

## 2 PROJECT DESCRIPTION

### 2.1 Site Location and History

2.1.1 The Project is located in the south-eastern part of Kowloon Peninsula, comprising the apron and runway areas of the former Kai Tak Airport and existing waterfront areas at To Kwa Wan, Ma Tau Kok, Kowloon Bay, Kwun Tong and Cha Kwo Ling. It covers a land area of about 328 hectares. The Project also covers Kowloon Bay and Kwun Tong Typhoon Shelter and the adjacent water bodies.

2.1.2 The former Kai Tak Airport was the international airport of Hong Kong until 6 July 1998, which was replaced by the new Airport at Chek Lap Kok. After closure, the airport site has been occupied by various temporary uses such as public fill banks, bus depots, car sales exhibitions, and recreational grounds. Besides, most of the original buildings and structures within the former airport site have been cleared and the ground contamination identified at the north apron had been decontaminated.

### 2.2 Size, Scale, Shape and Design of the Project

2.2.1 The size of the Project is approximately 328 hectares and the latest development plan is shown in the RODP (dated May 2008). In terms of planning, the RODP is based on the planning theme: "A New Harbour-front, City of Heritage, Green, Sports and Tourism". Under this plan, a series of sub-districts are proposed to be created within the Kai Tak Development (KTD) as briefly described in the following paragraphs for information. The preliminary development schedule of the KTD based on the RODP is included in **Appendix 2.1** of this report. The total population and the total employment for KTD will be about 86,000 and 84,000 respectively.

#### Kai Tak City Centre at North Apron and North Apron East

2.2.2 With sizable developable area and the availability of Shatin to Central Link (SCL) providing Kai Tak Station and To Kwa Wan Station, a commercial belt and Station Square are planned to be developed around the future Kai Tak Station. Kai Tak grid residential neighbourhood is also proposed in response to public aspiration for smaller development sites, podium free, better ventilation and more harmonious urban fabric with the hinterland. The current Kai Tak Nullah in the study area will be possibly formed as multi-cells box culvert cum open channel to cater for not only the demand of drainage system, but also enhance the overall environment of the North Apron. The development of Kai Tak City Centre will act as a catalyst for the regeneration of Kowloon City and San Po Kong.

#### Sports Hub at North Apron West

2.2.3 With great support from the sports community and the local community including district councils, a Stadium Complex will be the anchor of KTD. The stadium will be well served by To Kwa Wan (TKW) station of SCL. The complex will be composed of a main stadium with a retractable roof and 45,000 seats, a secondary stadium with 5,000 seats, an indoor sports arena with 4,000 seats and other leisure and recreation facilities. The Main Stadium will be the new icon of the Victoria Harbour. The development of Sports Hub in Kai Tak will be a major impetus to regeneration of To Kwa Wan and Kowloon City, while offering sports and recreation opportunities to the local communities.

#### Metro Park at Runway North and around Kai Tak Approach Channel

2.2.4 Metro Park is planned to be developed at the runway in response to public's aspiration for a genuine harbour park and keeping a collective memory of the runway. Apart from providing an opportunity for a harbour park of Hong Kong and venue for harbour-front activities, the Metro Park will also manifest the runway heritage and optimize the utilization of the deck over the runway gap.

#### Runway Precinct at Middle Runway

- 2.2.5 A runway precinct is planned with a hotel belt facing harbours and waterfront residential development facing KTAC. A harbourfront shopping street and open space link is planned to sustain interest of exploration from Metro Park to the Tourism Node.

#### Tourism and Leisure Hub at Runway South

- 2.2.6 The tourism industry in Hong Kong has longed for a world class cruise terminal for many years and Kai Tak is considered as a suitable site for cruise terminal with expansion potential. Adjacent to the cruise terminal will be the Tourism Node housing a variety of indoor retail and entertainment facilities together with hotels to help in creating a new tourist attraction site. A runway park will be the dominant use at the end of the runway to pay tribute to the aviation history of Kai Tak. A cross-boundary heliport is also planned at the tip of the runway.

#### South Apron Corner

- 2.2.7 South Apron Corner is planned to rejuvenate the waterfront by introducing a variety of commercial, business and GIC (Government/Institution/Community) developments taking advantage of the tranquil seaview of KTAC. The South Apron Corner will also help to regenerate Kowloon Bay and Kwun Tong into business area and create a continuous promenade to open up the Kwun Tong waterfront for public usage.

#### Kwun Tong Waterfront

- 2.2.8 Gardens underneath the Kwun Tong Bypass is proposed to form a regional park in combination of waterfront promenade providing recreation facilities for both young generation and elderly at Kwun Tong neighbourhoods. The character of the garden will be achieved through the use of a colourful spectrum in designing landscape feature to enlighten the place underneath the viaduct. This regional park also provides physical and visual connection from the South Apron Corner to Kwun Tong waterfront.

#### Cha Kwo Ling Waterfront

- 2.2.9 The Cha Kwo Ling Park is proposed to be constructed at the district open space reserved at the waterfront of Cha Kwo Ling to provide both active and passive landscape area for the use of Lam Tin and Cha Kwo Ling neighbourhoods. It is intended to enhance the vibrancy of existing waterfront through the integration of the Park and waterfront promenade. It also provides landscape buffer for screening the adjacent sewage treatment plant, the existing liquefied petroleum gas filling station and the proposed tunnel ventilation shaft and administration building of Trunk Road T2.

#### To Kwa Wan Waterfront

- 2.2.10 The existing Hoi Sham Park and Fishtail Rock form the basis to establish strong visual definition and connections with waterfront and adjoining open spaces. The integrated Hoi Sham Park and Chinese Cultural Gardern would be a district open space providing both active and passive landscape area for the use of To Kwa Wan neighbourhood. This park provides different sized pavilions with reinforced Chinese landscape character for Chinese Cultural Garden as an extension of Hoi Sham Park.

## 2.3 EIA Study Area

2.3.1 The following definitions of study area for assessing different potential environmental impacts have been adopted with reference to the EIA Study Brief No. ESB-152/2006 for the feasibility study of KTD:

- Air Quality Impact: the assessment area included the area within 500m from the boundary of the Project;
- Noise Impact: the assessment area included the area within 300m from the boundary of the Project;
- Water Quality Impact: the assessment area included all areas within 300m from the boundary of the Project plus the Victoria Harbour Water Control Zone (WCZ), the Eastern Buffer WCZ and the Western Buffer WCZ as declared under the Water Pollution Control Ordinance or the area likely to be impacted by the Project;
- Waste Management: the assessment focused on areas within the boundary of the Project;
- Land Contamination: the assessment area included all areas within the boundary of the former Kai Tak Airport;
- Hazard to Life: the assessment covered the Potentially Hazardous Installation (PHI) sites, chlorine dock, and other dangerous goods facilities as detailed in Section 3.4.11 of the EIA Study Brief No. ESB-152/2006;
- Impact on Cultural Heritage and Built Heritage Resources: the assessment for impact on cultural heritage and built heritage resources focused on the area within the boundary of the Project;
- Landscape and Visual Impact: the area for landscape impact assessment included all areas within 500 m from the boundary of the Project, while the assessment area for the visual impact assessment is defined by the visual envelope from the Project and associated works;
- Ecology: the assessment area for terrestrial ecology included the area within 500m from the boundary of land based works areas or the area likely to be impacted by the Project and associated works, while the assessment area for aquatic ecology is the same as that for the water quality impact assessment; and
- Fisheries: the assessment area included all areas within 500m from the boundary of the Project.

## 2.4 Nature, Scope and Benefits of the Project

### Nature of the Project

2.4.1 This is an urban development project with a study area covering about 328 hectares involving a total population of about 86,000 and accommodation of about 84,000 employment. The key urban design principles are formulated to ensure the creation of a successful urban environment, responsive to its unique context and site conditions. Taking these as a whole, the principles are as follows:

### *Connectivity with Surrounding Neighbourhoods*

- Pedestrian linkage and continuity of movement patterns is critical to the success and usability of the area. This will help to revitalise the older areas and ensure high levels of interface and visitation to the new area, with district urban quarters that are responsive to their context. At the same time, transport connections must be integrated to support operations within the area, and with other areas.

#### *Creation of Physical and Activity Nodes*

- The plan is formulated around the creation of district and sub-regional nodes which must function, in urban design terms, as vibrant destinations whether they act as sports hub, commercial centre or tourism-leisure hub. In turn their success is dependent on strong connectivity and transit strategy.

#### *Establishment of an Active Waterfront*

- The waterfront must be regarded as an enormous natural asset for public accessibility, perambulation and enjoyment. Pedestrian movement must be continuous, and link together a range of diverse programmes and activities which offer a sequence of promenades, parklands, commercial and retail oriented areas.

#### *Establishment of a Continuous Open Space System*

- The identity of Kai Tak will, to a large extent, be determined by its open space framework which allows for 'green' continuity, informal pedestrian circulation, and which connects together leisure, recreational, cultural and commercial areas.

#### *Creation of a Pedestrian Friendly Environment*

- Apart from a continuous and connective pedestrian system, the pedestrian experience has got to be user friendly in terms of comfortable walking radii from public transport, visually contrasting expenses, environmentally convenient and safe connections, both horizontally and vertically.

#### *Creating Dynamic and Visually Interesting Urban Places*

- The various planning areas should present a mix of architectural and spatial compositions at various scales as appropriate. While height limitations have been set in various areas, there is a need for an interesting mix of building forms, scales and skyline profile to establish the image and identity of the Kai Tak area.

#### *Integrate Urban Gateways*

- Gateways must express the various transitions that occur within the Kai Tak area, and between the new development district and the surrounding area. These can take on a variety of different forms and types, and normally signal points of arrival, changes of pedestrian or vehicular condition, specific types of street function and expressive visual markers.

#### *Legibility, Orientation and Views*

- It is necessary to provide visual cues that assist the process of orientation. Within the overall spatial framework, this entails the integration of visual corridors and important viewsheds to regional or city-wide features, the use of prominent landmark elements, and the serial 'framing' of sequential visual experiences throughout the overall movement framework.

#### *Creation of Streetscape*

- Whenever possible the creation of coherent and continuous streetscape should form a key consideration of avenue design through 'joined together' elements to provide consistent built edge, consistency of height profiles, architectural identity, signage channels, and landscape.

- 2.4.2 All of the above principles relate to the important relationship between urban and landscape design, and landscape principles are therefore fully integrated with the overall urban design strategy.

Project Scope

- 2.4.3 The scope of the Project comprises:

- (a) Demolition works at the former Kai Tak Airport such as the disused Fire Station A & C, abandoned fuel hydrant system and underground fuel tank, ASDE Radar Tower and ex-GFS Building.
- (b) Construction of key infrastructures to serve KTD for development of key components including
  - i) Cruise Terminal;
  - ii) Tourism Node;
  - iii) Runway Park;
  - iv) Cross-boundary Heliport;
  - v) Multi-purpose Stadium Complex;
  - vi) Shatin to Central Link;
  - vii) Central Kowloon Route (part) and Trunk Road T2;
  - viii) Commercial office/hotel sites;
  - ix) Public and private housing sites;
  - x) Metro Park and continuous Waterfront Promenade;
  - xi) Environmentally friendly transport system;
  - xii) Possible transportation link to Kwun Tong Area including proposed footbridges across the Kai Tak Approach Channel;
  - xiii) Hospital;
  - xiv) Other private developments to be developed in phases; and
  - xv) other development components including schools, government/institutional/community uses, fire stations, police stations, transformer stations, sewage pumping stations and recreational sites, etc
- (c) The infrastructure needs to be provided are not exhaustive to roads, vehicular bridges, footbridges, subways, railway, environmentally friendly transport system, drainage culverts and drains, rising mains and sewers, pumping stations, fresh and salt water supply mains, district cooling system, electricity substations and utilities, landscape softworks and hardworks.
- (d) All other associated development and infrastructure works within Kai Tak Development area.

### Project Benefits

- 2.4.4 With the vision to create a distinguished, vibrant, attractive and people-oriented Kai Tak by Victoria Harbour, the key components of KTD shown on the RODP has adopted the principle to achieve economic, social and environmental sustainability in its preparation.
- 2.4.5 The provision of Cruise Terminal, Tourism Node, Multi-purpose Stadium Complex and other attractions in Kai Tak are expected to strengthen the tourism attractiveness of Hong Kong and to enhance the overall image of Hong Kong as a “must-see” city for tourists.
- 2.4.6 The SCL is one of the priority rail projects recommended in the Railway Development Strategy. It forms a new rail link between Tai Wai and the Central Business District in Hong Kong Island through the North Apron Area of KTD with provision of Kai Tak Station and To Kwa Wan Station. The line will significantly increase the cross-harbour and Shatin-Kowloon rail capacities and also help to redistribute the flows and relieve the other railway lines in Hong Kong and Kowloon.
- 2.4.7 The Central Kowloon Route (CKR) will landfall on KTD to connect with Trunk Road T2 (T2). There will be an interchange of CKR/T2 to be provided within KTD to allow connection of CKR/T2 with primary distributor roads in Kowloon Bay. At another end of T2 will connect with Tseung Kwan O – Lam Tin Tunnel (TKO-LTT) and the associated interchange at Lam Tin. With provision of this strategy route, traffic from West Kowloon can travel to East Kowloon directly without utilizing hinterland road network so as relieving the traffic burden on the roads in the hinterland area.
- 2.4.8 The Metro Park is the main open space attraction within the development area and the focus of local and tourist activities. Within the landscape framework, this is classified as the primary open space for South-East Kowloon providing a large leisure area at the heart of the development. It will be a key visitor attraction in Hong Kong on a regional and international scale. The central location of the park enables the creation of important view corridors that form an intrinsic part of the development in the context of its surroundings.
- 2.4.9 Environmentally friendly transport system (EFTS) is introduced to operate as a major internal mode of transport within KTD. The system may have side economic and social benefits, providing easy access to Kai Tak, including the enhancement to the land revenue of the development sites in the vicinity of the EFTS stations and speeding up the transformation of the Kwun Tong Industrial Area into a modern business area. The system would also serve as an icon enhancing the overall tourism appeal of the Kai Tak site.
- 2.4.10 A Kwun Tong transportation link is proposed to provide a direct connection between Kwun Tong Area and the Runway tip allowing three modes of transportation: EFTS, pedestrian and vehicular facilities. It should be a direct connection between the existing and the future developments, in the form of an iconic bridge crossing KTTS so as to serve as a catalyst in the rejuvenation of Kwun Tong district and redevelopment of Kwun Tong industrial area.
- 2.4.11 In terms of society and social infrastructure, the residential neighbourhood at KTD is proposed to enhance living space and meeting the housing demand of the territory. In the meantime, the public rental housing waiting time is expected to get worse without the timely implementation of the committed public housing projects in Kai Tak to tally with the housing provision programme. Overall speaking, through considerable housing provision, the proposed KTD is expected to strengthen the social infrastructure of Hong Kong.

- 2.4.12 The proposed KTD is expected to act as a catalyst for urban regeneration of the surrounding districts such as Kowloon City, San Po Kong, Kowloon Bay and Kwun Tong. It would also improve the landscape and urban design quality of the area, provide numerous community facilities to meet the needs of a diversity of user groups, preserve and promote the cultural heritage and identity of the place, promote a vibrant and accessible harbour front, and promote sports and cultural development in Hong Kong. All these positive impacts are coherent to the rising public requests for the early development of Kai Tak.

## **2.5 The Need of Project and Scenario without the Project**

- 2.5.1 During various stages of the public participation process conducted under the Kai Tak Planning Review, the general public aspiration is in favour of the early implementation of the KTD. It is therefore needed to implement the construction of infrastructure as well as the land disposal recommended in the RODP so as to materialize the full development of the vacant land in Kai Tak and its benefits to the hinterland.
- 2.5.2 Under the approved OZP, KTD is expected to provide a luminous place for accommodation of about 86,000 populations in South East Kowloon. Availability of land to be supplied in constant manner within a relatively long period in metro Kowloon is expected to enhance living space, stabling private rent and relieving the housing inadequacy of the territory. Extensive open space network will not only help to alleviate the shortfall of open space in surrounding districts, but also improve the vibrancy of Hong Kong's recreational opportunities and leisure activities.

