Hong Kong 2030+:
Towards A Planning Vision and Strategy Transcending 2030

Consolidated Land Requirement and Supply Analysis

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PREFACE

Land production and development to meet Hong Kong's housing, economic and social needs take considerable time to materialise and require holistic planning. To provide land/space with the necessary supporting infrastructure to accommodate the facilities, services and activities to meet our long term development needs, we have attempted to estimate the future land requirements of different land uses to provide pointers in the formulation of an updated territorial development strategy. Under the Hong Kong 2030+, a comprehensive land requirement and supply analysis for various land uses, including economic uses, housing, and Government, Institution and Community (GIC), open space and transport facilities was undertaken, based on the available data as well as the past and known trends. Nevertheless, it should be noted that we neither have a "crystal ball" nor a perfect model at hand in this highly dynamic world, while innovation and technological advancement will inevitably cause significant impacts on the ways that we live, work, do business, pursue leisure, etc. in the long term. Under such circumstances, it would be extremely difficult to derive precise estimates in the analysis. The crux is that the updated territorial development strategy needs to be robust and flexible so that we could embrace unexpected changes and capture new opportunities in good time.

This topical paper constitutes part of the research series under "Hong Kong 2030+: Towards a Planning Vision and Strategy Transcending 2030" (Hong Kong 2030+). The findings and proposals of the paper form the basis of the draft updated territorial development strategy which is set out in the Public Engagement Booklet of Hong Kong 2030+.

1 LAND REQUIREMENTS FOR ECONOMIC LAND USES

1.1 Ample supply of economic land is essential to embrace new economic challenges and opportunities for sustainable development of Hong Kong. The Planning Department's consultancy study entitled "Review of Land Requirement for Grade A Offices, Business and Industrial Uses" (the Review) to assess the land requirements of the major market-driven economic land uses is nearing completion. Assessment on the land requirements for other economic uses has also been undertaken, based on the advice of individual bureaux/departments (B/Ds) on the respective sectors/industries under their purview.

Land Requirements for Market-driven Economic Uses

1.2 An Econometric Model is adopted in the Review to assess the aggregate floorspace demand of different economic land uses (comprising Central Business District (CBD) Grade A Offices, Non-CBD Grade A Offices, General Business Uses, Industries and Special Industries (**Table 1-1**)) over a projection horizon in the short (up to 2023), medium (up to 2033) and long terms (up to 2041). The Model itself is mainly based on the statistical relationship between floorspace and relevant variables (i.e. the growth rates of real Gross Domestic Product (GDP) in Hong Kong[1] and Guangdong[2]), taking into account their close economic links. The aggregate floorspace demand is then split into five different types of land uses to reckon the land requirement for individual economic uses, taking into account other factors like natural vacancy[3] and latent demand[4].

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[1] Assumptions of growth rate of Hong Kong real GDP adopted: (i) 2.5% for 2014, (ii) 2% for 2015 (i.e. mid-point of 1-3% government forecast), (iii) 3.5% for 2016-19, and (iv) base case assumptions of the Working Group on Long-Term Fiscal Planning for the remaining years, i.e. 3.5% for 2020-21, 3% for 2022-25 and 2.5% for 2026-41.

[2] Assumptions of growth rate of Guangdong real GDP adopted: (i) gradual change from 8.5% to 6.5% from 2013 to 2023, and (ii) growth changes by -0.1% per annum from 2024 to 4.5% in 2041.

[3] Natural vacancy is a vacancy that should exist in a healthy market. It is a benchmark which acknowledges that even when a property market is in equilibrium, some level of empty space is 'natural'. This is due to frictions in matching different floorspace with the most appropriate tenant.

[4] Latent demand in Economics generally refers to a situation where an individual's desire to consume a good or service cannot be satisfied due to a lack of either information or purchasing power. Latent demand arises when demand for land to support some economic activity is not satisfied, or only partially satisfied. This may happen when, for example, supply of new land for development is severely constrained. In the context of employment land, latent demand could have the following effects:
• new business may be precluded from entering the market; and
• existing business may be precluded from expanding their use of land/space, and there is pressure to accommodate workers in a smaller space (implying higher worker density).

Table 1-1   Five Types of Market-driven Economic Uses Covered in the Review

CBD Grade A Offices Grade A offices in CBDs are usually at the meeting points of the city's transport systems and are perceived as prestigious areas with high quality public realm and a critical mass of high value-added economic activities and services as well as supporting business and amenities. They usually accommodate business operations of financial services, high value-added business and professional services requiring face-to-face contact, as well as the head offices of multi-national corporations (MNCs). For the subject land requirement analysis, CBD is defined as Sheung Wan, Central, Wan Chai, Causeway Bay and Tsim Sha Tsui (including West Kowloon Reclamation) in the short term. In the medium to long term, East Kowloon CBD2 (i.e. Kai Tak Development and Kowloon Bay and Kwun Tong Business Areas) are also included.
Non-CBD Grade A Offices Non-CBD Grade A Offices encompass Grade A offices located outside the CBDs which may not provide the benefit of agglomeration effect. They usually accommodate supporting/back/split offices of major business undertakings or companies seeking relatively cost-effective premises or unique locations.
General Business General Business includes non-Grade A offices, and business activities involving no industrial production, that have flexible floorspace requirements. General types of research and development (R&D) as well as testing and certification are under this categorisation. The floorspace preferences of these activities are sensitive to accommodation costs.

General Business uses are now predominantly found in industrial/industrial-office buildings, followed by non-Grade A office buildings.
Industries Industries include manufacturing, general logistics/warehousing and other industrial activities, but other than "Special Industries".
Special Industries Special Industries include industries that have unique locational or operational requirements having regard to specific environmental or other considerations. They usually require purpose-built premises of more rigid specifications. High-tier data centres, modern logistics and special types of R&D as well as testing and certification are subsumed under this typology.

1.3   A demand and supply assessment is conducted to match the projected demand with the existing supply and projected major new supply from the planned and committed/under advance planning projects to derive any shortfall/surplus in different economic land uses.

Overview of Supply and Demand Assessment on Market-driven Economic Uses

1.4   **Table 1-2** below shows an overview of supply and demand assessment in terms of gross floor area (GFA)

and net site area (NSA). The total long term land requirement (by 2041) for the three types of uses with projected deficit land area, i.e. CBD Grade A Offices, Industries and Special Industries, is estimated to be **201 ha** in NSA. Less the committed and planned/under advance planning projects, these three types of uses are expected to experience a total shortfall of **about 97 ha** in the short term, to be increased to **about 111 ha** in the medium term and then decreased to **about 80 ha** in the long term due to increased supply. On the other hand, surplus is anticipated for the remaining two types of uses, largely due to a higher growth rate of supply than demand for Non-CBD Grade A Offices (mainly from redevelopment of industrial buildings), and steady supply but decreasing demand for General Business over the whole projection period (also mainly from redevelopment of industrial buildings).

1.5   **Figure 1-1** shows the broad spatial distributions of Grade A Offices, General Business, Industries and Special Industries in terms of their existing clusters, major planned/committed projects as well as the potential solution spaces identified to address the shortfalls in land requirements for CBD Grade A Offices, Industries and Special Industries.

