development for Hong Kong.

8. Identification of Options for Hong Kong Cruise Facility Development

A. Design Vessel Requirements for Hong Kong

Selection of a model design vessel(s) dictates a programmatic response for Hong Kong, one that will allow the destination to meet industry needs, maintain

[7] HK$ 1,200 million represents a general B&A estimate of investment in a cruise berth, terminal and related infrastructure and not other potential mixed uses. Does not include land costs as a site is undefined. Calculation averages economic impacts over the period versus project costs.

competitiveness in the region and grow homeport and port-of-call operations over the long term. As a result of our analysis, the following design vessel particulars were established for planning purposes (see Table ES-4)

Table ES-4: Suggested Design Vessels for Hong Kong
Source: B&A, 2004

Type	Design Vessel 1 (Panamax)	Design Vessel 2 (post-Panamax)	Design Vessel 3 (super post-Panamax)**
Pax / Crew	2,000 to 2,600 (pax) / 850 (crew)	3,000 to 4,000 (pax) / 1,200 (crew)	Up to 5,000 (pax) / Up to 1,500 (crew)
GRT / Displacement Tons	Up to 100,000 / + 50,000	+ 100,000 / + 50,000	+ 150,000 / + 50,000
LOA (m)	275 to 300	300 to 345	300 to over 345
Beam (m)	Up to 36	Over 36 (generally 40 to 50)	Over 36 (generally 40 to 50)
Draft (m)	Up to 8.5	8.5 to 10*	9.5 to 10.5
Air Draft (m)	Less than 60	Up to 62	Up to 62

Note: Suggested design vessels represent primary ranges of the majority of vessels within these categories.
**Queen Mary 2* has a vessel draft of 10m. **Estimated specifications; this vessel is not presently in operation.

Of the vessels shown in Table ES-4, long term planning should primarily focus on development of facilities capable of accommodating a post-Panamax vessel (Design Vessel 2) or super post-Panamax (Design Vessel 3). Facilities developed around these types of ships allow for the greatest range of flexibility. A post-Panamax terminal will accommodate with ease a smaller, 2,000 to 2,600 Panamax vessel. Planned appropriately, a super post-Panamax ship could be supported using greater technology in check-in areas and allowing for baggage laydown to be accomplished in two or more shifts. This approach is observed at several of the case study ports reviewed.

B. Considerations in Design of Cruise Port Infrastructure

Channels and Turning Basins

To meet the channel and turning basin needs for design vessels presented in Table ES-4, minimum marine design parameters should generally include – [8]

[8] Ultimate design of any cruise berth would likely vary given harbour, wind, swell conditions and vessel activity. Minimum design parameters presented herein are for preliminary planning purposes only. Any preliminary and final design of marine facilities to support cruise operations—as well as all features of cruise facilities development presented in this chapter—need to be thoroughly consulted with the Ports Works Division of the CEDD, Hong Kong Marine Department, the HKPA and individual cruise lines. It is recommended that any marine, pier/dock configuration be fully simulated for a specific site under varying conditions and ship sizes to determine design suitability.

- Water depth of access channels and alongside the cruise vessel berth of 10m. An additional allowance for up to 10% underkeel should be allowed. This level plus the underkeel allowance is adequate to support operations by the *Queen Mary 2*.

- A turning basin – either developed or existing – that can accommodate the safe maneuvering of a post-Panamax vessel. The radius should be at least 415m to 515m. Additional maneuvering and vessel safety margins may need to be added given a specific site.

- A maneuvering and safety distance of at least three to three-and-a-half vessel beams within access channel(s) associated with the cruise terminal. A similar distance should be designed for the area between the cruise berth and active channel and/or turning basin. In discussions with HKPA, in a slip configuration, the width of the slip should be at least five vessel berths. These distances allow for safe navigation, maneuvering, and while the vessel is at berth, room to allow for provisioning from barges.

Berthing Areas

General berth specifications to meet the needs of a post-Panamax vessel include –

- For Hong Kong, linear, pier and slip berthing configuration approaches may prove advantageous for implementation of new facilities within and along the central waterfront.