### Consequences of Not Proceeding with the Project

- 2.5.3 According to the consultancy studies on Hong Kong's cruise market and cruise terminal facilities development conducted by the Tourism Commission, Hong Kong will require an additional berth between 2009 and 2015, and one to two further berths beyond 2015 to sustain its development as a regional cruise hub. On this basis, timely development of the Cruise Terminal is crucial to bring wider economic benefits to Hong Kong. In the absence of the Project, the loss of economic benefits contributed from the cruise industry and the employment opportunities generated by the co-related supporting facilities is not affordable.
- 2.5.4 Hong Kong should achieve a competitive and prosperous market-based economy which provides the resources to meet the needs and aspirations of the population in the next decades. Under the current policy, the land revenue to the Government will be obtained from the disposal of land in Kai Tak for implementation by the private sector of the proposed developments through sale of government land. Land revenue will also be obtained from lease modification of the redevelopment of a few existing developments within and in close proximity of KTD. Generally speaking, the land revenue generated from the development in Kai Tak would not be materialized if the Project did not proceed further.
- 2.5.5 The RODP has incorporated the two committed public housing projects at the North Apron. Without the timely implementation of the committed public housing projects in Kai Tak, the public rental housing waiting time is expected to be adversely affected. Meanwhile, the housing development in Kai Tak is expected to alleviate the territorial demand of residential housing in long term.

## 2.6 Consideration of Alternatives and Development of Preferred Option

### *Introduction*

- 2.6.1 Under KTD with no reclamation as a starting point, the study area was significantly reduced, which some of the previous land use proposal would still be provided in the existing land within the study area. For those elements which cannot possibly be accommodated entirely within the existing land available, it is necessary, as a first step, to identify any reasonable alternative to reclamation, i.e. no reclamation scenario. If a feasible no-reclamation option is identified, then it should be pursued. If a feasible no-reclamation option is not available, the relevant project proponents should justify the need of their proposed land use and infrastructure that could pass the overriding public need test and PHO should be observed prior to considering any reclamation options.
- 2.6.2 It should however be noted that, as revealed in the 3-stage public participation exercise conducted under Kai Tak Planning Review (KTPR) for the Project, the community is supportive of a “no-reclamation” approach provided that the environmental problems of the Kai Tak Approach Channel, in particular the odour problem, can be resolved.

### *Alternative Development Options*

- 2.6.3 To foster community support and general consensus to the key issues and study proposals, a 3-stage public participation exercise was conducted to enable more structured public engagement activities in the development of Kai Tak:
- Stage 1: Community's Visions for Kai Tak – to discuss planning objectives, key issues, development components, public aspirations and study approach
  - Stage 2: Outline Concept Plans – to discuss various development concepts and land use proposals
  - Stage 3: Preliminary Outline Development Plan – to present the recommended development concept and detailed land use proposals

### *Stage 1 Public Participation – Public Review*

- 2.6.4 The Stage 1 Public Participation: Community's Vision for Kai Tak was conducted from September to November 2004. The community response was positive, with over 500 participants in the public forums / community workshop and over 250 written comments and proposals. To facilitate more focused discussion, 20 briefing sessions / consultation meetings were made to various statutory and advisory bodies, professional institutions and other interested organizations.
- 2.6.5 The Sub-Committee on SEKD Review under the HEC (“the HEC Sub-committee”) was briefed on the comments and proposals received in the Stage 1 Public Participation on 13 December 2004 and 23 February 2005. The Sub-committee considered that in order to facilitate the building of community consensus, the public should be given an opportunity to know about the comments and proposals received, and the preliminary responses of Government departments and to provide further views. “Kai Tak Forum” was convened by the Sub-committee on 19 March 2005, which enabled the public to review the comments and proposals received in the Stage 1 Public Participation and the corresponding responses from the Government bureaux / departments. The event was well attended by over 200 participants.
- 2.6.6 The public views / comments collected from the Stage 1 Public Participation and the responses by the Consultants and Government bureaux / departments were recorded in the Stage 1 Public Participation Report, and was summarized in the following.

- 2.6.7 There was a general consensus in the community on the following aspirations for future development of Kai Tak:
- To create a new image for Hong Kong
  - To bring the sensation of the harbour back to the people
  - To enhance the quality of living
  - To reckon the heritage of Kai Tak as one of the collective memories of Hong Kong
  - To establish a hub of sports, recreational, tourism, entertainment and quality housing development
  - To develop a sustainable green city that nurtures new urban living experience
  - To provide catalyst for revitalizing and enhancing the surrounding districts
- 2.6.8 The planning principles raised by the public were mostly consistent with the Harbour Planning Principles promulgated by the HEC in January 2005 and most of which had also been incorporated into the previous Kai Tak studies. The planning principles include:
- People-oriented & bottom-up planning approach
  - Integrated land use, environment & transport planning approach
  - Bring the harbour to the people
  - Sustainable development (economic, social and environmental aspects)
  - Protection of views to ridgeline
  - Gradation of building heights to avoid high-rise development at the waterfront
  - Retain local culture and historical past
  - Enhancement to living environment and traffic improvement
  - Urban design guidelines
- 2.6.9 There was general concern in the community on the interface and connectivity issues with the surrounding districts. Many perceived the development of the ex-airport site as an opportunity to improve the living quality of the surrounding districts, e.g. provision of open space. There were also concerns that KTD should not introduce new problems to the neighbouring districts, particularly traffic problem. Most of the public considered that KTD should facilitate redevelopment and revitalization of these areas.
- 2.6.10 These planning visions and directions suggested by the public largely echoed the Baseline Review findings of the Kai Tak Planning Review, and were further concurred at the Kai Tak Forum. At the workshop session, the participants were divided into eight groups to carry out round-table discussion firstly to formulate a development theme for Kai Tak. The Groups were then asked to list out their preferred development components to be included under their selected themes.
- 2.6.11 Results from the workshop indicated that most groups proposed “Tourism and Sports / Recreation” as the development theme for Kai Tak. Other land use themes proposed include cultural heritage, quality housing, entertainment, education and environmental / greening.
- 2.6.12 In terms of the essential land use components to be included within Kai Tak, seven of the eight groups selected cruise terminal and public open space. Six selected preservation of Kai Tak heritage. Five selected tourism node and integrated sports complex / multi-purpose stadium. Four groups opted for landmark building at the runway tip, EFTS, hotels, museums and heritage cluster as key land use components.

2.6.13 Stage 1 Public Participation Programme and the Kai Tak Forum revealed that there were quite a few common land use components aspired by the community for Kai Tak. To facilitate further public engagement at Stage 2 Public Participation, it was recommended that, the OCPs incorporated these key components and to exhibit distinguishable land use emphasis, urban design concepts and development intensities to enhance the distinctiveness of individual OCPs. Following this direction and based on the proposed planning vision and principles, the following four OCPs had been derived:

- Concept Plan 1: City in the Park
  - the overall theme is to create an attractive business and living district in Kai Tak in a park-like environment
- Concept Plan 1A: City in the Park (Residential-focused)
  - a sub-concept generated under Concept Plan 1 to illustrate the scenario of maximizing housing provision
- Concept Plan 2 : Sports by the Harbour
  - the overall theme is to promote Kai Tak as a sports and recreation hub, by planning a recreation belt extending from the North Apron Area to Runway
- Concept Plan 3 : Kai Tak Time Line
  - the overall theme is to preserve the Kai Tak heritage and to promote Kai Tak as a tourism and entertainment hub for both the local population and overseas visitors

2.6.14 These OCPs were subsequently revised and further developed to incorporate comments received from Government bureaux and departments. The major changes were as follows:

- Consolidate some development concepts such that there could be more distinct development themes for public discussion
- Highlight the urban design concepts on Kai Tak heritage in all draft OCPs
- Incorporate a railway depot site at Kai Tak to service the future Shatin-to-Central Link

2.6.15 The resultant three outline concept plans consolidated were presented for public consultation during Stage 2 Public Participation, and were summarized in the following paragraphs.

*Concept Plan 1: City in the Park (Figure 2.1)*

*To develop a quality living district in a park-like environment*

2.6.16 Being the largest remaining development area by Victoria Harbour, Kai Tak offers a rare opportunity for elegant waterfront residential development, enriched by quality recreational and commercial facilities. It will also act as a catalyst for regeneration of the surrounding districts.

2.6.17 Concept Plan 1 seeks to fully capture the unique configuration of Kai Tak to create two distinct areas of pleasant living: A high-density and high-rise residential/stadium district is planned at the heart of North Apron Area to optimize the provision of two railway stations. Mid-rise and medium density residential developments are planned on the distinctive runway island, overlooking Kai Tak Approach Channel as well as Victoria Harbour. Similar to other concepts, a 600-m gap is planned beneath the runway to enhance water circulation at Kai Tak Approach Channel.

2.6.18 The following distinctive concepts have been incorporated in this Concept Plan:

- Kai Tak Metro Park - forming a central park across North Apron
- High Density Residential Development – fronting onto the Sports Stadium and next to SCL Stations
- Island & Waterfront Living – residential clusters on the runway island
- Cruise Terminal-Cum-Tourism Node – with 2 alongside berths for cruises and retail/entertainment/hotel uses
- Kai Tak Boulevard – distinctively designed thoroughfare along the runway to honour the aviation history of Kai Tak, and a runway park with facilities on aviation or other themes at the runway end
- Harbour-front Promenade and Park Network – from To Kwa Wan to Kwun Tong along the harbourfront and also throughout the study area
- Pedestrian Kai Tak – pedestrian connections of various forms and settings

*Concept Plan 2: Kai Tak Glamour (Figure 2.2)*

*To celebrate the glamour of Kai Tak as a historical anchor, a visiting hub and an economic powerhouse*

2.6.19 The aviation history of Kai Tak is not only part of the precious collective memory of the Hong Kong community, but has also been of significance to the economic growth of the territory.

2.6.20 Building on this distinctive past of the place, Concept Plan 2 seeks to regenerate and further manifest the glamour of Kai Tak by promoting an iconic and vibrant waterfront metropolitan district, which exhibits the energy and dynamism of Hong Kong. The linear former-runway provides the platform along which a series of activities are planned: from the high-rise landmark office/stadium developments in North Apron, to the characteristic residential runway island, to a cruise terminal/tourism node at the runway end. An animated Kai Tak Promenade, waterfront fountain shows and water curtain film show at Kai Tak Approach Channel will altogether celebrate the glamour of Kai Tak.

2.6.21 The following distinctive concepts have been incorporated in this Concept Plan:

- Kai Tak Metro Park - forming a central park across North Apron
- Premier Office Node - facing the Harbour and next to SCL Station
- New San Po Kong – mixed commercial area adjacent to San Po Kong serving as the new gateway of Kai Tak and a catalyst for regeneration
- Island & Waterfront Living – residential clusters on the runway islands
- Water Glamour – water fountain and water curtain film show at the waterfront of Ma Tau Kok and Kai Tak Approach Channel
- Cruise Terminal-Cum-Tourism Node - with 2 berths for cruises and retail/entertainment/hotel uses
- Kai Tak Promenade - runway promenade with historical displays and cultural activities, and a runway park with facilities of aviation or other themes at runway end
- Harbour-front Promenade and Park Network - from To Kwa Wan to Kwun Tong along the harbourfront and also throughout the study area
- Pedestrian Kai Tak – pedestrian connections of various forms and settings

*Concept Plan 3: Sports by the Harbour (Figure 2.3)*

*To promote Kai Tak as a sports and recreation hub*

- 2.6.22 Located by the harbourfront, Kai Tak is well positioned to be developed into a vivacious sports and recreation hub for East Kowloon as well as for the territory.
- 2.6.23 To complement the overall sports and recreation theme of Concept Plan 3, the land use/urban design framework seeks to create residential neighbourhoods of human scale around recreation facilities to reinforce an image of a green and lively urban district. Establishing wider connections via the open space network to surrounding districts will reinforce Kai Tak as a major recreational centre. A lower development density is adopted to achieve a leisurely atmosphere.
- 2.6.24 The following distinctive concepts have been incorporated in this Concept Plan:
- Sports City - integrated commercial, sports and recreation belt with the multi-purpose stadium as its anchor
  - New San Po Kong – mixed commercial area adjacent to San Po Kong serving as the new gateway to Kai Tak and a catalyst for regeneration
  - Recreation Depot – indoor and outdoor sports and recreation use above SCL depot
  - Kai Tak Recreation Ground – hub of air navigation-related sports and recreation activities
  - Victoria Harbour Cycle Track – a network of cycle track linking up the green space on the former runway
  - Cruise Terminal-Cum-Tourism Node - with 2 berths for cruises and retail/entertainment/hotel uses
  - Environmental Education Metro Park - on land around Kai Tak Approach Channel
  - Harbour-front Promenade (including Kai Tak Promenade) and Park Network - from To Kwa Wan to Kwun Tong along the harbourfront and also throughout the study area including a runway park
  - Pedestrian Kai Tak – pedestrian connections of various forms and settings.

- 2.6.25 The distinctive concepts incorporated in each of three OCPs are summarized in Table 2.1 below.

*Comparison of OCPs (including Environmental Benefits and Dis-benefits)*

- 2.6.26 Concept 1 proposes to develop a quality living district in a park-like environment. It provides the highest development density among other Concepts and contributes positively to the housing supply in the territory.
- 2.6.27 Nevertheless by their emphasis on high density development, Concept 1 would contribute the least to providing open space, sports, recreation and cultural facilities and enhancing landscape quality in the area. By breaking up the runway into islands, it is less successful in preserving and promoting cultural heritage and identity in Kai Tak. With its highest development intensity among other Concepts, Concept 1 is also likely to generate more construction and municipal wastes, and consume the most energy and freshwater. They also perform the weakest in terms of environmental quality including air quality and noise.
- 2.6.28 With high commercial space provision, Concept 2 is expected to perform the best in generation of economic benefits in terms of creation of business and employment opportunities. The provision of commercial buildings in North Apron would also help to screen existing traffic noise. Furthermore, the provision of Water Glamour and Kai Tak Promenade would enhance the cultural and recreational vibrancy of Kong Kong.

- 2.6.29 Yet, with relatively high density development, Concept 2 would have similar demerits to Concept 1 of generation of large amount of construction and municipal wastes and great consumption of energy and freshwater.
- 2.6.30 Targeting to create a sports and recreation hub in Kai Tak, Concept 3 is most successful in promoting leisure, sports and recreation activities, which cater for the need of a diversity of user groups. With its relatively low development intensity, Concept 3 is likely to perform better than Concepts 1 and 2 in the areas of natural resources (including waste, energy, and freshwater) and environmental quality.
- 2.6.31 Nonetheless by providing the least commercial and residential floor spaces, Concept 3 is expected to perform relatively weak in generating financial and economic benefits, including fixed capital formation and employment opportunities. It is also less able to contribute to the territorial housing supply and act as a catalyst for urban regeneration.

*Preliminary Technical Assessments of OCPs*

- 2.6.32 Preliminary technical assessments and preliminary sustainability assessment on these OCPs have been conducted. Overall speaking these technical assessments have confirmed the general feasibility of the OCPs, but they have also pointed out areas for improvements. For example, they have raised the concern on potential noise problem on the planned residential developments near Prince Edward Road East under Concept Plan 1. Sensitive land use and mitigation (such as commercial uses to act as noise screen) were called for when preparing the PODP.
- 2.6.33 Preliminary impact assessments on traffic, infrastructure including drainage, sewerage and water supplies, and marine aspects for the three final OCPs were conducted. It was concluded the findings and suggestions for the draft OCPs are still applicable for the final OCPs provided that the proposed development quantum of the final OCPs has not exceeded the maximum one of the draft OCPs, the road network and external connections have not deviated too much from the draft OCPs and no reclamation is involved.
- 2.6.34 Preliminary environmental impact assessments including air quality, noise and water quality were conducted for the draft OCPs. The preliminary mitigation measures as recommended for further investigation in the PODP stage are also applicable for the final OCPs. Other issues identified on waste, hazard, sediment implications and ecology aspects are also valid for the final OCPs.
- 2.6.35 Preliminary visual impact assessment was carried out for KTD. Except Concept 3 of the final OCPs which lower building heights within the Study Area was proposed and hence comparatively less potential adverse impacts on the views from the immediate periphery of the site, views from immediate periphery of the site would generally experience moderately adverse visual impacts from foreshortening of views from open and distant to close proximity. In case of occasional blocking of views (e.g. in MTK, Kowloon City, San Po Kong, Choi Hung, Kowloon Bay), the visual impacts could be high. Visual measures have also been included in the planning and design of the concepts including ridgeline preservation, view corridor preservation, stepped and varied building heights, landmark design, open space provision and green measures (including green roofs) to enhance the overall visual quality of the KTD and to mitigate the adverse impacts that it may generate.
- 2.6.36 The preliminary sustainability assessment has highlighted that extensive open space provision, and recreation and tourism proposals (e.g. multi-purpose stadium complex, cruise terminal-cum- tourism node) championed under all OCPs, and in particular in Concept Plan 3, have high merits in promoting recreation and tourism development and in improving the quality of living of the local population. They should be positively considered and further strengthened in PODP preparation.