Table 1-2   Summary of Findings of Supply and Demand Assessment on Market-driven Economic Land Uses

		New Land Requirement in Long Term (By Year 2041)	Surplus/Deficit		
			Short Term (By Year 2023)	Medium Term (By Year 2033)	Long Term (By Year 2041)
			Surplus or Shortfall after Deducting Major Planned/Committed/Under Advance Planning Supplies		
			Land Area *in Net Site Area*[(1)] *(ha) and Floorspace in GFA (m²)*		
Grade A Offices	CBD	27 ha	Deficit: 4.0 ha *(0.48M m²)*	Deficit: 2.6 ha *(0.31M m²)*	Deficit: 8.9 ha *(1.06M m²)*
	Non-CBD	15 ha	Surplus: 4.6 ha *(0.55M m²)*	Surplus: 15.1 ha *(1.81M m²)*	Surplus: 10.5 ha *(1.26M m²)*
General Business		-17 ha	Surplus: 12.9 ha *(1.42M m²)*	Surplus: 27.1 ha *(2.98M m²)*	Surplus: 32.3 ha *(3.55M m²)*
Industries		37 ha	Deficit: 8.4 ha *(0.80 M m²)*	Deficit: 38.0 ha *(3.61M m²)*	Deficit: 53.6 ha *(5.09M m²)*
Special Industries		137 ha	Deficit: 84.6 ha *(3.39M m²)*	Deficit: 70.0 ha *(2.80M m²)*	Deficit: 17.4 ha *(0.70M m²)*
Total Land Area (Net Site)[(2)]		**201 ha**	**97.0 ha**	**110.6 ha**	**79.9 ha**

(1) Estimated floorspace requirements are translated into net site area based on general development parameters for each land use type.
(2) Noting that different uses are not totally substitution of each other, the "Total Land Area (Net Site)" for the "New Land Requirement in Long Term" in the second column, and the that for "Surplus/Deficit" in the third to fifth columns are the sum of CBD Grade A Offices, Industries and Special Industries only which are projected to have deficit of land area.
Note: The above may not be added up to total due to rounding.

Figure 1-1 Major Planned/Committed/Potential Spaces for Development of Grade A Offices, General Business, Industries and Special Industries
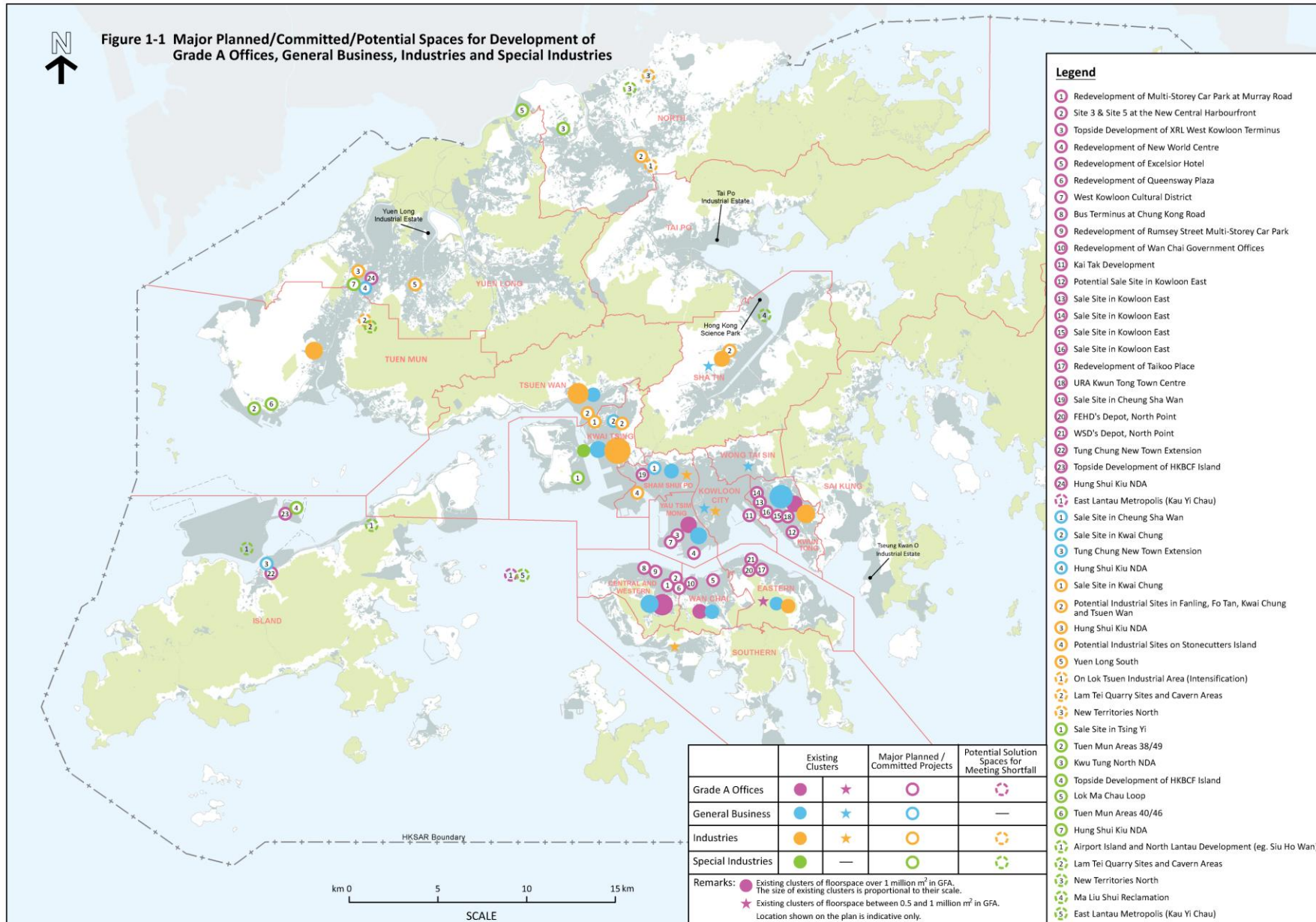
Legend

1. Redevelopment of Multi-Storey Car Park at Murray Road
2. Site 3 & Site 5 at the New Central Harbourfront
3. Topside Development of XRL West Kowloon Terminus
4. Redevelopment of New World Centre
5. Redevelopment of Excelsior Hotel
6. Redevelopment of Queensway Plaza
7. West Kowloon Cultural District
8. Bus Terminus at Chung Kong Road
9. Redevelopment of Rumsey Street Multi-Storey Car Park
10. Redevelopment of Wan Chai Government Offices
11. Kai Tak Development
12. Potential Sale Site in Kowloon East
13. Sale Site in Kowloon East
14. Sale Site in Kowloon East
15. Sale Site in Kowloon East
16. Sale Site in Kowloon East
17. Redevelopment of Taikoo Place
18. URA Kwun Tong Town Centre
19. Sale Site in Cheung Sha Wan
20. FEHD's Depot, North Point
21. WSD's Depot, North Point
22. Tung Chung New Town Extension
23. Topside Development of HKBCF Island
24. Hung Shui Kiu NDA

1. East Lantau Metropolis (Kau Yi Chau)

1. Sale Site in Cheung Sha Wan
2. Sale Site in Kwai Chung
3. Tung Chung New Town Extension
4. Hung Shui Kiu NDA

1. Sale Site in Kwai Chung
2. Potential Industrial Sites in Fanling, Fo Tan, Kwai Chung and Tsuen Wan
3. Hung Shui Kiu NDA
4. Potential Industrial Sites on Stonecutters Island
5. Yuen Long South

1. On Lok Tsuen Industrial Area (Intensification)
2. Lam Tei Quarry Sites and Cavern Areas
3. New Territories North

1. Sale Site in Tsing Yi
2. Tuen Mun Areas 38/49
3. Kwu Tung North NDA
4. Topside Development of HKBCF Island
5. Lok Ma Chau Loop
6. Tuen Mun Areas 40/46
7. Hung Shui Kiu NDA

1. Airport Island and North Lantau Development (eg. Siu Ho Wan)
2. Lam Tei Quarry Sites and Cavern Areas
3. New Territories North
4. Ma Liu Shui Reclamation
5. East Lantau Metropolis (Kau Yi Chau)

	Existing Clusters		Major Planned / Committed Projects	Potential Solution Spaces for Meeting Shortfall
Grade A Offices	●	★	○	○
General Business	●	★	○	—
Industries	●	★	○	○
Special Industries	●	—	○	○

Remarks: ● Existing clusters of floorspace over 1 million m² in GFA. The size of existing clusters is proportional to their scale.