- A minimum berth face of 275m with supporting bow and stern line positions beyond this length. Dependent upon a marginal wharf, pier or slip configuration, the maximum length of the berth face needed to support the post-Panamax design vessel could range between 275m and 390m. Additional maneuvering and vessel safety margins may need to be added given a specific site.

- Structural capability of accommodating a post-Panamax vessel of greater than 100,000 GRT and 50,000 displacement tons.

- Fendering and bollard systems capable of accommodating the post-Panamax design vessel. For Hong Kong, design of bollard and

fendering systems should follow BS6349 Part 4 and wind condition in Hong Kong (including typhoon).

- A vessel apron of at minimum 15m in width along the entire apron area to support vessel provisioning, ship's lines and gangway movement.

- Ability to fully secure the vessel apron – using fencing, access control systems, and CCTV – while the vessel is in port and 24-hours prior to vessel arrival. The apron should not be used for supporting GTA functions.

For creation of facilities to support a super post-Panamax vessel, structural loads and possibly berth length would exceed those presented above.

Passenger Terminals: Typologies

Cruise terminal requirements are significant for facilities accommodating cruise homeport operations. The cruise homeport terminal reflects the following operational needs – Passenger ticketing and processing; passenger luggage off-loading; requirements of inspection services (customs, immigration, agriculture, and health); security screening points; waiting lounges; support office spaces; and, circulation.

Several types of cruise terminals are observed in operation worldwide: Single berth, single terminal; multi-berth, single terminal; and single/multi-berth, remote terminal. Any of these terminal typologies are suitable for Hong Kong. It is likely if two berths are developed at the same time and depending on a specific site's characteristics, the multi-berth, single terminal will yield the most cost feasible and workable approach.

Incorporation of multiple uses is likely to create a dynamic and exciting terminal experience for cruise passengers, land based visitors and local residents. The cruise terminal and its functionality need to take center stage to ensure the facility will properly meet its various operational requirements, timing issues and be provided to cruise operators at a reasonable cost.

Passenger Terminals: Space Requirements

General planning parameters for cruise terminals observed worldwide call for the development of passenger areas of between 1.0m^2 and 2.1m^2 per passenger, a

rate which accounts for check-in, waiting, security, baggage, cruise line offices and back-of-house functions.[9]

With these as a guide and building form the information collected as part of stakeholder interviews, case study analysis and Study Team experience, we outline general space allocations for prototypical terminals in Table ES-5 and Table ES-6.

Table ES-5: Suggested Terminal Size Programs for Post-Panamax Homeport Vessel, Individual and Twin Terminals (m^2)*

Source: B&A, 2004

Use	Individual Terminal for Design Vessel 2 (post -Panamax)		Twin Terminal for Design Vessel 2 (post -Panamax)	
	Minimum (m^2)	Suggested (m^2)	Minimum (m^2)	Suggested (m^2)
Check-In / Lounge / Waiting Area	2,500	2,500	4,000	4,000
Security	Within several areas	Within several areas	Within several areas	Within several areas
Baggage	2,650	2,650	5,300	5,300
Customs Processing / Exit (LL)	400	575	800	1,000
Customs Offices (LL)	200	400	400	800
Immigration / Health / Customs (UL)	675	675	1,350	1,350
Immigration / Health / Customs Offices / Other (UL)	400	700	800	1,050
Lobby	200	430	400	860
Support / Loading Dock	280	375	560	750
Totals	7,305	8,480	13,610	15,460
Note: *Circulation and structure included in area allocations; LL = Lower Level; UL = Upper Level				

[9] Flexibility may exist in the design of terminal disembarkation spaces, especially related to how the cruise line and customs plan to conduct baggage lay down operations. Terminal spaces should be designed around the largest vessel(s) anticipated to operate regular homeport operations from the terminal facility.