- 2.6.37 Generally speaking Concept Plan 1 performs weaker than the other two Concept Plans. While it contributes the highest housing provision, it has drawbacks such as traffic noise concern, inferior urban design qualities and comparatively less landscaping merits. These aspects should be critically reviewed in preparing the PODP. Concept Plan 2, on the other hand, by its high commercial space provision, shows merits in creating employment opportunities and addressing the existing traffic noise problem. These merits, together with the strategic estimated demand for commercial spaces, should be taken due consideration in PODP formulation.

**Table 2.1 Distinctive Concepts of OCPs**

	<b>Concept 1: City in the Park</b>	<b>Concept 2: Kai Tak Glamour</b>	<b>Concept 3: Sports by the Harbour</b>
Distinctive concepts incorporated in each of three OCPs	<ul style="list-style-type: none"> <li>• Kai Tak Metro Park - forming a central park across North Apron</li> <li>• High Density Residential Development – fronting onto the Sports Stadium and next to SCL Stations</li> <li>• Island &amp; Waterfront Living – residential clusters on the runway island</li> <li>• Cruise Terminal-Cum-Tourism Node – with 2 alongside berths for cruises and retail/entertainment/hotel uses</li> <li>• Kai Tak Boulevard – distinctively designed thoroughfare along the runway to honour the aviation history of Kai Tak, and a runway park with facilities on aviation or other themes at the runway end</li> <li>• Harbour-front Promenade and Park Network – from To Kwa Wan to Kwun Tong along the harbourfront and also throughout the study area</li> <li>• Pedestrian Kai Tak – pedestrian connections of various forms and settings</li> </ul>	<ul style="list-style-type: none"> <li>• Kai Tak Metro Park - forming a central park across North Apron</li> <li>• Premier Office Node - facing the Harbour and next to SCL Station</li> <li>• New San Po Kong – mixed commercial area adjacent to San Po Kong serving as the new gateway of Kai Tak and a catalyst for regeneration</li> <li>• Island &amp; Waterfront Living – residential clusters on the runway islands</li> <li>• Water Glamour – water fountain and water curtain film show at the waterfront of Ma Tau Kok and Kai Tak Approach Channel</li> <li>• Cruise Terminal-Cum-Tourism Node - with 2 berths for cruises and retail/entertainment/hotel uses</li> <li>• Kai Tak Promenade - runway promenade with historical displays and cultural activities, and a runway park with facilities of aviation or other themes at runway end</li> <li>• Harbour-front Promenade and Park Network - from To Kwa Wan to Kwun Tong along the harbourfront and also throughout the study area</li> <li>• Pedestrian Kai Tak – pedestrian connections of various forms and settings</li> </ul>	<ul style="list-style-type: none"> <li>• Sports City - integrated commercial, sports and recreation belt with the multi-purpose stadium as its anchor</li> <li>• New San Po Kong – mixed commercial area adjacent to San Po Kong serving as the new gateway to Kai Tak and a catalyst for regeneration</li> <li>• Recreation Depot – indoor and outdoor sports and recreation use above SCL depot</li> <li>• Kai Tak Recreation Ground – hub of air navigation-related sports and recreation activities</li> <li>• Victoria Harbour Cycle Track – a network of cycle track linking up the green space on the former runway</li> <li>• Cruise Terminal-Cum-Tourism Node - with 2 berths for cruises and retail/entertainment/hotel uses</li> <li>• Environmental Education Metro Park - on land around Kai Tak Approach Channel</li> <li>• Harbour-front Promenade (including Kai Tak Promenade) and Park Network - from To Kwa Wan to Kwun Tong along the harbourfront and also throughout the study area including a runway park</li> <li>• Pedestrian Kai Tak – pedestrian connections of various forms and settings.</li> </ul>

### *Stage 2 Public Participation*

- 2.6.38 In November 2005, the Study launched the Stage 2 Public Participation Programme. The above three OCPs were presented for public comments. Under the Stage 2 Public Participation programme, apart from public and district forums, three topical forums on the multi-purpose stadium, cruise terminal and KTAC proposals respectively were organized to facilitate more in-depth discussion. The public has responded enthusiastically, with over 500 participants took part in the public engagement activities and over 150 written submissions received, public comments generally echo the findings of the preliminary technical assessments and preliminary sustainability assessment.
- 2.6.39 To facilitate public discussion on the comments/proposals received in the Stage 2 Public Participation and the responses of Government bureau/department and the Consultants as well as to involve the public to discuss the initial ideas of the draft PODP, the Subcommittee of the HEC convened the Second Kai Tak Forum on 25 March 2006. Prior to the Forum, site visit to Kai Tak was arranged on 18 March 2006 to enable members of the public to familiarize themselves with the development opportunities and constraints of Kai Tak. A total of 160 participants joined the site visit.
- 2.6.40 Public comments/proposals received and responses by the Consultants and Government bureaux/departments have been recorded in the Stage 2 Public Participation Report. The major comments received from the public and the corresponding responses are summarized in **Table 2.2**.

**Table 2.2 Comments and Responses of Stage 2 Public Participation**

<u>Item</u>	<u>Public Comments</u>	<u>Responses</u>
Vision and Planning Principles	Public comments received largely concur with the vision and planning principles for Kai Tak as stated in Stage 2 Public Consultation Digest.	The vision and principles were adopted in the draft PODP to provide the overall guidance for the planning of Kai Tak.
Development Intensity	There was a general public preference for lower development intensity as proposed in Concept Plan 3. These public comments were consistent with the approach being pursued in the OCPs.	Under the draft PODP, maximum domestic plot ratio of 5.0 and non-domestic plot ratio of 9.5 were applied for all planned developments, except for the two public housing sites which have completed their piling foundation and had a maximum plot ration of around 5.5 to 6.3 respectively. Lower plot ratios were applied in the runway area and in areas of urban design concern.
Office Node	There were divergent public views on the need for and suitability of a new office node in Kai Tak.	The draft PODP based on the HK 2030 Study for direction. According to the HK 2030 Study, there is long term need to meet the potential shortfall of Grade A offices. A critical mass with a minimum GFA of 500,000m <sup>2</sup> is required for a premier office centre, and HK2030 Study has identified Kai Tak as one of the last remaining location in the main urban area to meet such requirement. Based on the recommendations of HK2030 Study, an office node was proposed in the draft PODP. The HK2030 Study has further indicated that higher office provision than the critical mass is preferred. Based on these recommendations, an office node of around 700,000m <sup>2</sup> GFA of new office developments was provided in the draft PODP.
Multi-purpose Stadium Complex	Many commenters supported the development of a multi-purpose stadium complex in Kai Tak to support the long term sports development in Hong Kong and in step with other major world city in the provision of large scale sports facilities while some respondents maintained their views of locating the facility in the New Territories. Some also queried its size and its integration with the surrounding.	With the confirmation from Home Affairs Bureau on its need, location and size, the draft PODP planned for a multi-purpose stadium complex of 23.2ha. Its integration with the surrounding was also enhanced.

<u>Item</u>	<u>Public Comments</u>	<u>Responses</u>
Cruise Terminal	Many respondents supported the early development of the proposed cruise terminal in Kai Tak. There were also extensive discussions on other alternative locations of the cruise terminal in the Harbour Area.	With the confirmation from the Tourism Commission on its need and location, the draft PODP planned for a two-berth cruise terminal together with its associated tourism node.
Aviation-related Facilities	Many commenters were in support of retaining certain remnant of the longstanding aviation culture in Kai Tak. The aviation enthusiasts also advocated the provision of a light aircraft civil runway at Kai Tak. Some also raised concerns on the proposed cross-boundary heliport at the runway tip.	On the draft PODP, the aviation heritage of Kai Tak was highlighted (e.g. preserve ex-runway, allow for the retention of the existing aviation clubs in Sung Wong Toi, create runway park with possible aviation theme). Light aircraft runway would not be included in view of its technical concerns and the competing uses for the prominent ex-runway. An at-grade cross-boundary heliport would be planned at the corner of the runway end, the need for which is confirmed by the then Economic Development and Labour Bureau (EDLB).
Marine-related Facilities	Harbour-front operators strongly urged for the retention of the existing typhoon shelters and public cargo working areas (PCWAs). Many commenters, especially the local community, urged for early decommissioning of the PCWAs, and there were also environmental concerns over the typhoon shelters.	Under the draft PODP, To Kwa Wan and Kwun Tong Typhoon Shelters were retained, the need for which are confirmed by EDLB. The central and eastern portions of the Cha Kwo Ling PCWA would be displaced by the proposed refuse transfer station (RTS) and Road T2. The rest of it and the Kwun Tong PCWA were planned as public promenade as a long term proposal to facilitate the regeneration of Kwun Tong Business Area and to enhance public accessibility.
Environmentally Friendly Initiatives	Many commenters reiterated the need for environmentally friendly initiatives in Kai Tak. The local communities nevertheless objected to the provision of a Refuse Transfer Station (RTS) at ex-Kaolin Mine site.	A RTS, which fell outside the Kai Tak area and not covered by the draft PODP, was planned at ex-Kaolin Mine site. The need for the proposed RTS is confirmed by Environmental Protection Department and the provision is subject to detailed feasibility study. The then Environment, Transport and Works Bureau (ETWB) is supportive to the use of environmentally friendly transport mode (EFTM) for the public transport system in Kai Tak. However, given the concern on its financial viability, a rail-based environmentally friendly transport system was not incorporated in the draft PODP. Site reservation for District Cooling System was also included in the draft PODP while other environmentally friendly initiatives do not require site reservation at the PODP stage.

<u>Item</u>	<u>Public Comments</u>	<u>Responses</u>
Urban Design and Landscaping	The public generally concurred with the major urban design and landscape considerations highlighted during Stage 2 Public Participation. Professional institutes stressed the need to introduce more distinct urban design concepts for KTD (e.g. smaller lot size and avoiding huge podiums). There was also a general call for more open space, in particular a larger Metro Park.	In response to public aspirations, distinct urban design concepts (e.g. prominent recreational belt comprising stadium complex and Metro Park by the waterfront, small grid residential neighbourhood in North Apron) were proposed for the draft PODP. An extensive Metro Park with an integrated open space network was also proposed.
Transportation and Pedestrian Facilities	There was a general call for improved connectivity and integration between Kai Tak and its surrounding. Many also suggested minimizing the land take of roads.	For the draft PODP, enhancement to the connectivity and integration between Kai Tak and its surrounding were proposed in terms of vehicular and pedestrian linkages. Road land take was minimized by a ring road system and introduction of landscaped decks over certain road sections.
Social Integration	People showed concern about the social integration between the old districts and Kai Tak in terms of community facilities and opportunities for decanting housing etc.	Under the draft PODP, many community facilities, Government offices, open space and sports facilities were planned to meet the need of Kai Tak as well as the existing neighbouring districts. Provisions for opportunities for decanting housing were also made in the PODP.

### *Stage 3 Public Participation*

#### *Draft PODP*

- 2.6.41 Taking into account the public comments received from Stage 2 Public Participation, a draft PODP was formulated for further public consultation at Stage 3 Public Participation. A mix of planning proposals was put forth to meet public needs and aspirations, while addressing various policy initiatives of the Government. In essence, the draft PODP proposed to create a new urban node at Kai Tak, supported by a belt of office developments, several residential neighbourhoods and a variety of Government, institution and community facilities, a multi-purpose stadium complex fronting the Victoria Harbour, a cruise terminal cum tourism node at the end of the former-runway and a Metro Park at Kowloon Bay waterfront.

#### *Public Participation*

- 2.6.42 The Stage 3 Public Participation of the Kai Tak Planning Review on the Preliminary Outline Development Plan was conducted from June to August 2006 to invite public discussion on the draft PODP before it is finalized. The community response was positive, with over 400 participants in the public forums / briefing sessions / consultation meetings and over 230 written comments and proposals.
- 2.6.43 After the previous two rounds of public engagement activities, the discussion during Stage 3 Public Participation was centred on details on relevant development proposals. There is general acceptance of the development vision, planning principles and key development components, e.g. Cruise Terminal, Stadium Complex and Metro Park as proposed in the draft PODP. Majority of the comments / proposals were to improve / fine-tune the development and infrastructure proposals and to enhance the connectivity of Kai Tak with the surrounding districts. Based on the key development components, many concerned groups and political parties had also prepared alternative development layouts for discussion in the community. These comments were taken into account in finalizing the PODP. **Tables 2.3** provides a summary of the public comments received and the responses by the Consultants and Government bureaux / departments during Stage 3 Public Participation and the approaches adopted in the final PODP.

**Table 2.3 Comments of Stage 3 Public Participation and approaches to Final PODP**

<u>Item</u>	<u>Public Comments</u>	<u>Approaches to Final PODP</u>
Level of Development and Office Centre	The proposed level of development was generally acceptable to the community. Yet, some sectors of the community cast doubt on whether the viability of the KTD could be supported by the proposed level of development. On the other hand, some commenters suggested further reducing the development intensity. Others queried the extent of the office space provision and raised concern on its air ventilation impact on surrounding districts. Some proposed relocating the Government Offices close to San Po Kong to better serve the existing community.	In the final PODP, it was considered prudent to maintain the proposed level of development, as the proposed office developments were required to meet the long-term office demand as identified in the Hong Kong 2030 Study and the proposed residential developments were planned on the basis of comprehensive layout approach and urban design considerations. Amendments were made to the draft PODP to minimize the potential air ventilation impact, such as reducing the building heights of the commercial belt along Prince Edward Road East. The Government Offices would be relocated to a site abutting Prince Edward Road East to better serve the existing and future population
Metro Park & Open Space Network	The public generally supported the proposed network of open space and a continuous waterfront promenade around Kai Tak. While the concept for a waterfront Metro Park was well-received, there were comments concerning the accessibility of the population in the surrounding districts to the park.	Under the final PODP, it was decided to maintain the location of the Metro Park to optimize the use of the 600m gap along the runway. To strengthen its linkages with the surrounding districts, a more comprehensive network of open space was proposed in the North Apron area not only to serve the future population but with enhanced connections to serve the existing communities.
Sports Hub	The sports community and many commenters expressed support to the currently proposed location of the sports hub. Some nevertheless proposed alternative locations for the stadium complex within Kai Tak. While the sports community supported the proposed scale of the stadium complex to facilitate staging of international sports and entertainment events, some members of the public cast doubt on its size. Many commenters raised concerns on the district distributor road running through the middle of the Stadium Complex site. Some commenters suggested sinking half of the main stadium below ground level.	It was decided to maintain the proposed waterfront location of the sports hub for creating a new icon by the waterfront, and for its better integration with the Metro Park and its adequate distance to the railway stations for safe crowd dispersal. It was confirmed that the provision of adequate circulation area in the Stadium Complex was essential. The proposal on a sunken stadium would incur major technical difficulties as the Kai Tak site was in close proximity to the waterfront. Subject to further design, the development platforms of the Sports Hub site could be slightly raised so that the distributor road running through the Stadium Complex could become sunken roads.