★ Existing clusters of floorspace between 0.5 and 1 million m² in GFA. Location shown on the plan is indicative only.

1.6 Most of the major planned/committed Grade A Office projects are located within the traditional CBD as well as CBD2 in Kowloon East, except a few scattered in Taikoo Place, North Point, Cheung Sha Wan, Hung Shui Kiu New Development Area (NDA), Tung Chung New Town Extension (TCNTE) and the future Hong Kong Boundary Crossing Facilities (HKBCF) Island of Hong Kong-Zhuhai-Macao Bridge (HZMB). The major planned/committed General Business projects are found in Cheung Sha Wan, Kwai Chung, TCNTE and Hung Shui Kiu NDA, while those for Industries are found in Stonecutters Island, Kwai Chung/Tsuen Wan, Fo Tan, Fanling, Yuen Long South and Hung Shui Kiu NDA. The major planned/committed Special Industries projects are located in Tsing Yi, Tuen Mun, Kwu Tung North and Hung Shui Kiu NDAs, Lok Ma Chau Loop and on the future HKBCF Island of HZMB.

1.7 The East Lantau Metropolis (ELM), which has potential for developing as CBD3, would be a potential long term solution space for Grade A Offices. For Industries, possible solution spaces include Lam Tei Quarry and Cavern Areas as well as intensification of existing On Lok Tsuen Industrial Area in the medium term, and New Territories North (NTN) in the long term. For Special Industries, possible solution spaces include the Airport Island and North Lantau Development (e.g. Siu Ho Wan) (for modern logistics) in the short term, Lam Tei Quarry and Cavern Areas in the medium term, and Ma Liu Shui Reclamation, ELM, NTN and future after-use of potential new quarry site(s)[5] in the long term.

1.8 Detailed supply and demand analysis of each type of use is depicted below.

CBD Grade A Offices (**Figure 1-2**)

1.9 Currently, there is about 0.14 million m^2 GFA shortfall of CBD Grade A Offices. With the projected growth of Hong Kong's overall economy as a global financial and business hub and continual development of our financial services sector riding on the rigorous Central Government's economic policy (such as "Belt and Road" initiative and Asian Infrastructure Investment Bank), a steady increase in demand for CBD Grade A Offices floorspace is expected. Despite that a number of CBD Grade A Offices projects are expected to be realised in

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[5] Three potential new quarry sites, i.e. Lung Kwu Tan, Tuen Mun West and Tsing Yi were identified in Civil Engineering and Development Department's Identification of New Quarry Sites in Hong Kong - Feasibility Study. Follow-up technical feasibility studies are being undertaken.

the short term (e.g. Topside Development of Express Rail Link West Kowloon Terminus, and redevelopment of Queensway Plaza and multi-storey car park at Murray Road), a shortage of about 0.48 million m^2 in GFA or about 4.0 ha in NSA is still anticipated by 2023.

Figure 1-2   Supply and Demand of Floorspace for CBD Grade A Offices
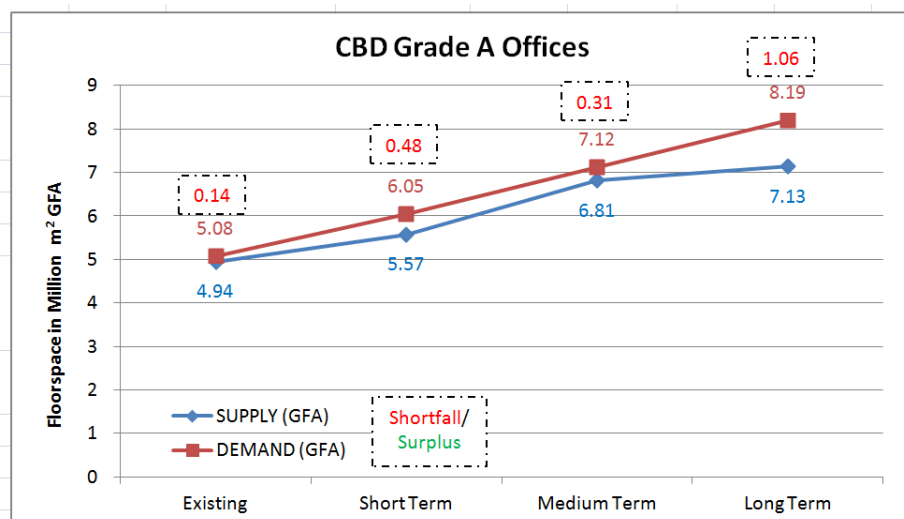
1.10   A steady increase in demand is expected to continue. On the supply side, there is an estimated increase of a total of 1.24 million m^2 GFA in the medium and long

term (mainly from Kai Tak Development by phases[6]). However, the shortage gap is expected to widen from about 0.31 million m^2 GFA or about 2.6 ha NSA in the medium term to about 1.06 million m^2 GFA or 8.9 ha NSA in the long term.

*Non-CBD Grade A Offices (**Figure 1-3**)*

1.11   Currently, there is about 0.29 million m^2 GFA shortfall of Non-CBD Grade A Offices. Similar to CBD Grade A Offices, steady increase in demand is projected. Development in Kai Tak Development, several government sale sites in Kwun Tong and Kowloon Bay Business Areas, and redevelopments in Taikoo Place and Kwun Tong Town Centre will contribute to the short term supply[6], resulting in a surplus of about 0.55 million m^2 GFA or about 4.6 ha NSA by 2023.

1.12   Steady increase in demand is projected throughout the medium to long term. On the supply side, several major planned projects such as Hung Shui Kiu NDA, TCNTE and Topside Development at HKBCF Island of HZMB are expected to contribute supply in the medium

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6   As explained in Table 1-1, East Kowloon CBD2 would be regarded as CBD in medium and long term only.

term. In addition, redevelopment of existing industrial buildings in Kwun Tong and Kowloon Bay Business Areas will be another major source of new supply. It is anticipated to have a surplus of about 1.81 million m^2 GFA or about 15.1 ha NSA in the medium term and about 1.26 million m^2 GFA or about 10.5 ha NSA in the long term.

1.13 It is worth noting that non-CBD Grade A Office premises currently also accommodate a number of service trades (such as clinics, health/beauty parlours, educational institutions and religious institutions). Since these uses have not been taken into account in the demand analysis, the actual surplus of non-CBD Grade A Offices in reality would likely be less.