Table ES-6: Suggested Terminal Size Programs for Super Post-Panamax Homeport Vessel, Individual and Twin Terminals (m^2)*

Source: B&A, 2004

Use	Individual Terminal for Design Vessel 3 (super post -Panamax)		Twin Terminal for Design Vessel 3 (super post -Panamax)	
	Minimum (m^2)	Suggested (m^2)	Minimum (m^2)	Suggested (m^2)
Check-In / Lounge / Waiting Area	3,500	3,500	6,000	6,000
Security	Within several areas	Within several areas	Within several areas	Within several areas
Baggage	3,710	3,710	7,420	7,420
Customs Processing / Exit (LL)	400	575	800	1,000
Customs Offices (LL)	200	400	400	800
Immigration / Health / Customs (UL)	800	800	1,600	1,600
Immigration / Health / Customs Offices / Other (UL)	660	880	1,320	1,760
Lobby	200	430	400	860
Support / Loading Dock	340	445	680	890
Totals	9,810	10,985	18,620	20,820
Note: *Circulation and structure included in area allocations; LL = Lower Level; UL = Upper Level				

Other Considerations

- **Ground Transportation Area.** Both homeport and port-of-call operations need to have large areas dedicated to GTA loading, off-loading and marshalling for tour buses, taxis, limos and private car operations. For Hong Kong, we recommend a GTA supporting a post-Panamax terminal of up to 16 buses plus a separate drop-off and taxi area.

- **Provisioning.** Provisioning of food and beverage items, fuel, water, spare parts and sundries to be used onboard is essential in a cruise homeport operation. The provisioning process requires a large apron area (recommend 15m) and ample access to the vessel's shell doors.

- **Access.** Multiple modes of access should be provided for a cruise homeport terminal. For Hong Kong, consideration should be provided

for at least two lanes of access to a terminal site, with bus and drop-off areas separated.

- **Security.** Any new and/or redeveloped cruise facility will need to meet the minimum standards of the ISPS Code. The facility should also meet and/or exceed many of the standards considered best practices for maritime security facility planning.

- **Mixed-Uses.** Retail, entertainment, restaurants, office, hotel, conference, multi-modal transport, marina, ferry and parking are identified as desirable. To the greatest extent possible and within the context of port security, public recreation facilities that take advantage of the waterfront and Victoria Harbour should also be pursued.

9. Recommendations for Hong Kong Facilities

We believe a good case exists for Hong Kong to expand its cruise tourism offer. The cruise market remains a large and growing presence in international tourism, one that will likely see a doubling of worldwide passenger carryings over the next 15 years. Market outlook for the medium and long term looks positive for the Asia-Pacific region. Through update and expansion of present berthing and terminal facilities as well as continued marketing, service delivery excellence and competitive pricing, Hong Kong could welcome between 776,700 and 1,300,000 throughput passengers by 2020. Levels of throughput within this range could create substantial increases in estimated economic impact and job creation. A projected throughput of 776,700 passengers could generate HK$ 2,884.7 million in tourism expenditure and support as many as 6,907 jobs by 2020. For levels approaching 1,300,000 passengers, increase tourism expenditure could grow to HK$ 4,574 million and support nearly 11,000 jobs.

From discussions with industry stakeholders, review of case study ports and experience of the Study Team, the location of medium and long term cruise tourism infrastructure improvements should be within Victoria Harbour. This area best conveys an exciting and dynamic cruise experience for homeport and port-of-call passengers and also allows for immediate enjoyment of the destination once the passenger steps off of the vessel. Non-Victoria Harbour sites will have a number of issues associated with navigation, winds and distance from the main cruise tourism venues and attractions.

- **Hardware Improvements.** Hardware improvements include –

  1. Short Term: Planning and possible construction of one berth supporting a post-Panamax cruise ship. More berths could be pursued if a long term agreement is established with a cruise line(s). An interim arrangement to accommodate very large vessel or schedule conflicts until this facility(s) comes on-line should be explored.

  2. Medium Term: If not accomplished under the Short Term, commencement of one berth cruise facility supporting a port-Panamax cruise ship. More berths could be pursued if a long term agreement is established with a cruise line(s). Planning and possible construction of additional facilities anticipated over the long term as market conditions warrant.

  3. Long Term: Planning and possible construction of additional facilities for long term needs as market conditions warrant.

- **Software Improvements.** A large portion of the ultimate success to be achieved is reliant on moving forward with a series of marketing efforts during all phases focused around preserving Hong Kong's existing clientele, expanding opportunities and ensuring an organized message and messengers effort. Hong Kong should collaborate with destinations and educate regional consumers.

3 November 2005