<b><u>Item</u></b>	<b><u>Public Comments</u></b>	<b><u>Approaches to Final PODP</u></b>
Cruise Terminal	Many representatives of the tourist industry and in particular the cruise sector supported the proposed location of Cruise Terminal at Kai Tak. Some commenters nevertheless stressed on the need to plan for future expansion of the cruise terminal.	The two-alongside berths configuration on the draft PODP was considered the best compromise in resolving identified technical difficulties, meeting the needs of cruise market and avoiding the sterilization of a long stretch of the waterfront. To cater for the potential expansion of the cruise terminal in the future, land uses compatible with cruise terminal development (e.g. hotel facilities) were designated on the sites adjacent to the potential berthing space under the final PODP. Disposal of these sites would also be timed for a later phase.
Tourism Node and runway Precinct	The proposed tourism node at the tip of the runway was well supported in the community. Public comments were mainly focused on the ways to strengthen the function of the tourism node (e.g. designing a hotel belt or a landmark observation tower). For the runway precinct, many of the design submissions proposed a linear or curve-linear disposition of housing blocks resulting in a more prominent built form. Many commenters support the idea to provide a 30m pedestrian way for commercial / cultural / heritage activities while alternative designs of pedestrian way have also been received (e.g. place it on the harbourfront side of the runway). These proposals were taken into account in finalizing the PODP.	These proposals were taken into account in finalizing the PODP.
Aviation–Related Facilities	Views were diverse on the cross-boundary heliport proposal. Supporters of this proposal emphasized its economic and social benefits while its objectors raised concern on grounds of noise impact and land use incompatibility. Some aviation groups currently accommodated at the historical building clusters at the north-western corner of Kai Tak requested to retain the entirety of the existing site as their permanent headquarters.	It was decided to maintain the cross-boundary heliport proposal on the final PODP in view of its forecast demand and its synergy effect with the cruise terminal. The proposed reserved site for the aviation groups was also maintained. Its reduced site area was to make way for the planned Sung Wong Toi Park, which forms the gateway to the Kai Tak

<b><u>Item</u></b>	<b><u>Public Comments</u></b>	<b><u>Approaches to Final PODP</u></b>
Transport and Connectivity	<p>The local communities were strongly against the provision of an at-grade railway depot at Kai Tak on the grounds of its segregation effect for the existing Kowloon City community and air ventilation concern. Many commenters strongly urged for the provision of a bridge link to connect Kwun Tong waterfront with Kai Tak Point. Many also advocated the provision of a monorail system in Kai Tak as an internal EFTS as well as a link with the surrounding districts. Some also suggested having more pedestrian connections, including underground streets.</p>	<p>Upon revisiting the issue of railway depot, it was decided to explore an alternative depot site outside Kai Tak. Desktop assessment indicated that there was no transport case for the monorail system, and it was not expected to be financially viable. It was, nevertheless, recognized that the system could have wider economic and social benefits. Under the final PODP, a reserve was made to cater for a possible monorail or EFTS, which would be subject to further investigation at the South East Kowloon Development Comprehensive Planning and Engineering Review Stage 2: Engineering Review (hereafter referred as Kai Tak Engineering Study). Similarly, while there was no transport case for the bridge link, a reserve was designated on the final PODP as part of the possible future monorail system in view of its potential major impetus to the transformation of Kwun Tong Industrial Area. A comprehensive underground shopping street system connecting the Kowloon City and San Po Kong areas with the future Kai Tak Station was also proposed under the final PODP to enhance the connection with the surrounding districts.</p>
Marine-related facilities	<p>The marine facilities operators supported the retention of To Kwa Wan and Kwun Tong Typhoon Shelters and advocated for the retention of the existing Kwun Tong and Cha Kwo Ling PCWAs. The local community welcomed the decommissioning of PCWAs for a continuous waterfront promenade.</p>	<p>Under the PODP, it was decided to retain the two Typhoon Shelters and to maintain the decommissioning of the PCWAs</p>

*Final Preliminary Outline Development Plan*

2.6.44 Taking into consideration the public views received from Stage 3 Public Participation and the assessment findings on the draft PODP, the draft PODP was subsequently consolidated as the final PODP. The major revisions are shown in **Table 2.4** below.

**Table 2.4: Major Revisions from draft PODP to final PODP**

Revisions	Reasons
1. Relocation of the proposed railway depot outside North Apron of Kai Tak	In response to public concern on its segregation and air ventilation effects on the periphery of Kai Tak site.
2. Reduction of building heights along Prince Edward Road East	To address public concern and to minimize the potential air ventilation impact as recommended by the air ventilation assessment.
3. Relocation of the proposed Government Offices site close to San Po Kong	In response to public suggestion to relocate the new government offices building so as to better serve the existing community.
4. Provision for a monorail reserve (subject to further investigation)	In response to public request and in view of its potential economic and social benefits and tourism appeal.
5. Provision for a reserve for bridge link between Kwun Tong and former runway to accommodate the potential monorail (subject to further investigation)	In response to public request and in view of its potential economic and social benefits.
6. Enhance the open space system in North Apron to serve the existing community	In response to public request to better serve the existing community.
7. Designate a hotel belt on the harbourfront side of the runway in the Runway Precinct	In response to public request to cater for the possible future expansion of the cruise terminal.
8. Introduce a curvilinear building height profile and built form for the Runway Precinct	In response to public suggestion to enhance the distinctiveness of the Runway Precinct
9. Provide a landmark building with a public observation gallery of up to 200mPD at the Tourism Node	In response to public suggestion to enhance the dramatic height profile of Kai Tak and to allow the public to command the stunning view of Victoria Harbour.

2.6.45 The key features of the final PODP are summarized in the following paragraphs.

2.6.46 Sports-oriented – Kai Tak will be a hub for sports and leisure activities. A modern Stadium Complex will be its anchor, complemented by a comprehensive network of open spaces including a Metro Park, two indoor recreation centres and extensive cycle tracks and jogging trails along the promenade.

2.6.47 People-oriented – Kai Tak is planned to serve the public. The waterfront areas are reserved mainly for public enjoyment as parks and promenades. Convenient and comfortable pedestrian connections between the hinterland and Kai Tak, and between the SCL Kai Tak Station and the various activity nodes are emphasized.

- 2.6.48 Sustainable – Residential, office, retail and hotel provisions are planned to mix with the sports and leisure activity nodes to ensure vibrancy in different times of the day and different days of the week. The history of Hong Kong and in particular the aviation history of Kai Tak will be manifested throughout Kai Tak and the heritage resources in the adjacent areas will also be promoted.
- 2.6.49 Environmental-friendly – The formulation of solutions to the water pollution and soil contamination problems at KTAC without resorting to reclamation is to uphold the environmental-friendly and sustainable development principles. Besides, land reservation for roadside greening, green roof and district cooling system, and planning for mass transit, minimizing noise impact, and better air ventilation are all built into the planning framework.
- 2.6.50 Distinguished and Attractive Urban Form – Emphasis has been made to create a unique town centre juxtaposed with high-rise office development and unique residential neighbourhood. Traversing the Stadium Complex and Metro Park, the developments at the Runway will outline a townscape that would be uplifted at the landmark development in the cruise terminal cum tourism node area.
- 2.6.51 As a whole, the final PODP for Kai Tak is an outcome of a continuous and reiterative process of public participation, planning and design as well as technical studies. This plan, which is the preferred development option, forms the basis of the engineering feasibility study for further development of the RODP.

*Key Environmental Benefits of Final PODP*

- 2.6.52 The following key environmental benefits would be brought about by the Project in deriving the final PODP through consideration of alternative development concepts and land use proposals.
- Under the proposed development, there will be new waterfront development with stadium, cruise terminal, associated commercial, residential development and a number of new major spaces, which includes Metro Park, Runway Park, Sung Wong Toi Park, new waterfront promenade. The proposed development will interconnect with green webs in a new urban sustainable development.
  - The existing environmental problems at and in the vicinity of Kai Tak Approach Channel, including odour and water quality, will be alleviated to a large extent through implementation of the proposed mitigation measures without resorting to reclamation.
- 2.6.53 The following key environmental impacts have been avoided or minimized in deriving the final PODP through consideration of alternative development concepts, road hierarchy and land use proposals.
- KTD itself is bounded by major instinctive constraints. Due to the high volume of traffic in existing roads like Prince Edward Road East (PERE) and Kwun Tong Bypass (KTB), the resultant traffic emissions in terms of exhaust air and noise limit the development potential of the site. Less sensitive uses such as commercial uses have been located along PERE, KTB and district distributors in order to provide a better environment.
  - The potential air and noise impacts arising from the multi-purpose stadium complex and the cruise terminal have been minimized by providing optimum buffers to sensitive receivers.

2.6.54 In addition, the following environmentally friendly designs have been explored and recommended in deriving the final PODP through consideration of alternative development concepts and land use proposals.

- Environmental friendly transport modes are proposed to operate as a major internal mode of transport within KTD. The EFTS will provide shuttle/feeder services between the SCL Kai Tak Station and Tourism Node for the residents and visitors of KTD. The EFTS will also provide shuttle service between the PTI at Kwun Tong Ferry Pier and the Tourism Node to enhance the connectivity between the former Runway and the hinterland on Kwun Tong side. With the adoption of EFTS, it is expected that there will be benefits on the environment from savings in fuel consumption and the efficiency in energy usage would also be increased.
- Environmental friendly initiatives such as District Cooling System (DCS) is proposed, which is subject to further study. If DCS is adopted, it is expected to contribute to the principle to promote the sustainable use of natural resources to minimize its ecological footprint through improving consumption efficiency.

*Recommended Outline Development Plan*

2.6.55 Subsequent to the formulation of the final PODP, numbers of meetings/consultations have been held with departments and district councils to discuss/consult the engineering details for the elements introduced in final PODP. As result, numbers of changes have been made to the final PODP formulating the RODP. The changes to final PODP and the rationale behind are summarized in **Table 2.5**.

**Table 2.5 Changes to final PODP.**

	<b>Changes</b>	<b>Reasons</b>
1.	<p>Fine-tune the layout of Kai Tak City Centre and to incorporate the planning vision to transform the existing Kai Tak Nullah into a river channel. The main amendments include:</p> <ul style="list-style-type: none"> <li>• Rezoning of the sites on both sides of the possible future river channel to “Comprehensive Development Areas” (“CDAs”) such that these developments would be subject to the TPB’s approval. The building heights of these sites, as well as the adjacent “Government, Institution or Community” (“G/IC”) sites, are lowered to improve visual connectivity between the new city centre with the surrounding built-up areas.</li> <li>• The footbridge system is further enhanced by incorporating a curvilinear landscaped elevated walkway linking Kai Tak with Kowloon City and San Po Kong.</li> </ul>	<p>To partially meet the representation for a revised layout of the Kai Tak City Centre by the Town Planning Board upon consideration of representations and comments on the draft Kai Tak OZP gazetted on 24 November 2006.</p>

	<b>Changes</b>	<b>Reasons</b>
	<ul style="list-style-type: none"> <li>• Imposition of a two-tier building height restrictions for the Kai Tak Government Offices' site.</li> <li>• Two new commercial sites at eastern end of the Station Square for provision of two iconic towers.</li> <li>• Minor adjustment of the development mix in the "Other Specified Uses" annotated "Mixed Use (2)" ("OU(Mixed Use)2") site.</li> <li>• Two "Residential Zone 2" ("R2") located to the north of the Stadium site has been amalgamated into one R2 site.</li> <li>• Road pattern for Road L16 at the western part of the Kai Tak City Centre has been simplified. Adjustments have been made to the boundaries of the sites located to the north and south of Road L16.</li> </ul>	
2.	Extension of the monorail reserve along Hoi Yuen Road and incorporation of a monorail depot reserve in the Metro Park	To facilitate connection with Kwun Tong MTR Station and meet the technical requirement of the monorail system.
3.	Incorporation of a road in the planned bridge connection between the runway end and Kwun Tong and incorporation of a road reserve at the Runway Park for future connection.	To meet the strong request from Kwun Tong District Council and residents
4.	Provision of an additional elevated walkway to connect a "CDA(2)" site at Ma Tau Kok with the future Sung Wong Toi Park.	To develop a comprehensive grade-separated pedestrian system from Kai Tak through the "CDA(2)" site to a "CDA" site located to the south of Mok Cheong Street, the Ma Tau Kok Quarantine Depot site and the To Kwa Wan Recreation Ground.
5.	Total flat production at the two public rental housing sites at the North Apron has been revised from 11,000 flats to 13,002 flats. Total planned population has been revised from 35,100 to 35,000.	As advised by Housing Department.
6.	Design population for Kai Tak Government Offices (KTGO) has been revised from 2,350 to 2,500. A total of 3,200 visitors per day are planned for KTGO.	As instructed by CEDD/ArchSD at meeting on 13 June 2007.

	<b>Changes</b>	<b>Reasons</b>
7.	Footprints of the Main and Secondary Stadia from the Preliminary Planning for Stadium have been incorporated	Taking into accounts tunnel reserve of SCL, footprint of the Secondary Stadium has been revised. Sufficient clearance is now provided at the western side of the Secondary Stadium.
8.	Revision of the layout of Road D3 and landscaped elevated walkway located above Road D3.	To uphold the planning concept of Runway Precinct quantum in the approved OZP and to allow sunlight penetration on the footpath abutting the waterfront.
9.	<ul style="list-style-type: none"> <li>• Width of Central Boulevard along the Runway Precinct is maintained to 32m</li> <li>• Width of footpath of Road L13 along the waterfront facing the development sites have been reduced from 10m to 7m</li> </ul>	<p>Taking into accounts refinement of Road D3 to take account of traffic and transport requirement such as bus bay/lay-by and footpath requirement to accommodate utility services.</p> <p>In addition, a larger reserve at the proposed landscaped deck above Road D3 is required for additional Emergency Vehicular Access ramp prepared under Advance Works</p>
10.	<p>Provision of Refuse Collection Points (RCPs)</p> <p>RCP at Site 1N3 as proposed on the PODP has been deleted.</p> <p>4 RCPs will be provided on the latest RODP at Site 1J4, 2A10, 3B4 and 5C1</p>	<p>Taking into accounts comments from Food and Environmental Hygiene Department (FEHD), the RCP proposed at Site 1N3 on the PODP was considered undesirable. Moreover, in order to provide proper hygiene services, FEHD advised that 4 RCPs should be provided for the planned population in KTD.</p>
11.	Extension of Road L3 at the Kai Tak City Centre. The extended road will be restricted for load/unloading purposes only.	To provide access for the two new commercial sites at eastern end of the Station Square.
12.	Deletion of the designation of pumping station PS4	Subject to further investigation, provision of PS4 may not be required in the implementation of KTD and Sewage Interception Scheme in Kowloon City.
13.	Boundaries of 4 undesignated "G" sites (Sites 3B 1 to 4) at South Apron have been re-organized and site areas have been revised accordingly.	Taking into account of the provision of overweighed and over-heighted vehicle access for CKR, a piecemeal RO site is combined to the undesignated G site for effective implementation.

	<b>Changes</b>	<b>Reasons</b>
14.	Setback of site boundaries of hospital and fire station at Site 3C1 and 3C2 respectively.	10m-wide proposed footpaths would be required along Cheung Yip Street and Road D4 at the South Apron.
15.	Inclusion of To Kwa Wan SCL Station	Latest arrangement by the bureaux/departments.
16.	Relocation of Ma Tau Kok Station and re-named as Ma Tau Wai Station.	Latest arrangement by the bureaux/departments.
17.	Provision of Turnaround and Over-height Accesses for T2/CKR Interchange	For the purpose of tunnel patrol, emergency use and tunnel serving and to prevent over-height vehicles entering CKR via the interchange
18.	Boundary adjustment of KTGO site, the adjoining pedestrian street and "G/IC" site to its east	To accommodate an additional community hall but exclude the curvilinear landscaped elevated walkway.
19.	Realignment of curvilinear landscaped elevated walkway	The geometry of curvilinear landscaped elevated walkway could be symmetrical to the Kai Tak Nullah for better sighting towards the latest proposal of Kai Tak River.
20.	Reserve for monorail depot	To allow flexibility for all mode of EFTS system, which is subject to the developer's choice on the form of EFTS in long term.
21.	Relocation of Community Hall from Site 1D3 to 1D4	Early commissioning of the community hall can be achieved as KTGO is targeted to be completed by 2014.
22.	Addition of library at Site 1J3	There is an existing library at San Po Kong which was just within 10-minutes' walking distance from Site 1D3.  Furthermore, Site 1J3 was able to serve the nearby PRH in Kai Tak with population intake starting from late 2012.

2.6.56 In the developing the final PODP into the RODP, various alternative development options for the key components of KTD have been identified and appraised. These are summarized in the paragraphs below.