Figure 1-3 Supply and Demand of Floorspace for Non-CBD Grade A Offices
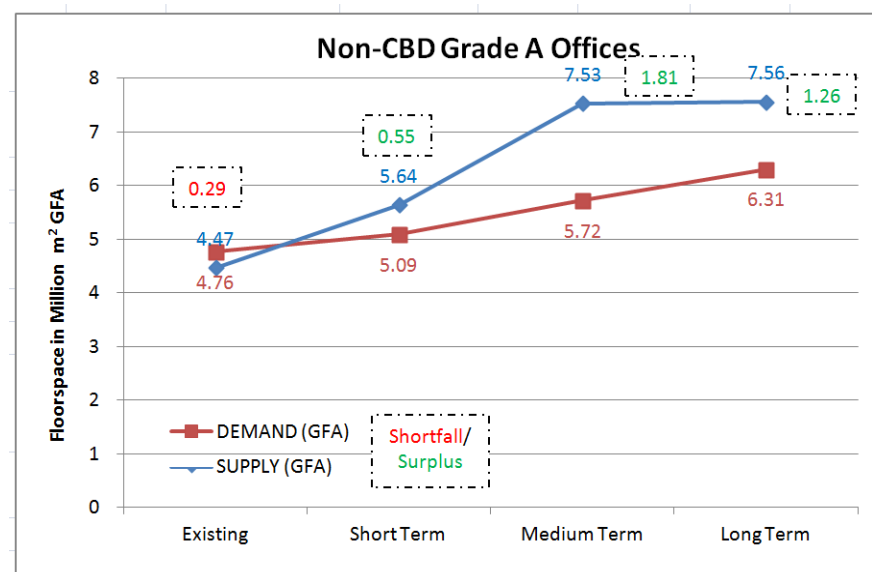
*General Business (**Figure 1-4**)*

1.14 Currently, there is about 0.14 million m^2 GFA surplus of General Business. The surplus is expected to increase to about 1.42 million m^2 GFA or about 12.9 ha NSA in the short term. The supply will remain stable with only about 0.16 million m^2 GFA increase mainly from redevelopment of existing industrial buildings and

government sale sites in Cheung Sha Wan and Kwai Chung. On the demand side, a drop of about 1.12 million m^2 GFA is foreseen, noting that such uses are by nature relatively footloose and not locational sensitive.

Figure 1-4 Supply and Demand of Floorspace for General Business

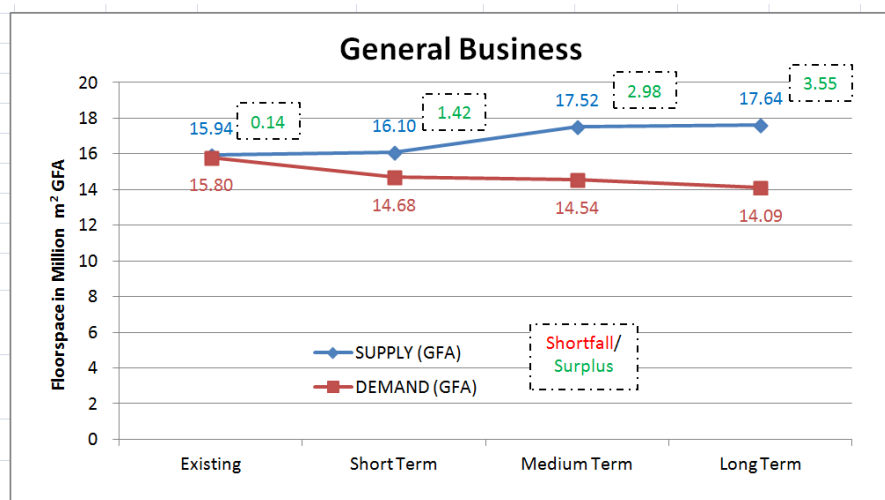1.15 Surplus is anticipated to remain in the medium and long term if there is a continuous supply from redevelopment of industrial buildings, coupled with new office developments in Hung Shui Kiu NDA and TCNTE. If this happens, the surplus is estimated to be about 2.98 million m^2 GFA or about 27.1 ha NSA in the medium

term and about 3.55 million m^2 GFA or about 32.3 ha NSA in the long term.

1.16 The rental prices of General Business floorpsace are expected to be driven down by market forces in view of the excessive supply. Coupled with the increasing demand for industrial floorspace as mentioned below, fewer industrial buildings may eventually be redeveloped in reality, resulting in less or even no surplus of General Business floorspace.

Industries (**Figure 1-5**)

1.17 The demand for Industries would experience a considerable increase from now to the short term, mainly driven by the demand for general logistics/warehousing uses. A shortage of supply of about 0.80 million m^2 GFA or about 8.4 ha NSA is anticipated despite the new supply from a government sale site in Kwai Chung and other potential industrial sites in Fanling, Fo Tan and Tsuen Wan.

1.18 With the anticipated growing demand for industrial floorspace and continuous displacement or redevelopment of industrial buildings to non-industrial

uses, the gap between supply and demand is expected to continue to widen. Respective shortfalls of about 3.61 million m^2 or about 38.0 ha NSA in the medium and about 5.09 million m^2 GFA or about 53.6 ha NSA in the long term are anticipated in spite of the new supply from Hung Shui Kiu NDA, Yuen Long South and Stonecutters Island.

Figure 1-5   Supply and Demand of Floorspace for Industries
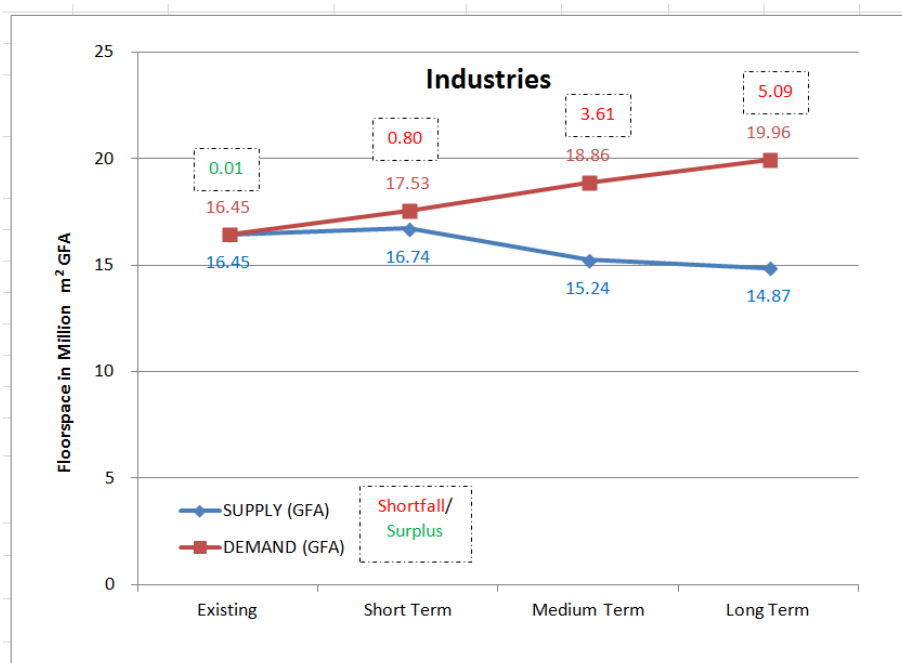
1.19 In view of the continuous shortfall of industrial floorspace and the continuous surplus of General Business floorspace as mentioned above, there may be fewer redevelopment of industrial buildings to non-industrial uses in reality.

Special Industries (**Figure 1-6**)

1.20 Special Industries currently have a shortfall of about 2.37 million m^2 GFA. The shortfall is expected to increase to about 3.39 million m^2 GFA or 84.6 ha NSA in the short term. A significant increase in demand is expected, mainly driven by growth in modern logistics. On the supply side, limited new land would be available, except for a few logistics sites in Tsing Yi and Tuen Mun as well as some new sites for data centres.

1.21 The demand for Special Industries is anticipated to increase steadily from medium to long term. Meanwhile, supply is expected to catch up with the realisation of some planned developments, including Kwu Tung North and Hung Shui Kiu NDAs, Topside Development at HKBCF Island of HZMB, Tuen Mun Areas 40 and 46 and Lok Ma Chau Loop. Shortage in supply will be reduced to about 2.80 million m^2 GFA or

about 70.0 ha NSA in the medium term and about 0.70 million m^2 GFA or about 17.4 ha NSA in the long term.

Figure 1-6   Supply   and   Demand   of   Floorspace   for Special Industries

Land Requirements for Other Economic Uses

1.22   Individual   policy   bureaux   may   have   specific   policy measures in support of other economic uses under their purview.   Some   of   such   measures   may   have   land requirement implications.   To enable appropriate long term strategic planning to cater for such needs, B/Ds have indicated those other economic uses falling under their respective purview.
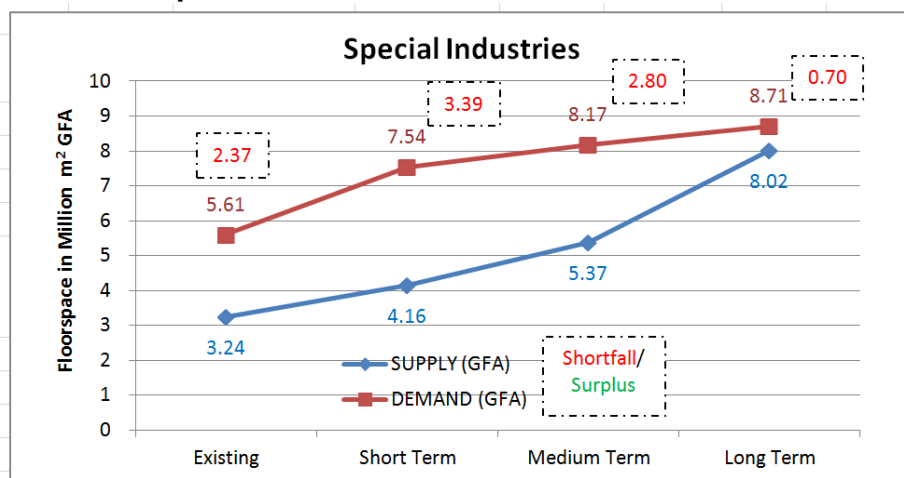
Overview of Supply and Demand Assessment on Other Economic Uses
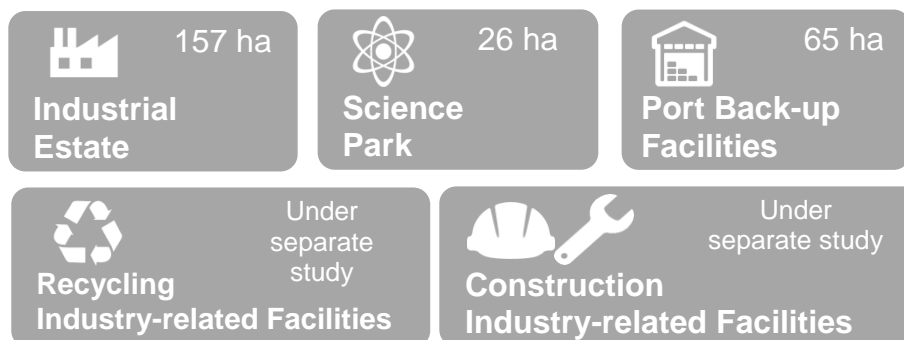
1.23   B/Ds' inputs are summarised below with an estimated aggregate requirement of **around 257 ha land plus about 132,500m^2 useable space**, with the majority (about 248 ha) for industrial-related uses (**Table 1-3**). Less the committed/planned/under advance planning projects with a total land supply of about 81 ha for port back-up facilities and industrial estate, a total shortfall of **about 9 ha (plus about 132,500m^2 useable space)** is estimated in the short to medium term, to be increased to **about 176 ha (plus about 132,500m^2 useable space)** in the long term.

Industrial-related Uses

157 ha **Industrial Estate**	26 ha **Science Park**	65 ha **Port Back-up Facilities**
Under separate study **Recycling Industry-related Facilities**		Under separate study **Construction Industry-related Facilities**

Commercial-related Uses

9 ha **Wholesale Food Market**	132,500m^2 useable space **Convention and Exhibition Facilities**

Table 1-3   Summary of Findings of Supply and Demand Assessment on Other Economic Land Uses

	Estimated Total Land Requirement	Land Supply	Shortfall	
			Short to Medium (up to 2030)	Long Term (Beyond 2030)
Industrial-related Uses	248 ha	81 ha	-	167 ha
Commercial-related Uses	9 ha + 132,500m^2 useable space	-	9 ha + 132,500m^2 useable space	9 ha + 132,500m^2 useable space
Total	**257 ha + 132,500m^2 useable space**	**81 ha**	9 ha + 132,500m^2 useable space	176 ha + 132,500m^2 useable space

Key Issues on Assessment of Land Requirements for Economic Uses

1.24 *Ballpark estimates instead of precise projections* – it is always difficult to provide precise forecasts in long-range projections, and our assessments on land requirements for economic uses are no exception. As such, all projected figures should only be taken as ballpark estimates for the purpose of strategic planning rather than precise forecasts. In view of this, the territorial development strategy to be formulated needs

to be robust and flexible to allow for adjustments to respond to a high level of uncertainty.

1.25 ***Assessment on market-driven uses not exhaustive*** - the Review only covered five types of market-driven economic uses. Projections of other market-driven economic uses had not been made for various reasons. For instance, the demand for retail facilities is difficult to project as it is highly market-sensitive and often fluctuates. Given such constraint, the overall projection derived in the Review should be taken as a minimum estimate of the market-driven economic uses.

1.26 ***CBD and Non-CBD Grade A Offices may be interchangeable*** - notwithstanding the splitting of Grade A Offices into CBD and Non-CBD Grade A Offices for forecasting and land use planning purposes, segregation is considered less rigid in the property market in reality. From the user point of view, the CBD and Non-CBD Grade A Offices floorspace may be to a certain extent inter-changeable, depending largely on rental differential under market dynamics which are highly volatile. In view of the shortage of CBD Grade A Offices, their rental would likely be driven up by market forces to a level that some less affordable users may be

forced to move to the Non-CBD Grade A Offices. This would to a certain extent help to address the shortfall of CBD Grade A Offices and the surplus of non-CBD Grade A Offices in the short and medium term. On the other hand, certain Grade A office users such as MNCs would tend to be locational sensitive (for prestige and/or embedded synergy), and would normally choose to stay in the CBD despite the rising rental. Hence, it will be of vital importance to ensure a steady supply of CBD Grade A Offices to capture this group of users. For strategic planning purpose, it is prudent to closely monitor the situation to see whether appropriate adjustments are required for the future supply.

1.27 ***Shortfalls for Industries and Special Industries*** - shortfalls in land supply for Industries and Special Industries are anticipated to be mainly driven by the logistics sector and the innovation and technology sector. There is a need to appropriately retain the existing "Industrial" ("I") zones, particularly those in the vibrant industrial areas to meet the demand. Moreover, to facilitate the promotion of modern industries (e.g. smart production and advanced manufacturing), innovation and technology industries and to support the new initiative on "re-industrialisation", action should be

taken to identify new sites for industrial uses, and to better use the underutilised "I" sites to help increase the supply. In addition, whilst our manufacturing sector has been dwindling over years, there are certain industries relating to local consumption and supporting the operations and functions of the city that need to stay in Hong Kong (such as food and beverages, and paper products and printing). Part of the existing industrial stock may serve some of the demand for logistics/warehousing and possible return of certain manufacturing industries or related operations from the Mainland. Unless there is a significant policy change of intervention, the remaining part of the industrial stock is expected to be continuously predominated by general business largely due to the lower rental of industrial buildings than non-Grade A office buildings as well as the higher bid rent of general business than manufacturing and warehousing uses.