### ***Alternative Development Options for Central Kowloon Route / Trunk Road T2 Interchange***

- 2.6.57 Following the development of final PODP, alternative options of CKR/T2 Interchange have been explored and studied in addressing the concerns/views raised by relevant parties on the following:
- road connections around the existing petrol filling stations;
  - representation on the draft Kai Tak OZP on the necessity of the connection between CKR and Kai Fuk Road;
  - deletion of the connection from Kai Fuk Road to Kai Cheung Road under the existing Kai Fuk Road/Kai Cheung Road Interchange.
- 2.6.58 Taking into account the above constraints and concerns, five options of the CKR/T2 interchanges have been developed as shown in **Figures 2.4 to 2.6**. Option 1 is basically the original interchange layout proposed in KTPR except with addition of overweight and overheight vehicle access between T2 and South Apron. Option 2 and Option 3 are alternative layout modified from Option 1 providing the maximum connection to the surrounding district similar to Option 1. Option 4 and Option 5 present the arrangement of reducing connection of Kai Fuk Road and Kai Cheung Road respectively.
- 2.6.59 Each option has undergone technical evaluation, traffic assessment and preliminary consideration on environmental issues to investigate its connectivity and functionality in respect of the traffic growth in year 2021 after completion of KTD. The design parameters of the options were examined to ensure compliance with the requirements of TPDM. Traffic impact assessment was carried out to investigate the impact to both hinterland road network and new road network in KTD. Performance of road link capacity and junction capacity are included in the assessment.
- 2.6.60 Although Options 1, 2 and 3 provide the same effectiveness on traffic dispersion and similar environmental impact to the adjacent developments, Option 2 and 3 have their own deficiency in other aspects. The interchange involving excessive elevated structures in Option 2 induces greater environmental concerns of visual impact which is not a desirable arrangement while viewing in line with the planning principles. Option 3 provides a tidier layout by lessening the modification of Kai Fuk Road, but reduction of the realigned section of Kai Fuk Road would result in a number of deficiencies in the road profile causing confusion to the road users.
- 2.6.61 Under the arrangement of Option 4 without giving connection to Kai Fuk Road, the traffic model indicates the T2 will be overloaded and a number of junctions will be overloaded even though junction improvement scheme is implemented owing to their inherent problems. Furthermore, improvement to those junctions is found is not feasible due to physical constraints.
- 2.6.62 Option 5 deletes the proposed connections with Kai Cheung Road. The assessment shows this would lead to excessive unnecessary traffic flow through KTD which is the measure against the planning principle. Moreover, the junction of Hoi Bun Road/Cheung Yip Street will result in a negative reserve capacity under this scheme. The traffic figure also indicates the traffic flow from Kai Fuk Road to Kai Cheung Road is relatively low comparing with the demand of the link between CKR and Kai Cheung Road. Maintaining this link by deletion of the proposed connection between CKR and Kai Cheung Road is not justified from traffic viewpoint.

- 2.6.63 From traffic viewpoint, Option 1 provides a comprehensive traffic circulation minimizing the stress of hinterland road network. The proposed slip roads and the existing links direct connecting to the interchange will operate within its design capacity. With implementation of junction improvement schemes, either junctions in KTD or existing hinterland junctions would operate with positive reserve capacity.
- 2.6.64 From environmental viewpoint, owing to the nearest residential site is located more than 200m away from the major section of the interchange, insurmountable noise and air quality impacts are not anticipated. Visual impact is considered as the major concern for development of the interchange. Option 4 and 5 contribute less visual impact amongst the options, while unsatisfactory performance is found for the overall traffic network. Option 1 performs better, in view of visual impact, than Option 2 by minimization of elevated structure of the interchange but its visual impact is greater than Option 3 due to longer realigned elevated section of Kai Fuk Road. However, Option 3 would induce concerns on road safety and is not recommended.
- 2.6.65 After considerations of traffic and environmental impacts and balancing the road function and operation aspects, Option 1 is the optimum interchange layout conclusively. Provision of aesthetic design and planting along the roads could be adopted to minimize the visual impact.

***Alternative Development Options for Kwun Tong Transportation Link***

- 2.6.66 In the Stage 3 Public Participation of the draft PODP, there were strong public request for a connection between Kwun Tong and the ex-Runway tip at Kai Tak which can serve the purpose for a connection between Kwun Tong and ex-Runway tip at Kai Tak which can serve the purpose for providing usage to pedestrian, vehicle and monorail. They considered that the transportation link should be a direct connection between the existing and the future developments and to serve as a catalyst in the rejuvenation of Kwun Tong district.
- 2.6.67 In the DC consultations under the Engineering Review, Kwun Tong District Council has reiterated their demands for the following:
- i) An iconic bridge crossing KTTS linking the Cruise Terminal and Tourism Node to Kwun Tong Industrial Area (KTIA) to stimulate the redevelopment of KTIA;
  - ii) A monorail system should be provided in the Runway as the EFTS and terminal stations should link up with the heavy rail systems i.e. MTR and SCL;
  - iii) A viewing tower should be provided at the Runway Tip; and
  - iv) The bridge crossing should carry monorail, vehicular and pedestrian traffic.
- 2.6.68 To share the view of public, reserve has been allowed for KTTL in RODP. A study is conducted to investigate the possible alignment options of KTTL and selected the preferred alignment in terms of technical, economical benefit and environmental benefit. Various alternative alignment options have been explored and evaluated before arriving at the preferred option recommended for further study.

- 2.6.69 The alignment options include Options A to E and Tunnel Option as shown in **Figure 2.7**. Option A is the reserve in final PODP. In Option B, the alignment is further away from the waiting area of the Kwun Tong DGVFP and hence reduces the fire, explosion or toxic impact to passengers. The alignment of Option C will extrude the Runway tip and land at the Cha Kwo Ling PCWA, which allow further extension of the EFTS to Yau Tong MTR Station and then to Lei Yue Mun area. In Option D, the alignment will span over the KTTS straightly from an area of local open space between the Runway Precinct and Tourism Node to the Kwun Tong PCWA and extend to Ngau Tau Kok MTR Station via Lai Yip Street. The alignment of Option E will span over the KTTS straightly from middle Runway Park to Kwun Tong PCWA and join the same alignment of Option A at Hoi Yuen Road via Tsun Yip Street and Wai Yip Street. The alignment of tunnel option will depress from the Tourism Node and Runway Park, pass underneath the seabed of KTTS and daylight at the Kwun Tong PTI.
- 2.6.70 From environmental perspective, the KTTL in tunnel form would alleviate the risk of hazard from the Kwun Tong DGVFP and the visual impacts to the developments on both sides. Besides, it would cause less air quality and noise impacts. However, construction of tunnel would have impact on water quality. In contrast, Options A to E would all cause visual impact of moderate to high degree and cause. Air quality and noise impacts arising from these options would be relatively more severe. Furthermore, Options A and B would be subject to the hazard from the Kwun Tong DGVFP. But the water quality impacts of these options during construction would be less than the Tunnel Option. Overall speaking, Tunnel Option would perform better than the other options solely based on environmental considerations.
- 2.6.71 However, the major drawback of the underground approach is the loss of public enjoyment of the harbour view across the KTTS, which is vital to the attractiveness of the leisure ride of EFTS. It is also deviated from the key objective to provide an iconic bridge across the KTTS. In addition, the gradient of tunnel option underpassing Trunk Road T2 is technically infeasible to include the EFTS. Construction of a tunnel underpassing Trunk Road T2 will be problematic by taking account of various constraints such as the gradient feasible for operation of EFTS and the depth of immersed tunnel under the existing seabed and its implementation programme. The availability of land for daylighting of the transportation link on both Kwun Tong and Runway side is another key constraint, which would limit its feasibility to accommodate the three objective transportation modes.
- 2.6.72 Option B is not acceptable to accommodate EFTS and vehicular facilities on the bridge. The existing breakwater of KTTS can only possibly accommodate supports for pedestrian bridge without constitution of reclamation. In addition, the potential ship impact protection works is more controversial in terms of the constitution of reclamation under PHO. In Option C, the detouring to Cha Kwo Ling is not in line with the genuine expectations from the Kwun Tong District Council and other key stakeholders. In Option D, the walking distance from landing at Lai Yip Street is more than 800m from the Kwun Tong PTI. It cannot provide a direct connection with the heart of Kwun Tong. The bridge foundation is also restrained by the Road D3 roundabout on the Runway and available space in Lai Yip Street. Option E is unlikely technically feasible due to the availability of land on Kwun Tong side.
- 2.6.73 Because of the constraints and limitations identified in Options B, C, D and E and Tunnel Option, these options fail to fulfill the key objective to provide a transportation link incorporating the three mode of transportation requested by the public. In contrast, Option A meets the key objective although there are problems identified including the risk of Kwun Tong DGVFP, visual impact and land requirement in the Runway Park. Therefore, Option A is considered the preferred option.

- 2.6.74 To resolve the problems identified for Option A, minor refinements are proposed. To mitigate the risk of hazard from the Kwun Tong DGVFP, the alignment of KTTL is slightly shifted away from the Kwun Tong DGVFP so as to avoid disturbance to the operation of the dangerous goods ferry services. The visual impact arising from Option A will be mitigated by selecting an elegant structural form for the bridge link. As for land requirement in Runway Park, a portion of the area is needed to be temporarily closed to facilitate the construction of KTTL.
- 2.6.75 In short, Option A, with minor refinement on the reserve shown on the final PODP, is the preferred option since it is technically feasible to provide all three modes of transportation and fulfilling the objectives, though there are technical implications which are however surmountable.

#### ***Alternative Development Options for 600m Opening at Runway***

- 2.6.76 Kai Tak Approach Channel (KTAC) was identified as a distinctive issue for attention under Stage 1 (Planning Review) of the South East Kowloon Development Comprehensive Planning and Engineering Review. According to all the previous studies conducted for the Kai Tak site, KTAC has been proposed to be reclaimed as part of the development. However, as “no reclamation” has become the planning basis, alternative option to overcome the problem has to be investigated.
- 2.6.77 KTAC is a semi-enclosed water body bounded by the former Kai Tak Airport runway to the west and the breakwaters of the Kwun Tong Typhoon shelter (KTTS) to the south. It collects storm water from Wong Tai Sin District and Kowloon City via Kai Tak Nullah (KTN) as well as the storm water runoffs conveyed from the upland of West Kowloon via a bored tunnel under Kai Tak Transfer Scheme. Furthermore, KTAC receives storm water runoffs from Jordan Valley Box Culvert (JVBC) serving drainage catchment of Kowloon Bay.
- 2.6.78 Apart from surface runoff, KTAC also receives from KTN the secondary treated sewage effluent from Shatin and Tai Po Treatment Works under the Tolo Harbour Effluent Export Scheme (THEES). There may also be some unidentified misconnections and building expedient connections in the catchment areas of KTAC and KTTS.
- 2.6.79 Based on the review and field observations undertaken under this study, it was found that the upper portion of KTAC and some locations in its vicinity are the odour hotspots locations. The possible odour sources at KTAC would be:
- (i) Historical accumulation of contaminated sediments which far exceeds the natural attenuation capacity of the channel;
  - (ii) Sediment exposed during very low tides along the seawall;
  - (iii) Possible contribution from continuous polluted discharges from KTN, a culvert next to the mouth of KTN and JVBC outfall; and
  - (iv) Odorous gases from headspace of conduits at JVBC outfall.
- 2.6.80 An odour study for KTAC and KTTS was conducted. Based on the findings from the odour study, the emissions of malodorous chemicals generated from the contaminated sediments at KTAC and KTTS are considered to be the major source of odour. Several options were derived to tackle the odour problem from the sediments on the seabed of KTAC and KTTS. In-situ Bioremediation, in-situ cement stabilization and solidification and in-situ capping were considered together with possible environmental impacts, effectiveness, implementation and uncertainties of each option. Details of the assessments can be found in **Annex A - KTAC and KTTS Studies**.

- 2.6.81 Based on the findings, in-situ bioremediation outweighs the other two options and considered to be an appropriate technology in apply to the sediment remediation at KTAC and KTTS.
- 2.6.82 Notwithstanding the implementation of sediment treatment, improving water circulation so as improving water quality of KTAC and KTTS should be given for the purpose of sustainable development and satisfaction of public expectation as learnt from Stage 1 Public Participation.
- 2.6.83 Various mitigation options were developed and examined for improving the water quality and water circulation of KTAC including:
- i) Diversion of KTN flow into Kowloon Bay which involves construction of pumping station, pipe system and seawall outfall;
  - ii) Diversion at KTN into Victoria Harbour by discharging at the end of Runway which also involves construction of pumping station, pipe system and seawall outfall;
  - iii) Removal of breakwater of KTTS which necessitates the decommissioning of KTTS;
  - iv) Introduction of canal(s) or opening(s) in the runway; and
  - v) Interception of Dry Weather Flow which involves provision of Dry Weather Flow Interceptors (DWFI) at the Stormwater System to divert the low flows to the sewerage system.
- 2.6.84 Pumping proposal has not been accepted due to large storm flow from a significantly large catchment received by KTN and pump system failure would be detrimental to the surrounding districts and KTD. It is normal practice to provide stormwater pumping scheme for low lying areas which is prone to flooding. Nevertheless, the pollution discharge from various box culverts outfalls into KTAC is also a major source. The pumping scheme can only alleviate the problem partially. Moreover, large piece of land would be required for provision of the pumping system in view of the large volume of flow discharged via the KTN. Also, Method i) would likely cause deterioration of the water quality of Kowloon Bay. In addition, Method i) and Method ii) would still leave the KTAC with poor water circulation leading to long term sediment problem.
- 2.6.85 Removal of breakwater of KTTS would decommission the KTTS. Marine Department has expressed reservation to the proposal.
- 2.6.86 Introduction of opening would require careful consideration of the location at runway. Different location and width of the opening would have different effects. Optimum width and location would be preferable to be demonstrated by water quality modelling to determine the effectiveness of the scheme.
- 2.6.87 DWFIs have already been installed at strategic location of the stormwater system to intercept pollution sources during low flow condition and divert to the sewerage system. Most drainage catchments, including the catchments of KTN and Jordan Valley Box Culvert (JVBC), already have provision of DWFIs at critical locations in the upstream areas. Given the size of the catchments of KTN and JVBC are large as compared with other catchments, the pollutant discharge from KTN and JVBC during low flow condition would be quite significant. Moreover, the outfalls of KTN and JVBC are in submerged condition at all time. Therefore, provision of DWFIs at the outfalls of these drainage systems for total removal of pollution loading during dry weather conditions would be difficult. Thus, DWFIs facility was not further considered under the KTPR. Nevertheless, additional assessment was conducted under the present Study to examine the engineering feasibility of interception and diversion of the pollution from KTN and JVBC in the tidal downstream sections of the Kai Tak Development area, the potential impacts on the existing sewerage and drainage systems and sewage treatment works, and the need for on-site sewage treatment. To control discharge of pollutants from JVBC to KTAC, a desilting compound together with a sewage pumping station will be constructed at South Apron under DSD's project "Control of Water Pollution at Jordan Valley Box Culvert".

- 2.6.88 Five different combinations of the mitigation measures as shown in **Table 2.6** and **Figure 2.8** were considered.

**Table 2.6 Mitigation Proposals Considered**

Scenario	Width of Opening	Location	Removal of breakwater of KTTS
Scenario 1	200m (Partial diversion of KTN is required)	Immediately south of taxiway bridge	No
Scenario 2	600m	Northern end of the runway	No
Scenario 3	2 x 200m	At runway near the mouth of KTN and to the south of the taxiway bridge	No
Scenario 4	600m	Northern end of the runway	Yes
Scenario 5	2 x 200m	At runway near the mouth of KTN and to the south of the taxiway bridge	Yes
Scenario 6	500m	At runway near the mouth of KTN and to the south of the taxiway bridge	No
Scenario 7	550m	At runway near the mouth of KTN and to the south of the taxiway bridge	No

- 2.6.89 Scenario 1, although it has the best water quality results at KTAC as compared with other Scenarios, would still leave the KTAC with poor water circulation leading to long term sedimentation problem resulting in odour impact. Also, the water quality of Kowloon Bay would be impacted due to the partial diversion of KTN and THEES. This mitigated scenario is therefore less preferred.
- 2.6.90 Scenarios 3, 5, 6 and 7 are less effective than Scenarios 2 and 4 and are unable to improve the water quality of KTAC to the required standards. These options are therefore also therefore less preferred.
- 2.6.91 The water quality results for Scenario 4 would result in the best overall performance in terms of water circulation and water quality and this scenario is considered to be the most effective mitigated scenario. However, this scenario requires removal of breakwater of Kwun Tong Typhoon Shelter hence decommissioning of the typhoon shelter.
- 2.6.92 Scenario 2 without removal of Kwun Tong breakwater although would cause deterioration of water quality in Kowloon Bay, the impact to Kowloon Bay is very localised and the improvement of water quality and circulation of KTAC would be the same as Scenario 4. This option is therefore considered slightly less desirable than Scenario 4.
- 2.6.93 Taking account of the implication of decommissioning KTTS and water quality and circulation of KTAC, Scenario 2 is recommended for adoption in RODP.