1.28 ***Realisation of planned market-driven uses*** - provision of land alone in some cases is considered insufficient to drive the realisation of the planned market-driven economic uses. For better and quicker realisation of the identified potential solution spaces, sufficient "pull factors" or incentives may need to be provided to attract the market to develop their business from scratch. For example, public services nodes/government offices could be the "first movers" to help generate flow of people and catalyst effect on attracting private sector to also set up their business in the surroundings. When more business has been set up, a critical mass conducive to a viable business environment could then be achieved, and agglomeration effect and synergy would be generated to capture more potential users to utilise the land provided. In addition, timely provision of transport infrastructure and proximity to residential neighbourhoods are vital considerations in the planning process, as these two factors facilitate flows of labour between home and workplace, which would be conducive to attract business.

1.29 ***Flexibility for market-driven uses*** - more flexibility should also be provided in the land use planning system to allow the business sector to make quicker response to the changing market situation. For instance, land provision for Special Industries could be planned flexibly to suit different types of special industrial uses, e.g. modern logistics and data centre uses. Besides,

review on land requirements should be regularly conducted to keep abreast of the market situation.

1.30 ***Technical feasibility of solution spaces*** - in identifying solution spaces to meet the shortfall economic land requirements, consideration should also be given to the land requirement assessments on other uses, related technical assessments and other factors (such as cost-effectiveness and synergy with other developments). Together with the development options for other land use requirements, Transport and Land Use Assessment and Strategic Environmental Assessment would be holistically undertaken under Hong Kong 2030+ to ensure that a sustainable spatial pattern would be achieved with balanced population and employment distribution supported by green transport infrastructure.

1.31 ***Long term requirements not available for some uses*** - long term land requirements for some uses are not available. For example, projected demand for convention and exhibition facilities beyond 2028 is not available. Besides, some uses like car repairing facilities are now partly accommodated on sites under short term tenancies or brownfield sites in the New Territories creating land use compatibility, environmental and traffic problems. Notwithstanding that some voices have been made in the community that the Government should formulate policy to facilitate development of multi-storey car repair centres, long term estimated land requirement for such use is not yet available.

1.32 ***Long term land requirements for some uses to be ascertained by studies*** - land requirements for certain special economic uses could only be confirmed pending studies at a later stage, such as the construction-related and waste recycling/treatment/transfer facilities being studied by the Civil Engineering and Development Department and the Environmental Protection Department respectively.

2 LAND REQUIREMENTS FOR HOUSING

2.1 In the Long Term Housing Strategy (LTHS) Annual Progress Report 2015 published by the Transport and Housing Bureau (THB) in December 2015, the Government updated the housing supply target for the ten-year period from 2016/17 and 2025/26 to 460,000 units[7]. While THB will conduct annual update of the rolling ten-year housing supply target, we need to assess for a much longer timeframe (up to 2046) and translate the housing demand into land requirement under Hong Kong 2030+.

Housing Land Requirement Assessment

Demand Assessment

2.2 On demand side, a two-step approach is adopted to assess the housing land requirement.

Step 1 - Housing Unit Demand (**Figure 2-1**)

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[7] The housing demand projection methodology was endorsed by the LTHS Strategy Steering Committee after going through an elaborated study process and public consultation. According to the LTHS Report on Public Consultation issued in February 2014, respondents did not raise fundamental queries on the overall principles and methodology for projecting long term housing demand. Respondents also generally accepted the demand components in the projection methodology, except for a small number of groups and individuals questioned some of the assumptions adopted in the projection.

Figure 2-1   Methodology for Deriving Hong Kong Housing Unit Requirement by 2046

	Net Housing Requirement in the 1st 10 years (2016-2026) (under LTHS model) **460,000** (46%)	Net Housing Requirement beyond the 1st 10 years (2026-2046) (under current assessment) **540,000** (54%)

Total Net Housing Unit Requirement assumed under HK2030+ (2016-2046) =

Net Increase in number of households from 2026 to 2046 **(183,400)** (18.3%)	+	Households displaced by redevelopment = Public housing (14,800) + private buildings aged 70 and above (258,000) **(273,000)** (27.3%)	+	Miscellaneous factors (non-local students, non-local buyers and mobile residents-only households) **(73,400)** (7.3%) *Assume 2 times of that projected under LTHS*	X	Adjustment factor (vacancy rate in private sector) **(1.02)** (1%) *Make reference to the average vacancy rate in the private sector from 1985 to 2014 (about 5 %) and private to public housing ratio (40%)*

= **1,000,000**

2.3   Housing demand is defined in LTHS as "the total number of new housing units required to provide adequate housing to each and every household over the long term". For the first ten years (i.e. 2016/17 to 2025/26), the latest housing target of **460,000 units** in LTHS Annual Progress Report 2015 is adopted in our assessment. This target was derived based on the following four components with adjustment taking into account the number of vacant units in the private sector in the past ten years (**Figure 2-2**) –

(a)   net increase in number of households (about 247,800 units);

(b)   households displaced by redevelopment (about 45,400 units[8]);

(c)   inadequately housed households (IHHs) (about 106,600 units); and

(d)   miscellaneous factors (about 36,700 units), including housing demand generated from increase in "households with mobile residents only", non-local students and non-local buyers.

Figure 2-2   Housing Supply Target (2016/17 - 2025/26) under LTHS
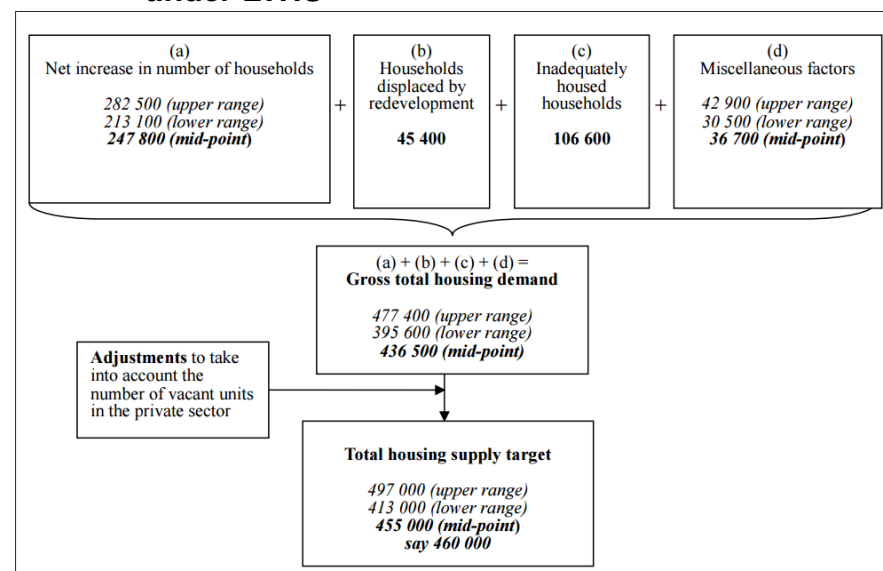
Source: LTHS Annual Progress Report 2015.

2.4   For the next 20 years up to 2046, we generally derive ballpark estimates taking into consideration the same set of components of LTHS, with the exception of IHHs because the housing needs of existing IHHs estimated at the beginning of the projection period (i.e. 2016/17) should have been covered in the demand projection for the first ten years, while any additional demand from newly formed households (including IHHs) generated

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[8]   Including about 7,400 public housing units and about 38,000 private housing units.

after the first ten years would be reflected in the projected increase in number of households.

2.5 The estimates for each components for the next 20 years are as below –

(a) **_Component on growth in number of households_** - according to the Census and Statistics Department (C&SD)'s 2014-based domestic household projection[9], the net increase in domestic households from 2026 to 2046 is about **183,400**;

(b) **_Component on households displaced by redevelopment_** - while there is no long term public housing redevelopment programme that covers the period up to 2046, the redevelopment of public rental housing (PRH) would be considered on estate-by-estate basis and based on various factors[10]. As advised by THB, the housing demand generated from households to be

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[9] The projection was published as feature article "Hong Kong Domestic Household Projections up to 2049" included in Hong Kong Monthly Digest of Statistics (October 2016).