**Alternative Development Options for Trunk Road T2**

- 2.6.94 Route 6, comprised by CKR, Trunk Road T2 (T2) and Tseung Kwan O – Lam Tin Tunnel (TKO-LTT), providing an alternative direct link connecting West and East Kowloon. T2 plays as a role of connector to link up CKR and TKO-LTT. Currently, CKR is proposed as in tunnel form and landfall at Kai Tak entailing T2 has to start at Kai Tak running across, Kai Tak, Kwun Tong Typhoon Shelter and the harbour to join TKO-LTT at Cha Kwo Ling. It is important that the alignment and structural form of T2 should be compatible with the development theme in global context.
- 2.6.95 Different arrangements have been studied and appraised in term of traffic performance, land use impact and potential environmental impacts to re-affirm that the present alignment is the preferred route. These include in **Table 2.7** and **Figure 2.9**:

**Table 2.7 Alignment Options**

Option	The Protection of the Harbour Ordinance (PHO) Implication
Elevated Option	Yes
Tunnel Option	No
No T2 scenario	No

*Option A – Elevated Option*

- 2.6.96 SEKD CFS proposed the T2 to link up the CKR and T1 (no longer be considered) at western end and WCR (namely TKO-LTT currently) at eastern end. The western portion of the T2 was at grade then fell in gentle gradient transiting into tunnel section. Elevated form was adopted at eastern part of T2 for the portion near the existing Kwun Tong Ferry Pier to allow passing over other proposed roads. It then crossed over Tsui Ping Nullah and turned down and joined with the proposed WCR. This option would require construction of supporting piers in Kwun Tong Typhoon Shelter and therefore have PHO implication. This alignment option was therefore not considered further.

*Option B – Tunnel Option*

- 2.6.97 The T2 starts at the mouth of Kai Tak Nullah and runs mostly at-grade along the South Apron Development area and then drops down after crossing the Jordan Valley (multi-cells) Box Culvert running in tunnel form beneath the KTTS and further connects with TKO-LTT at Cha Kwo Ling side. The proposed T2 is about 3.6km long with approximate 2km long of immersed tunnel in dual 2-lanes configuration.
- 2.6.98 In order to avoid triggering PHO, the T2 immersed tunnel has to be fully buried under the seabed. The vertical alignment of TKO-LTT was reviewed and lowered to match with T2 at Cha Kwo Ling Public Cargo Working Areas for smooth transition. In association with these changes, the road connections at Cha Kwo Ling side were also reviewed and a new interchange namely Lam Tin Interchange which resembles the originally allowable connections was formulated. The TKO-LTT Kowloon side and the associated Lam Tin Interchange details were then further studied and refined under the Further Development of Tseung Kwan O – Feasibility Study (TKOFD FS).

*Option C – No T2 scenario*

- 2.6.99 This arrangement proposes no T2 will be served for Kowloon Region. Without existence of T2 in the design year, the existing road network, Kwun Tong Bypass in particular, will be heavily loaded to reach over its design capacity. Traffic will also spill over onto local at-grade road result aggravation to the road network.
- 2.6.100 Option A calls an elevated option for T2 which would generate minimal excavated material, However, this option would have PHO implication. Since other feasible alignment option exists, it is considered infeasible to establish an overriding need for the required reclamation for construction of the T2 under this option.
- 2.6.101 Traffic need for T2 has been justified in the relevant study so that Option C of no T2 scenario would not be considered.

- 2.6.102 The tunnel scheme of Option B will be constructed by cut and cover tunnel which would generate inert C&D materials but the excavated materials can be re-used for backfilling after construction of tunnel. Furthermore, they can also be re-used as part of the fill materials for construction of the immersed tube section of T2. Hence, it is estimated that most of the excavated C&D materials can be re-used in construction of T2. Furthermore, the T2 running in tunnel form would definitely reduce the visual impact to the visual sensitive receivers (VSRs).
- 2.6.103 As the excavated materials in both options can be re-used, only minimal surplus quantities are anticipated. In respect of visual impact, Option B reduces more visual impact to VSRs than Option A. Furthermore, reclamation required for Option A breaches the PHO and the planning principles of “no reclamation”. As such, Option B is selected as preferred option to incorporate into the RODP. The recommended T2 alignment is shown on **Figures 2.10 ~ 2.12**.

#### ***Alternative Development Options for Road System***

- 2.6.104 Basically, the road hierarchy within KTD comprises 3 different levels, namely trunk road, district distributor and local road. The shape and arrangement of the proposed road networks are tailored made for the final PODP to avoid through traffic movements passing through the KTD. No primary distributor is planned to discourage unnecessary traffic movements through the developments. However, the existing major road links adjacent to KTD including Prince Edward Road East, Kai Fuk Road and Kwun Tong Road are now operating as primary distributors which serve as major transport corridor for the traffic in Southeast Kowloon area. The proposed road network of the RODP within KTD is shown in **Figure 2.13**.

#### *Strategic Roads*

- 2.6.105 Apart from the existing Kai Tak Tunnel, two new strategic roads are proposed in the RODP to serve the KTD as seen from the figures. They are:
- CKR; and
  - Trunk Road T2
- 2.6.106 CKR will be designed in dual 3-lane configuration whereas Trunk Road T2 will be in dual 2-lane configuration. There will be an interchange of CKR/T2 to be provided within KTD to allow connection of CKR/T2 with primary distributor local roads in Kowloon Bay, including Kai Cheung Road and Kai Fuk Road. The traffic from CKR is proposed to access Kwun Tong Bypass via Kai Fuk Road. However, as the original arrangement of this interchange under the previous SEKD CFS did not provide direct connection to KTD, the traffic of KTD, in particular those generated by the Stadium and Cruise Terminal, would have to make use of the existing roads in the hinterland area to access or leave CKR. In order to minimize the traffic impact on the hinterland road network as a result of KTD and to fully utilize the strategic road CKR, it is hence proposed to modify the CKR/T2 interchange such that a direct connection between CKR and KTD could be provided. In this case, the KTD traffic could enjoy the convenience brought by the strategic road CKR and will no longer need to make use of the existing roads in the hinterland area to access or leave the site, thus relieving the traffic burden on the hinterland road networks, as well as alleviating the air quality impact in local area generated from vehicle exhaust by directly traffic from local road network to free flow roads.

#### *District Distributors*

- 2.6.107 In order to prevent unnecessary through traffic traveling across KTD and to provide adequate but not excessive linkage between KTD and the hinterland areas, only four district distributors namely Road D1, Road D2, Road D3 and Road D4, are proposed in the draft PODP within KTD. Road D2, which will be the key access road to the Stadium, will be in dual 3-lane configuration whereas Roads D1, D3 and D4 will be in dual 2-lane configuration. The proposed dual 3-lane configuration of Road D2 aims at providing adequate storage capacity to handle the considerable amount of surged traffic flows arising from the Stadium Event during PM peak hours. They would provide necessary connection between KTD, To Kwa Wan, San Po Kong, Kowloon Bay and CKR.

#### *Local Roads*

- 2.6.108 There are 19 local roads namely Road L1 to Road L19. These roads will have a lot of run-ins and junctions to serve the KTD and traffic from hinterland to gain access onto strategic roads would therefore be discouraged.
- 2.6.109 Most of the local roads are designed for single 2-lane configuration except Roads L2 and L14 to ensure that the provision and capacity of local roads are adequate but not excessive to accommodate the traffic of KTD, in particular for the Stadium and Cruise Terminal traffic. The arrangements of the internal road network proposed for the PODP are formulated such that many of the local roads would be non-through roads, in the form of cul-de-sac, to discourage by-pass traffic in order to minimize the traffic and environmental impacts.

#### *Measures to minimize Land Intake and Environmental Impact*

- 2.6.110 Since all the proposed four district distributor roads would have intermediate junctions/roundabout connecting with other district/local distributor roads and entry point of developments at close intervals, it is therefore not possible to consider tunnel or depressed roads for these roads. Despite this, some special measures were adopted to minimize the land intake for roads and junctions within KTD including controlling the dimension and number of distributor roads and local roads (e.g. only 4 district distributor roads proposed in the PODP, three of them are only in a dual 2-lane configuration and most of them are single two-lane carriageways etc.).
- 2.6.111 To minimize the environmental impact, Road D1 and D2 are designed to locate away from the major residential zones with non-sensitive GIC and commercial uses planned alongside to reduce the environmental impacts caused by these two roads. For the case of Road D3 along the residential zone of Runway, a promenade deck has been proposed above this road section which serves to minimize the traffic noise impact to the adjacent development from this road as well as the land take at the narrow Runway.

### ***Alternative Development Options for Environment Friendly Transport System***

2.6.112 A Study on EFTS has been conducted on the reserve made on the PODP. Six possible routes for the EFTS, which are shown in **Figure 2.14**, have been studied for capability of integration with planned and existing development. The alignments, constraints, connectivity, environmental and visual impacts and cost benefits for each routing option are discussed in the following paragraphs.

#### *Route 1*

2.6.113 Route 1 from the Cruise Terminal/Tourism Node to SCL Kai Tak Station is an attractive route which serves all major nodes within the KTD well. This route will appeal to tourists and will be the easiest to build as the route does not cross any major waterways except the piled deck over 600m opening at the Metro Park. The main draw back of this route is that the length is too long for a cable hauled or funicular system and as such it will require some form of maintenance depot. There is no provision for such a depot in the current PODP and it is difficult to envisage where such a depot would fit into the current plan. The only potential locations would appear to be at the eastern corner of the Metro Park.

2.6.114 The other point to note with regard to Route 1 is that under the current transport strategy for the initial development stages of the KTD it is proposed to serve a very similar route with an environmentally friendly road based system such as buses. The only location not served by the bus route would be the MPSC which is within walking distance of SCL Kai Tak Station anyway. Once a good shuttle system is established, it will be difficult to remove it without attracting adverse comments from the operator and possibly the general public. Thus it will be difficult to establish an EFTS along Route 1 unless a plan is put in place to phase out the parallel road-based system once the elevated system is put in place.

#### *Route 2*

2.6.115 Combining Routes 1 and 3 to give one long system Route 2 does not appear to be a cost effective solution as compared to the potential IRR of 3 to 1% given by Routes 1 and 3 individually. If the routes are combined to form Route 2 then the overall IRR drops as the Cruise Terminal/Tourism Node catchment is common to both Route 1 and Route 3. With a higher IRR, it will be more desirable to a private operator to build an EFTS on either Route 1 or Route 3 but not on both routes. Therefore, it is not recommended to build Route 2 in view of its financial viability.

#### *Route 3*

2.6.116 Of all the routes considered, it is assumed that Route 3 would have the most public support as it provides a direct link to Kwun Tong MTR station with the shortest possible journey time. The alternative route between Kwun Tong and the Runway tip by road is not desirable as it is very indirect. In addition, Route 3 is likely to be supported by MTR and Kwun Tong District Councils and numerous other stakeholders as listed in Section 1, as it provides a link into the heart of Kwun Tong whilst minimising potential impacts along Hoi Yuen Road.

2.6.117 In the view that the cheapest possible system with the minimum number of stations will be the most viable solution, it is more beneficial to build a funicular system for such a short route. A funicular system from Kwun Tong MTR Station to the Cruise Terminal/Tourism Node offers the following advantages over other systems along the same route:

- The funicular system does not require a depot and does not require any spare vehicles.
- The drop in patronage by deleting the intermediate stations is not significant as most of the demand is generated by the Cruise Terminal and Tourism Node.

#### *Route 4*

- 2.6.118 The availability of land near the junction of Lai Yip Street/Hoi Bun Road is very marginal to construct the foundation and pedestrian lift cores for the KTTL. It is critical to determine the viability of Route 4. The potential traffic impact to the local road network is another concern. By comparing Route 3 and Route 4, it is considered that a direct connection to Kwun Tong is much more favourable than a connection to Ngau Tak Kok by observing the strong request voiced out by the Kwun Tong District Council and a number of other key stakeholders. On this basis, Route 4 is not recommended for further consideration.

#### *Route 5*

- 2.6.119 Whilst Route 5 from the Cruise Terminal to Kowloon Bay MTR has the greatest potential to return a suitable financial return due to the fact that a significant length of the route passes a number of newly developed areas of Kowloon Bay such as the Mega Box development.
- 2.6.120 In terms of technical feasibility, this route has a number of significant engineering challenges such as the crossing of the KTAC and interface with the local roads and the MTR Depot in Kowloon Bay. It is suggested that consideration should be given to building a separate APM or shuttle service to serve the Kowloon Bay area. But such a proposal is outside the study area of KTD and should be investigated under separate project if considered necessary.
- 2.6.121 Be that as it may, it may make sense to extend the APM or shuttle service suggested in Kowloon Bay to the Cruise Terminal/Tourism Node. A route protection zone would be required for future connection in this regard. However, the main problem of establishing such a route protection zone is that the alignment will be cut through one of the development site at the Runway Precinct in order to line up with the median strip on the taxiway bridge. The affected area is approximately 970 m<sup>2</sup> which is significant.
- 2.6.122 As regards the APM system, it is not recommend to further consider Route 5 in view of the overlapping with the routing at hinterland.

#### *Route 6*

- 2.6.123 The remaining route of interest is Route 6 which travels between Kwun Tong MTR and the Cruise Terminal/Tourism node by a more indirect route along the Kwun Tong waterfront. The estimated travel time between the two ends is approximately 7.0 minutes which is double the travel time of 3.5 minutes estimated for the more direct Route 3. In addition, this route is too long for a cable hauled or funicular system and there are a number of engineering constraints along the route including the small turning radius of tracks near the South Apron, crossing of the KTAC and the Kwun Tong Bypass to contend with. Given that the route is unlikely to be very attractive, with views potentially blocked by the Kwun Tong Bypass, and its impacts to the existing Kwun Tong PCWA, it is not proposed to further consider Route 6 as well.

### Environmental and Visual Impacts

- 2.6.124 The rail tracks of EFTS systems would be visual intrusion to the surrounding environment. But this impact could be alleviated by designing narrow rail tracks so that sunlight can pass through to the surface street and surrounding residential/commercial area. The narrow rail tracks feel less constrained for the public along the corridor. Airflow is not blocked to/from the surface street, not causing air pollution under the structure by exhaust gas of cars.
- 2.6.125 The alignment space needed for EFTS systems is small but is big enough for landscaping such as featuring on the column supports to minimize the visual impacts. On the other hand, the stations can be designed to any architectural style to blend with the surrounding environment. The quiet operation of EFTS systems allows flexible opportunities for station locations.
- 2.6.126 As all the possible EFTS systems are electrically powered and most are run on rubber tires, the system are quiet in operation and non-polluting. On the other hand, quick construction time of EFTS tracks and stations will result in less disruption to the surrounding environments, which are welcome by residents and commercial activities in the vicinity.

### Recommendations

- 2.6.127 Based on the above discussion on the alternative routes, two routes are recommended for further study, namely:
- Route 1 – Cruise Terminal/ Tourism Node to SCL Kai Tak Station
  - Route 3 – Cruise Terminal/ Tourism Node to Kwun Tong MTR Station
- 2.6.128 In view of operating a unique system to serve the whole KTD, phasing implementation of Route 1 and Route 3 will be more flexible to link up the two system if desirable to a private operator. Despite of this, it appears that there would be no particular advantage in linking the two systems in view of its financial viability. The demand and timing for each link is also well differ. Route 1 timing will be related to the developments along the Runway whilst Route 3 timing will be related to the provision of the KTTL.
- 2.6.129 Other than the study of the possible alignments, the Study on EFTS has also conducted on possible systems for the EFTS available in the market, namely Cable-liner Shuttle, Rubber-tired APM, Monorail, Trolley Bus/Tram, Funicular and Maglev Shuttle, have been reviewed as the EFTS systems in the KTD. The characteristics, specifications, merits and demerits for each system are discussed in the following paragraphs.

### Cable-liner Shuttle

- 2.6.130 A multi-car cable-liner system (**Figures 2.15a and 2.15b**) requires its stations spaced at equal distance as the vehicles are fixed to the cable. To date a system has not been constructed whereby the vehicles detach from the cable although, according to one supplier, such a system has been in the planning for many years. The alternative would be to have a single car system that stops at all stations although this is not ideal for long routes as the time between cars becomes excessive and the system capacity will be severely constrained. Typically, the cable hauled system is light weight as it is not self-powered. Also typically the cableway is a lattice girder which will not block light to the street below providing a higher degree of aesthetic appeal than a solid girder.
- 2.6.131 A major issue with cable-liner system is evacuation. If a vehicle stalls between stations then the only way to exit the vehicle is by ladder – this is unlikely to be acceptable to FSD and will not be possible in some locations where there is no direct access below. It may be possible to install an elevated evacuation walkway - however, this will add to the cost, and will detract significantly from the aesthetics (which is the main advantage of a cable-liner system).

### Monorail

- 2.6.132 Whilst there are a number of successful applications of monorail (**Figures 2.15c and 2.15d**) around the world, there are a number of drawbacks with monorail systems. Whilst monorail systems have not been ruled out, they are not preferred for the following reasons:
- Maintenance is more difficult than for more conventional systems running on a track.
  - Similar to cable-liner system, the way of evacuation would be problematic. It may be possible to install an elevated evacuation walkway - however, this will add to the cost, and will detract significantly from the aesthetics.
  - The cost per linear metre for monorails is high when compared to other transit systems.
  - There is a reliability issue as it is very difficult to recover a broken down vehicle and reliability of existing systems has not been particularly high.

### Rubber-Tyred Automated People Mover (APM)

- 2.6.133 Rubber-Tyred APM (**Figures 2.15e and 2.15f**) system is generally preferred when compared to monorail, largely because of their improved safety and reliability and their quiet, smooth running. Rubber-tyred APMs also offer cost advantages over monorail systems and they are capable of tighter radius curves and more flexible alignments. Although rubber-tyred APM requires a more substantial superstructure, the superstructure can be built with no parapet which substantially reduces visual impact, such as in the case of the Singapore Bukit Panjang system. It is also easy to phase the implementation of a rubber-tyred APM system. There are many successful applications of rubber-tyred APMs around the world, with a number of new systems in Singapore adopting this form of system.

### Funicular

- 2.6.134 Funicular (**Figures 2.15g and 2.15h**) system has the advantages of simplicity and reliability, and the fact that it requires no depot. However, it can only have two trains, which limits its capacity. Assuming a train capacity of 400, and a required one-way flow of say 4800 pax/h, this would require a round trip time of 10 minutes. In order to achieve a 10 minute round trip time, the maximum route length would only be about 2km, and intermediate stations are unlikely to be possible.

### Trolley Bus / Tram

- 2.6.135 Trolley bus and tram (**Figures 2.15i and 215j**) are more appropriate at-grade and therefore are assumed as inappropriate in this instance. Also they do not provide the extra appeal that an elevated system would have for tourists and sightseers visiting the Kai Tak area. Other drawbacks of the trolley bus and tram systems are: safety in a pedestrian environment; and the visual impact of the overhead lines.

### Maglev

- 2.6.136 The use of Maglev (**Figures 2.15k and 2.15l**) is not recommended due to the major cost of installation and operation while the distance is too short to take advantage of the high speed opportunities of Maglev technology. In addition the alignment cannot navigate tight curves or handle steep gradients, which are constraints that need to be overcome when designing the EFTS alignment in KTD.
- 2.6.137 In conclusion, Rubber-Tyred APM is generally the most suitable system when compared to others in terms of its reliability, improved safety and capital cost. This system is capable of tighter radius curves and more flexible alignments, although the recommended routing for EFTS is feasible for any form of systems described above.

### EFTS Depot

- 2.6.138 An EFTS along an alignment may require a maintenance depot depending on the type of EFTS to be adopted by the developer. The approximate size of the depot would be 25m wide x 120m long to accommodate up to 3 tracks across and two 50m long trains end to end. Several locations to accommodate the depot of EFTS have been investigated as follows:
- Depot at South Apron
  - Depot at Metro Park
  - Depot at Kwun Tong PTI
  - Depot at Kwun Tong Fire Station
- 2.6.139 To provide the depot at South Apron, a spur line is required to be located along waterfront of South Apron, which would not only give additional impact to VSRs but also would affect the public enjoyment of waterfront. As a result, this option is not recommended.
- 2.6.140 The size of the maintenance depot to be required is about 25m x 120m. The Kwun Tong PTI seems insufficient to accommodate the depot together with the spiral ramp of KTTL. Therefore, this option is ruled out.
- 2.6.141 The depot was considered to be located at Kwun Tong Fire Station. However, a suitable site for the provision of the fire station cannot be found so that this option would not be viable.
- 2.6.142 To locate the depot at Metro Park does not require an additional spur line on the one hand, the waterfront for public enjoyment will not be affected on the other hand. From a planning viewpoint, the depot at Metro Park would not affect any development of the planned site. From an environmental viewpoint, the depot is sufficiently far away from the residential site so that the visual impact to VSRs would be minimal. As a result, the Metro Park is selected to accommodate the maintenance depot.
- 2.6.143 Meanwhile, provision is made for a potential depot at Metro Park. The reserved area may form a part of Metro Park or other development if the operator considers not to require a maintenance depot for EFTS.

## 2.7 Alternative Development Options to be Assessed in EIA

2.7.1 While the RODP is the basis for conducting the EIA study for the feasibility study of the Kai Tak Development, some alternative development options have been considered for the RODP but are not incorporated into the RODP yet, details of which are described in the following paragraphs and the environmental impacts of these options will be adequately addressed in this EIA Report.

### Kai Tak Nullah

2.7.2 KTN is a rectangular open channel forming an important drainage system in the Kai Tak area. Apart from surface runoffs within the Kai Tak and hinterland catchment II covering Diamond Hill and Ngau Chi Wan, Kai Tak Nullah also receives stormwater runoffs conveyed from the upland of West Kowloon via a drainage tunnel under Kai Tak Transfer Scheme and treated sewage effluent under Tolo Harbour Effluent Export Scheme.

2.7.3 To cope with KTD, the capacity of existing KTN has to be reviewed as well as the odorous problem due to the sediment. According to the PODP, the KTN would be modified into multi-cells box culvert to cater the odorous problem.

2.7.4 In the stage of preparation of RODP, in line with international efforts to adopt the concept of an environmentally sound and sustainable development for harmony between development and environment conservation, it is intended to develop KTN into a Kai Tak River for a sustainable urban development for KTD and which will become a focal point of Kai Tak City Centre. The proposed Kai Tak River will be along the alignment of the existing KTN running across the apron area from the south of Road D1 to the north of Road D2 as shown in **Figures 2.16a to 2.16d**. The proposed Kai Tak River will compose of a number of channels flowing with non-odorous fresh water and THEES effluent. The channel flowing with THEES effluent will be designed with the width of the THEES water surface to minimize any possible odour nuisance.

2.7.5 The major environmental issue associated with the proposed Kai Tak River option will be the potential odour impact. The Kai Tak River proposal will bring positive landscape and visual impact.

### Through Road L3

2.7.6 According to the road layout provided in the RODP, vehicles can only reach and leave the three school site and Public Rental Housing site at Site 1A1 via Road L2 and Road L3 (with cul-de-dac at the end). There is no connection between Road L3 and the existing Eastern Road.

2.7.7 In order to improve the traffic circulation in the area, it has been proposed to study the feasibility of alternating the current non-through arrangement at the end of Road L3 to a through road, assuming the proposed through road is a one-way road as shown on **Figure 2.17**. The major environmental issues associated with this proposed alternative option will be the potential major traffic noise impact.

### EFTS

2.7.8 Under the Multi-purpose Stadium Complex (MPSC) Study and EFTS Report, it is suggested that the proposed routing of EFTS near the MPSC site should be re-aligned next to Road L6 for better land use integration as red line in **Figure 2.14**. While the routing of EFTS shown in the RODP would follow the original routing in the approved OZP, the proposed routing of EFTS as recommended in the MPSC Study and the EFTS Report would be taken as an alternative option. The traffic noise impact will be assessed in a later section of the report.

## 2.8 Project Programme

### Implementation Programme

2.8.1 The decontamination works at the south apron will proceed in around 2008 while the construction of infrastructure works and sites developments in Kai Tak are anticipated to commence in early 2009, with completion of the project beyond 2020. Construction of the infrastructures needs to be implemented in stages in order to meet the development schedule of Kai Tak Area. To accommodate the construction sequencing constraints and conflicts of interfacing projects, the infrastructure works are split into seven packages as follows:

- Package A – Cruise Terminal Development and related advance works
- Package B – Infrastructure Works at North Apron, Phase 1 – Housing Sites and Government Offices
- Package C – Kai Tak Approach Channel Improvement Works
- Package D – Kai Tak Nullah Modification Works
- Package E – Infrastructure Works at Runway and Metro Park
- Package F – Infrastructure Works at North Apron, Phase 2
- Package G – Trunk Road T2 and Infrastructure Works at South Apron

2.8.2 Public Rental Housing (PRH) and KTGO will take the earliest population intake of KTD by 2012/2013. The essential infrastructure to serve those developments is packaged in Package B Contract 1 - Infrastructure Works at North Apron Phase 1 Stage 1. The construction elements in this package are devised not only by the demand, but also taking into account of minimization of environmental impacts to those sites due to implementation of Package B Contract 2 – Infrastructure Works at North Apron Phase 1 Stage 2.

2.8.3 The packaging of the infrastructure works is shown indicatively in **Figures 2.18 ~ 2.25**. The construction programme for each package is presented in **Appendix 2.2** for reference.

### Package A – Cruise Terminal Development (Phase 1 Berth) and Related Advance Works

2.8.4 This infrastructure package provides the essential infrastructure to serve the proposed Cruise Terminal (Phase 1 Berth). Four construction contracts are proposed for this package:

- Advance infrastructure works at Kai Tak (Stage 1)
- Supplementary radar at NPGO
- Decontamination works at South Apron
- Relocation of Liquid Chlorine Trans-shipment Dock

*Contract 1 – Advance infrastructure works at Kai Tak (Stage 1)*

2.8.5 This construction contract is to provide roads and engineering infrastructure to service the proposed Cruise Terminal and related facilities. The road and engineering infrastructure works include:

- Roads TD3, TD4 and TL14 and associated footpath and amenity;
- Modification of taxiway bridge
- Junction improvement at Sheung Yee Road/Kai Fuk Road, Sheung Yee Road/Wang Chiu Road and Cheung Yip Street/Hoi Bun Road and temporary access road for other contractors
- Drains, sewers, raising main, pumping station, water mains (freshwater and saltwater);
- Landing steps cum Fireboat berth
- Landscape soft works and hard works

2.8.6 A section of about 100m of the existing seawall at the former Kai Tak Airport runway will need to be re-constructed for the proposed public landing steps cum fireboat berth under KTD. Seawall reconstruction would involve excavation and dredging of 600m<sup>3</sup> sediment at and near the existing seawall of the runway.

*Contract 2 – Supplementary Radar at NPGO*

2.8.7 The existing Airfield Surface Detection Equipment (ASDE) Radar at Kai Tak South Apron would be affected by the proposed Kai Tak Development, particularly the Cruise Terminal building, a supplementary radar at the roof of NPGO is required to resemble the essential surveillance coverage of the existing radar prior to commissioning of Cruise Terminal.

*Contract 3 – Decontamination works at South Apron*

2.8.8 This contract is to decontaminate the site at the former South Apron. Furthermore, the underground fuel tanks and the associated fuel supply facilities such as fuel pipeline and the refueling pits have to be demolished.

*Contract 4 – Relocation of Liquid Chlorine Trans-shipment Dock*

2.8.9 According to the findings of the Report on Chlorine Dock Relocation, the chlorine dock should be relocated to Sham Shui Kok before 2012.

Package B – Infrastructure Works at North Apron, Phase 1 – Housing Sites and Government Offices

2.8.10 This infrastructure package is consisted of the necessary infrastructures to serve the Kai Tak City Centre at North Apron East, mainly for the early population intake of Public Rental Housing and KTGO. Two construction contracts containing different works elements are proposed to handle the need in different stages.

*Contract 1 – Infrastructure works at North Apron – Stage 1*

- 2.8.11 This construction contract involves construction of infrastructure at North Apron to cope with the completion of KTGO and population intake of PRH by 2012/13. This contract involves construction of infrastructures at North Apron to cope with the operation of government office and PRH by end 2012. The works elements in this construction contract include:
- Partial Road L2 and L4, Road L3 and L15 and associated footpath and amenity
  - Modification of existing Concorde Road (Road D1) to serve KTGO
  - Enhancement of existing subways near proposed KTGO, near San Po Kong Factory Estate and Choi Hung Estate
  - Landscaped walkway LW-01
  - Drains, box culvert, sewers, raising main, water mains (freshwater and saltwater)

*Contract 2 - Infrastructure works at North Apron – Stage 2*

- 2.8.12 This construction contract involves construction of infrastructures at North Apron to cope further development at eastern North Apron after population intake of PRH. The works elements of this contract are listed as follows:
- Construction of partial Road L2, L4 and D3; Road L1, L5 and L11 and the associated footpath and amenity
  - Landscaped walkway LW-04 and extension of subway SB-06 and SB07;
  - Modification of existing road configuration in San Po Kong
  - Construction of sewage pumping station PS1A
  - Drains, box culvert, sewers, pumping station, raising main, water mains (freshwater and saltwater)

Package C – Kai Tak Approach Channel Improvement Works

- 2.8.13 To enable development intake in KTD, it is necessary to carry out an environmental improvement works for KTAC. The package would only involve a single contract to complete the works elements:
- Bioremediation treatment of sediment at Kai Tak Approach Channel
  - Improvement work and sediment treatment for Kwun Tong Typhoon Shelter
  - Localized dredging of 0.12Mm<sup>3</sup> sediment at KTAC (the size and location of the dredged area is described in Section 6.8 and shown in **Figure 6.5**).

Package D – Kai Tak Nullah Modification Works

- 2.8.14 To cope with the development in Kai Tak and the areas nearby, the KTN has to be reconstructed to enlarge its capacity. This package will be completed in one construction contract containing the works elements:
- Modification of Kai Tak Nullah to 13 cells at upstream and 14 cells at downstream
  - Construction of 2 numbers of desilting compounds
  - Establishment of landscape softwork on Kai Tak Nullah

Package E – Infrastructure Works at Runway and Metro Park

- 2.8.15 Package E consists of infrastructure works in runway precinct and runway tip to serve the future development of residential site and hotel and provision of Metro park for public enjoyment. This infrastructure package is divided into three construction contracts as described following.

*Contract 1 – Infrastructure works for Metro Park and Runway Precinct*

2.8.16 The major works in this construction contract is to formulate a 600m opening to enhance circulation of the water body in KTAC to achieve sustainability development in vicinity. The works elements include:

- Excavation for 600m opening at existing runway
- Piling works at the 600m opening
- Deck to cover up the opening
- Partial Road D3 and Road L12, L13, associated footpath and amenity
- Bridge A (FB-03) and Bridge C (FB-04)
- Drains, sewers, and water mains (freshwater and saltwater)
- Provision of PTI

2.8.17 Opening a 600m wide gap at the northern section of the former Kai Tak Airport runway was considered under the KTPR as a potential mitigation measure to improve the water circulation and water quality in Kai Tak Approach Channel. The opening would be covered by a piled deck. Demolition of existing runway will involve excavation of bulk fill and dredging to -6.5mPD. The proposed construction method adopts an approach where the existing seawall at the runway will not be removed until completion of all excavation, dredging, piling and structural works for the decking. Most of construction works including piling and decking will be carried out on land or temporary platform within the large cofferdam before inspire the seawater into the cofferdam by removal of existing sloping seawall along runway. As such, excavation of bulk fill and majority of the dredging works will be carried out behind the existing seawall, and the sediment plume can be effectively contained within the works area for treatment and disposal without release to the harbour.