[10] Including structural conditions of buildings, cost-effectiveness of repair works, availability of suitable rehousing resources and build-back potential.

displaced by public housing redevelopment for the period from 2026 to 2046 should be assumed to double of the 7,400 units adopted in LTHS for the first ten years, i.e. **14,800**.

As for private housing, the building ageing problem is expected to intensify in the coming decades due to the building boom in the 1970-80s. Assuming no demolition from now on, a total of 326,000 private housing units would be aged 70 or above by 2046, which is nearly 300 times of the building stock of the same age in 2016, i.e. about 1,100 units only (**Table 2-1**).

**Table 2-1   No. of Private Housing Units Aged 70 or Above under Assumption of No Demolition**

	No. of Private Housing Units Aged 70 or Above (under assumption of no demolition)
By 2016	1,100
By 2026	11,000
By 2035	171,000
By 2046	326,000

The majority of the old residential buildings are concentrated in the densely developed urban districts, in particular Yau Tsim Mong, Kowloon City and Sham Shui Po (**Figure 2-3**). Assuming no demolition in the coming 30 years, there would be an accumulation of more than 160,000 old housing units aged 70 or above by 2046 in these three districts, accounting for about 50% of the overall stock of the same age cohort in the territory.

Figure 2-3   Distribution of Private Housing Units Aged 70 or Above under Assumption of No Demolition
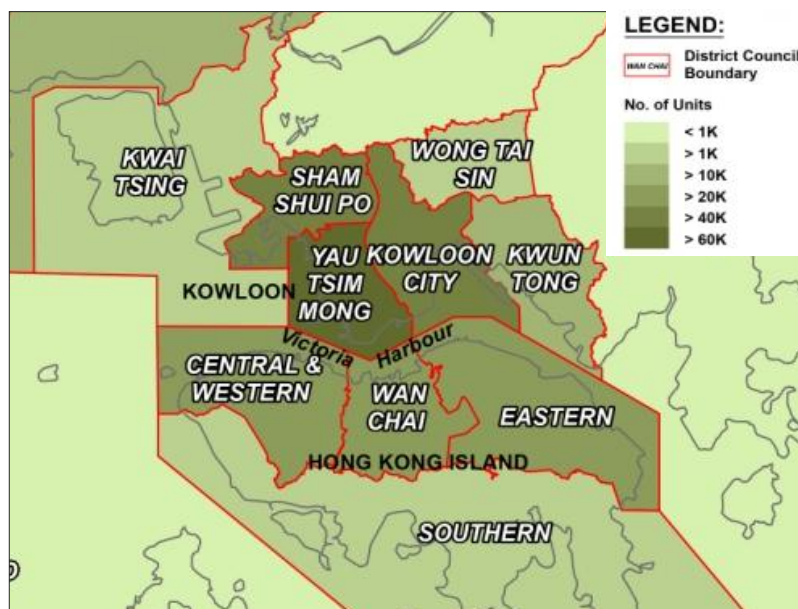
In the light of the above, signification redevelopment need is envisaged while the displaced households are expected to generate housing requirement, which would be sizeable in view of the growing need for building redevelopment in the coming decades. Based on the demolition rates of private housing stock by age cohorts over the past five years from 2010 to 2014[11] and applying nearly the same set of rates to the future private building stock[12], the total housing demand to be generated from households to be displaced by such redevelopment for the 20-year period from 2026 to 2046 is estimated to be <u>258,000</u>.

(c) *Component on housing demand generated by "households with mobile residents only", non-local students and non-local buyers* - given the difficulties in estimating the long term trend of this component, it is assumed that the estimate of 36,700 units for the first ten years under LTHS will continue in the next 20 years, i.e. **73,400**.

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[11] The annual average number of demolished private housing units for the five-year period from 2010 to 2014 is about 1,900 units.

[12] The adopted demolition rates range from 0.2% to 2.2%, representing the percentage of demolition units out of the total number of units in each building age cohort.

2.6 Adding up the estimates in the above three components and following the LTHS methodology by applying 5% vacancy rate for private housing (equivalent to an adjustment factor of 1.02 reflecting 40% share of private housing), the total housing demand for the 20-year period from 2026 to 2046 amounts to **about 540,000 units**. Hence, the total housing demand for 2016-2046 is estimated to be **about 1 million units** with about 460,000 (46%) for the first ten years and about 540,000 (54%) for the next 20 years.

2.7 For assessment purpose, the public and private housing ratio is assumed to maintain at 60:40 as that adopted in LTHS. Hence, about 600,000 and 400,000 units of public and private housing units would be required respectively from 2016 to 2046.

Step 2 - Housing Land Requirement

Basic Requirement

2.8 Housing land requirement refers to the land required (in terms of area in hectares) to provide the required number of estimated housing units. The projection is based on the findings of housing unit demand in Step 1,

taking into account the following factors and assumptions -

(a) ***Assumed adjusted private housing mix*** - considering the latest class distribution of private housing units, an adjusted mix for new private housing is assumed as shown in **Table 2-2** below.

Table 2-2 Assumed Adjusted Private Housing Mix

Class*	Assumed Average Flat Size(in GFA)	Existing Proportion in 2015	Assumed Adjusted Proportion
A	$45m^2$	31%	25%
B	$60m^2$	49%	10%
	$75m^2$		30%
	$80m^2$		20%
C	$120m^2$	12%	12%
D	$160m^2$	6%	2.5%
E	$220m^2$	2%	0.5%

* According to the Rating and Valuation Department, domestic flat size can be divided into the following five classes based on saleable area:
(a) Class A – less than $40m^2$;
(b) Class B – $40m^2$ to $69.9m^2$;
(c) Class C – $70m^2$ to $99.9m^2$;
(d) Class D – $100m^2$ to $159.9m^2$; and
(e) Class E – $160m^2$ or above

Under the adjusted mix, Class A would still constitute a modest proportion (25%) to cater for smaller households (1-2 persons) including households with elderly only. Class B would take up the greatest proportion (60%) to meet the majority of housing demand. Class C would remain at 12%, while the proportions of remaining Classes D and E would reduce from 8% to 3% in total.

(b) ***Assumed average flat size of new completion*** – the Rating and Valuation Department's statistics indicate a 6% growth of average flat size of private housing units in the past 32 years (1984-2015) from about 67m^2 to about 71m^2 in GFA[13]. As such, it is reasonable to assume that such 6% trend growth will prevail in the new private housing in the future 30 years (2016-2046). Hence, the ultimate average flat size of the new private housing is assumed to be 75m^2, which is higher than the assumed the average private flat size of 72m^2 for the committed/planned developments in NDAs and TCNTE.

For public housing, the Hong Kong Housing Authority (HKHA) will continue to adopt the current practice of using an average flat size of 50m^2 GFA for long term public housing development (including PRH and subsidised sale flats).

(c) ***Assumed development intensity*** – making reference to the proposed plot ratios of committed/planning developments in NDAs and TCNTE as well as the building density guidelines specified in the Hong Kong Planning Standards and Guidelines, appropriate plots ratios for different residential density zones are assumed and adopted as the basis of land requirement estimation.

2.9 Based on the above, it is derived that a total of **about 1,670 ha** of housing land, including about 560 ha for public housing and 1,110 ha for private housing, would be required to meet the new housing demand for 1 million units for the 30-year period from 2016 to 2046.

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[13] Converted from saleable area by a factor of 0.8.