*Contract 2 – Advance infrastructure works at Kai Tak (Stage 2) for Phase II berth*

2.8.18 This contract aims to sustain the extension of Cruise Terminal at the time of Phase II berth being operated and to furnish the waterfront landscape deck to integrate with the overall waterfront promenade for public enjoyment of a continuous waterfront. The works elements under this contract are:

- Road D3, D4 and L14, associated footpath and amenity and junction improvement;
- Landscaped deck LW-06 above D3
- Drains, sewers, and water mains (freshwater and saltwater)
- Decommissioning of ex-GFS building and ASDE radar

2.8.19 The landscaped deck LW-06 above Road D3 is proposed for pedestrian linkage between Metro Park, Runway Precinct and the Tourism & Leisure Hub at Runway. It can maximize greening opportunity by decking over the proposed dual two lanes 7.3m wide carriageway (Road D3) and provides landscape amenity for the local residents at Runway Precinct and Kowloon Bay. **Figure 2.26** shows the layout and typical cross section of the landscaped deck.

*Contract 3 – Radar at Cruise Terminal Rooftop*

2.8.20 The existing ASDE Radar at Kai Tak South Apron would be affected by the Cruise Terminal building. Excluding the supplementary radar at the upper roof of NPGO, compensatory radar at the roof of the CT building is also required to resemble the essential surveillance coverage of the existing radar.

### Package F – Infrastructure works at North Apron, Phase 2

- 2.8.21 This infrastructure package comprises of the infrastructure works in North Apron West to serve mainly the MPSC and the second development cluster including commercial and residential development. The infrastructure for refurbishment of To Kwa Wan waterfront would also be included under this development package. Two construction contracts for this infrastructure package are proposed to contain the below described works elements:

#### *Contract 1 – Infrastructure works at North Apron, Phase 2 Stage 1*

- 2.8.22 This construction contract aims to provide the essential infrastructure at North Apron West to serve the second development cluster of residential and commercial sites. The works elements to be considered as essential under this purpose are:

- Partial Road D1 and D3, Road L7, L8, L9, L16 and associated footpaths and amenity area
- Elevated walkways LW-02 and LW-03, underground shopping street SB-01 and subways SB-04 and SB-05
- Drains, box culvert, sewers, rising mains and water mains (freshwater and saltwater)

#### *Contract 2 - Infrastructure works at North Apron, Phase 2 Stage 2*

- 2.8.23 This construction contract is to provide the necessary infrastructure to support the traffic flow attracted by the activities to be held in the MPSC. The implementation elements under this construction contract are:

- Partial Road D2 and D3, Road L6, L16, L17, L19, road works in Sung Wong Toi Road, associated footpath and amenity area and existing junctions improvement;
- Modification of existing PTI at Kowloon City Ferry Pier
- Elevated walkway LW-05
- Drains, box culvert, sewers, pumping stations, rising mains and water mains for both freshwater and saltwater

- 2.8.24 For enhancement and integration of access for the facilities with MPSC, a landscape deck of about 200m length is proposed above Road D2 as shown on **Figures 2.27 to 2.28**. This landscape deck will be supported by piled columns along Road D2. Pedestrian accesses such as stairs, escalators or disable lifts will be provided to integrate the pedestrian access in different levels. The landscape deck above Road D2 will be subject to further design under the MPSC project.

- 2.8.25 The areas underneath the podiums of MPSC will mainly be used for parking spaces and access roads as shown in **Figure 2.29**.

### Package G – Trunk Road T2 and Infrastructure Works at South Apron

2.8.26 This infrastructure package comprises of infrastructure works at South Apron to cope with its G/IC development cluster. The Trunk Road T2 which is a section of Strategic Road Route 6 that is a major works in this development package. KTTL is another impressive major construction element in the package. Two construction contracts are proposed to incorporate all the infrastructure works proposed at South Apron and Kwun Tong.

#### *Contract 1 – Trunk Road T2 and infrastructure at South Apron*

2.8.27 This construction contract includes construction of Trunk Road T2 and all the infrastructure in South Apron excluding the works has been done under the construction contract of Advance Works. The works to be carried out under this contract are

- Road L10, L18, associated footpaths and amenity area and junctions improvement;
- Dredging at KTTS and façade of CKL PCWA for installation of immersed tunnel
- Dual two-lanes expressway of T2 including at-grade, depressed, cut and cover tunnel and immersed tube tunnel
- Slip Road S5 and S6 of CKR/T2 Interchange
- Subway SB-03, and extension of existing footbridge FB-02
- Drains, sewers and water mains (freshwater and saltwater)
- Ventilation shaft at South Apron
- Modification of existing PTI at Kwun Tong Ferry Pier
- Landscape softwork at South Apron and CKL PCWA
- Operational facilities such as ventilation shaft, ministration building and maintenance facilities building at CKL
- Realignment of Kwun Tong Submarine Sewerage Outfall<sup>1</sup>

2.8.28 Road T2 includes approximate 2km of immersed tube section from Cha Kwo Ling to the South Apron area of the former airport, which will induce dredging works at KTTS and facade of CKL PCWA in total amount of 2.26Mm<sup>3</sup>.

#### *Contract 2 – Kwun Tong Transportation Link (KTTL)*

2.8.29 This construction contract is to provide a link between Kwun Tong and KTD to eliminate the separation between the Kwun Tong waterfront and the Runway Tip. The link is preliminarily proposed as an elevated structure to provide a platform to incorporate the Environmental Friendly Transport System, pedestrian and vehicular facilities.

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<sup>1</sup> The realignment of Kwun Tong Submarine Sewerage Outfall may be a material change of an exempted Schedule 2 designated project.

## 2.9 Concurrent Projects

2.9.1 Concurrent projects with likely interaction with this Project are identified as below. The status of these concurrent projects is based on the available information at the time of the submission of this Report. It should be noted that the implementation of individual projects would be subject to the on-going review by relevant project proponents.

2.9.2 There are a number of concurrent projects as listed below which will be implemented within or in the vicinity of KTD.

- ♦ Cruise Terminal
- ♦ Central Kowloon Route;
- ♦ Tseung Kwan O – Lam Tin Tunnel;
- ♦ Shatin to Central Link;
- ♦ Development near Choi Wan Road and Jordan Valley;
- ♦ Development at Anderson Road;
- ♦ Upgrading of Central and East Kowloon Drainage and Sewerage Works
- ♦ Tai Wan Salt Water Supply System;
- ♦ San Po Kong Flatted Factory Redevelopment
- ♦ Sewage Interception Scheme in Kowloon City
- ♦ Relocation of Marine Facilities
- ♦ Relocation of the HKCG Submarine Gas Main
- ♦ Relocation of Chlorine Dock
- ♦ Relocation of Weather Station at Kai Tak Runway
- ♦ Decommissioning of Cha Kwo Ling Public Cargo Working Area
- ♦ District Cooling System
- ♦ Electricity Supply Substation
- ♦ Removal of Disused Fuel Dolphin
- ♦ Control of Water Pollution at Jordan Valley Box Culvert

### *Cruise Terminal*

2.9.3 A two-berth cruise terminal is proposed at the Tourism and Leisure Hub, which will be a major anchor project to attract local and overseas visitors. The Phase I Berth and Phase II Berth of the cruise terminal will be commissioned by 2013 and after 2015 respectively.

2.9.4 Development of the cruise terminal at Kai Tak would require dredging at the existing seawall at the southern tip of the former Kai Tak Airport runway for construction of a berth structure and transition structures, and dredging the seabed fronting the new berth structure to provide necessary manoeuvring basin. Details of the dredging works are presented in the approved EIA Report on Dredging Works for Proposed Cruise Terminal at Kai Tak (EIA-138/2007). The total amount of dredging to be involved is about 1.38Mm<sup>3</sup>.

### *Central Kowloon Route*

2.9.5 This is a strategic road linking from Yau Ma Tei area of West Kowloon to Kowloon Bay to be implemented by HyD. After the proposed interchange at KTD, this strategic route will continue eastward via the T2 to connect TKO-LTT to TKO. The CKR is expected to be completed by year 2016. The works for CKR in KTD includes construction of dual three lanes carriageway in form of cut and cover tunnel at To Kwa Wan, immersed tunnel and associated dredging works in Kowloon Bay and depressed road at North Apron. The total dredging amount from CKR project is estimated to be about 0.36Mm<sup>3</sup>, which is subject to the actual construction method to be adopted.

*Tseung Kwan O – Lam Tin Tunnel*

- 2.9.6 This project is to be implemented by CEDD/NTE from year 2012 to 2016 tentatively. The major interfacing is the proposed transport network connecting with Cha Kwo Ling Approach Road on Lam Tin side. Currently, the demarcation of T2 and TKO-LTT project is assumed at Cha Kwo Ling Road.

*Shatin to Central Link*

- 2.9.7 SCL will form an extension of the Ma On Shan Rail linking the New Territories East to the CBD on Hong Kong Island. The currently proposed SCL will run across the North Apron of KTD with Kai Tak Station and To Kwa Wan Station located inside the area. This project is anticipated to commence in mid 2010 and complete at the end of 2015.

*Development near Choi Wan Road and Jordan Valley*

- 2.9.8 This project has been implemented by CEDD/KDevO since November 2001 for completion in January 2009 tentatively. The materials excavated to facilitate formation of site were mainly transported by conveyor belt system and supplemented by trucks. Although the conveyor belt has been removed, provision has been made for stockpiling of materials at the North Apron and Runway for future use in other sites. The stockpiling removal schedule is targeted by end 2008. .

*Development at Anderson Road*

- 2.9.9 This project is implemented by CEDD/Special Duties (Works) with the site formation and infrastructure works started in January 2008 for completion by end 2014. The construction of site formation, roads, requires establishment of barging point facilities at about middle of Runway for transporting the surplus C&D materials from the development area via a haul road within Kai Tak Development to the barging point facilities for transportation to receptor sites. The handling and disposal of excavated material are expected to take place from 2008 to end 2012

*Upgrading of Central and East Kowloon Sewerage Works*

- 2.9.10 The project is to be implemented by DSD/CM, from early 2009 through 2014. The major interfacing is the upgrading of existing sewers along Sung Wong Toi Road. According to the latest information provided by DSD/CM, interface with Kai Tak Development is considered minimal based on the tentative programme. Therefore, no major interfacing problem is expected if DSD's work is completed as scheduled.

*Tai Wan Salt Water Supply System*

- 2.9.11 The first stage waterworks for providing fresh water and salt water supply to South East Kowloon Development has been completed. The works include laying of a 1200mm watermain from the new Diamond Hill No.2 Fresh Water Service Reservoir (FWSR) to northern boundary of KTD, upgrading of Tai Wan Associated Salt Water Pumping Station (TWASWPS), and two proposed water mains between TWASWPS and Sung Wong Toi Road (Western Boundary of KTD) and between Prince Edward Road East and Diamond Hill Salt Water Service Reservoir (DHSWSR). The TWASWPS and DHSWSR would form a balance tank salt water supply system to serve the KTD.

*San Po Kong Flatted Factory Redevelopment*

- 2.9.12 The planned completion of housing development at SPKFF site is around 2015/16. But it is critical to review the implementation of Road L1 and Subway SB-02 as the road layout has to be integrated with the layout plan of housing development.

#### *Sewage Interception Scheme in Kowloon City*

- 2.9.13 The project is to be implemented by DSD/SP from 2009 to 2012. The major interfacing are the upgrading of existing sewers from San Po Kong entering to the proposed sewage pumping station PS1 located immediately west of KTGO, and the twin sewage rising mains run along proposed Road D1 from east to west then entering the existing trunk sewer at Sung Wang Toi Road. The E&M facilities of sewage pumping stations PS1 and PS3 are required to upgrade by CEDD/KDevO to cater for additional flow from KTD. The additional sewage flow from KTD would include North Apron area where the KTGO is located.
- 2.9.14 The proposed pumping station PS1 and PS3 to be implemented by DSD/SP fall in the vicinity of KTD, which are scheduled to be completed by end 2012 before the development in proximity.

#### *Relocation of Marine Facilities*

- 2.9.15 It is necessary to relocate and / or re-provisioning existing marine facilities including Government Mooring Buoys and the Eastern Quarantine & Immigration Anchorage before dredging works for the Cruise Terminal development can take place.

#### *Relocation of the HK China Gas (HKCG) Submarine Main*

- 2.9.16 The interface with the existing HKCG submarine gas main decommissioning works will affect the staging of the Cruise Terminal. Relocation of this gas main is tentatively scheduled to start in 2010 and complete by 2012. However, the details of the works and exact programme are still being worked out by HKCG and relevant departments. Nonetheless, the total amount of dredging is estimated as 0.44Mm<sup>3</sup> based on the available information on the tentative routing.

#### *Relocation of Chlorine Dock*

- 2.9.17 In view of the planning incompatibility between the existing chlorine trans-shipment dock and KTD, there is a plan to relocate the dock to existing Sham Shuk Kok Chlorine Trans-shipment Dock near Siu Ho Wan Water Treatment Works in 2012. The construction works for the proposed dock at Sham Shui Kok is anticipated to commence in 2009.

#### *Relocation of Weather Station at Kai Tak Runway*

- 2.9.18 In the light of land requirement for Cruise Terminal, there was a need to relocate the existing weather station at the southwestern tip of the ex-runway to the future Runway Park in early 2008. HKO is in close liaison with LCSD in accommodating the weather station in future Runway Park. HKO is also applying through the Lands Department a Temporary Government Land Allocation (TGLA) for an area of 6m x 6m at the southeastern tip of the ex-Kai Tak Runway so as to relocate the weather station there in 2008.

#### *Decommissioning of Cha Kwo Ling Public Cargo Working Area*

- 2.9.19 The landfall of T2 to be located at CKL PCWA entails closing the PCWA for construction. Reduction in quay length renders the CKL PCWA inefficient to operate due to significant reduction in scale. The PCWA will be cleared following commencement of T2 construction.

#### *District Cooling System*

- 2.9.20 EMSD is currently studying the arrangement of District Cooling System serving for KTD. Two district cooling system plants are preliminarily designed to locate at North Apron and Runway with tentative schedule of completion in 2012. The associated pipework in KTD will be implemented to tie in the implementation programme of KTD.

*Electricity Supply Substation*

- 2.9.21 There are five numbers of ESS proposed in KTD with different completion phases to supply electricity service in line with KTD. Five ESS named as SEK "A" located adjacent to PRH, SEK "B" located near MPSC, SEK "C" located next to Ma Tau Kok, SEK "D" located on Runway and SEK "400kV" located at Sung Wong Toi Road. SEK "A" and SEK "D" will be completed by 2012 and 2011 respectively to satisfy the need of the early development of for PRH and Cruise Terminal. SEK "C" is planned to provide service by 2016 to cope with the development in North Apron. SEK "400kV" and SEK "B" will be completed by 2020 or even later to enhance the whole electricity network in KTD.

*Removal of Disused Fuel Dolphin*

- 2.9.22 Although the major works in KTD to be implemented by CEDD/KDevO would not conflict with the disused fuel dolphin and the associated pipeline at Kowloon Bay, the proposed alignment of CKR traversing the disused fuel pipeline induces removal of the fuel dolphin.

*Control of Water Pollution at Jordan Valley Box Culvert*

- 2.9.23 The JVBC is an existing 7 cells box culvert traversed South Apron of KTD conveying surface runoff from Kowloon Bay to KTAC. A desilting compound together with a sewage pumping station will be constructed at South Apron under DSD's project "Control of Water Pollution at Jordan Valley Box Culvert".

*Reconstruction and Improvement of Kai Tak Nullah (Choi Hung Road Section) in Wong Tai Sin*

- 2.9.24 This project is to be implemented by DSD/DP with target commencement date of construction works in early 2010. The scope of this project comprises the decking of a section of about 500m long and 14m wide Kai Tak Nullah in Wong Tai Sin from Po Kong Village Road to Tung Tai Lane together with ancillary landscaping and drainage works.

**2.10 TPEDM Data**

- 2.10.1 The assessments in this EIA Study are based on the 2003-based Territorial Population and Employment Data Matrices (TPEDM) data. Review has been conducted on the 2006-based TPEDM data and it is found that the 2006-based TPEDM data will not have significant impact on the findings of this EIA Study.