Housing Land Supply Assessment

2.10 On the supply side, the housing land supply is mainly composed of known and committed development projects including Fanling North, Kwu Tung North and Hung Shui Kiu NDAs, TCNTE, Kai Tak Development, Kam Tin South, Yuen Long South, Anderson Road Quarry, ex-Lamma Quarry, ex-Cha Kwo Ling Kaolin Mine, Diamond Hill "Comprehensive Development Area" site etc, and the assumed built-back from redevelopment of existing residential buildings.

2.11 The total housing land supply is roughly estimated to be about 1,440 ha.

Overview of Supply and Demand Assessment on Housing Land

2.12 Based on the projected demand of 1,670 ha and a projected supply of 1,440 ha, the estimated housing land shortfall is estimated to be **230 ha** by 2046.

Key Issues on Assessment of Housing Land Requirement

Redevelopment

2.13 For the redevelopment of private residential buildings, the estimated demolition of 258,000 units in the 20-year period from 2026 to 2046 means an average demolition of about 12,900 units per year. This may be an aggressive assumption as compared with the average demolition of just 1,900 units per year in the period from 2010 to 2014.

2.14 On the other hand, there is no long term redevelopment programme for the aged PRH estates. As mentioned above, pursuant to HKHA's prevailing policy, the redevelopment of PRH estates will only be considered on an estate-by-estate and selective basis. For the redevelopment of Home Ownership Scheme estates and Tenant Purchase Scheme flats, the same problems in the case of private housing are expected to be encountered.

2.15 In view of the huge volume of ageing building stock vis-à-vis the current modest scale of urban redevelopment. Another consideration is that most of

the ageing buildings may be physically unfit for incorporating "universal design" to cope with the anticipated trend of ageing population in Hong Kong. In parallel, innovative initiatives and measures are required to boost building management and maintenance with a view to extending the life span of buildings.

2.16 In order to cater for redevelopment in such a large scale, sufficient decanting sites need to be available for displacement of the affected households. Opportunities should also be seized to enhance the living environment of the old urban areas in the course of redevelopment. Future redevelopment projects remained are usually complicated and difficult ones (e.g. larger in scale, with involvement of large numbers of households and owners, and some reaching or exceeding the development parameters permissible nowadays). As a result, the decanting and displacement processes for such projects would inevitably take longer time (say a decade or more). Besides, some residential buildings may eventually be switched to non-residential uses upon redevelopment. Hence, in the long term, the built-back ratio from redevelopment of private residential buildings is

assumed to be lower than the existing level (i.e. the number of residential units upon redevelopment is lower than the existing level).

2.17 Given the above, it is considered necessary to have more in-depth study of the redevelopment issue, taking into account our rapidly ageing building stock, the old urban fabric and the living environment of the densely developed urban areas, and to derive appropriate measures to address the problems in a timely manner.

Home space enhancement

2.18 The above housing land requirement assessment has not taken into account any home space enhancement, despite the general community's aspiration for improving living quality, the policy objective of retaining/attracting talents and attracting the second generation of Hong Kong emigrants under the Population Policy and the need to incorporate age-friendly planning approach into flat design. From land use planning perspective, any inclusion of home space enhancement would imply additional housing

land requirement assuming the development intensity remains the same.

3 LAND REQUIREMENTS FOR GIC, OPEN SPACE AND TRANSPORT FACILITIES

3.1 Apart from providing land to sustain economic growth and meet housing need, land for GIC, open space, transport facilities, as well as public utility installations are required to support our population and the city's operation.

Major Special Facilities

3.2 Individual policy bureaux may have specific policy measures in support of various special facilities which in general are not directly tied to population level according to the Hong Kong Planning Standards and Guidelines (HKPSG). Some of such measures will have land requirement implications. B/Ds' inputs on estimated long term requirements in this regard are summarised in **Table 3-1** with an estimated total requirement of **1,448 ha of land (plus some requirements specified in GFA or net operational floor area (NOFA))**. Less all the committed and planned/under advance planning projects with a total land supply of about 1,020 ha (plus those specified in GFA and NOFA), a total shortfall of **about 428 ha of land (plus about 612,600m² GFA and about 24,510m² NOFA)** is estimated in the long term.

Table 3-1 Summary of Findings of Supply and Demand Assessment on Major Special Facilities

	Estimated New Land Requirement	Potential Land Supply in Committed/ Planned/ under Advance Planning Projects	Long Term Shortfall
Special GIC Uses			
Government uses*	> 100 ha	Around 310 ha	Around 87 ha
Educational facilities	> 35 ha		
Medical facilities	< 5 ha		
Recreation & leisure facilities	> 250 ha		
Agricultural Uses			
Agricultural park	80 ha	Land already reserved	-
Open Space			
Regional open space, etc.	> 55 ha	Land already reserved	-
Transport-related Facilities			
Railway maintenance depot	> 15 ha	-	Around 17.0 ha
Other Uses and Installations			
Landfill extension	> 310 ha	Land already reserved	-
Port extension and related facilities	> 45 ha		-
Telecommunications-	> 15 ha		-

related facilities			
Construction and demolition materials handling facilities	Around 30 ha	Around 190 ha	Around 193 ha
Waste management and handling facilities	> 40 ha		
Sewage treatment works	> 130 ha		
Desalination plant/water treatment works/other water-related facilities	> 40 ha		
Stormwater storage tank/flood lakes/river channels	> 55 ha		
Columbaria	> 75 ha		
Quarries and rock processing facilities	Around 90 ha	-	Around 131 ha
LPG/oil/town gas/natural gas facilities	> 35 ha		
Driving school	Around 4 ha		
TOTAL	**Around 1448 ha**	**Around 1,020 ha**	**Around 428 ha**

* Mainly including correctional institutions, reservoirs/service reservoirs, depots/workshops/storage areas for various departments, police facilities, court facilities, and vehicle examination and driving testing centres.

<u>Note</u>
The following facilities with B/Ds' returns specified in floor area are not listed out in the table:
(i)   shortfall facilities specified in GFA, including a total of 612,600m^2 for bus depots, court facilities, post-secondary colleges and public library facilities; and
(ii) shortfall facilities specified in NOFA, including a total of 24,510m^2 for

public library and other facilities.

Population-related Facilities

3.3   Population-related facilities in this context generally refer those GIC, open spaces and transport facilities[14] having population-based requirements under HKPSG.   A broad brush approach using land/person ratios is adopted to estimate the land requirements for a projected increase of about 0.98 million population from 2014 to 2043[15].   **Table 3-2** shows that the total land requirement would be **about 1,078 ha**, comprising about 343 ha for GIC facilities, about 245 ha for open spaces and about 490 ha for transport facilities.   Less all the committed and planned/under advance planning projects with a total land supply of about 852 ha, a shortfall of **about 226 ha** is estimated in the long term.

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[14] Including road/railway and related facilities such as public transport interchange, but excluding public carparks.
[15] Based on Hong Kong Population Projections 2015-2064 (2015 Edition) published by C&SD in September 2015, Hong Kong population is projected to increase by about 0.98 million from 7.24 million in 2014 to the peak of 8.22 million in 2043.

Table 3-2   Summary of Findings of Supply and Demand Assessment on Population-related Facilities

	Assumed Land/Person Ratio (m²/person)	Estimated New Land Requirement	Land Supply in Committed/ Planned/under Advance Planning Projects	Long Term Shortfall
GIC Facilities	3.5[1]	343 ha		
Open Space	2.5[2]	245 ha	852 ha	226 ha
Transport Facilities	5.0[3]	490 ha		
Total	*-*	*1,078 ha*	*852 ha*	*226 ha*

(1) The assumed ratio for GIC facilities has made reference to the existing/planned provisions for the Sha Tin New Town and Kwu Tung North NDA. The latter is selected because it is a proposed to be developed as a 'Mixed Developed Node' with a mix of residential, commercial, research and development, agricultural as well as retail and services, community and government facilities, and land for natural and ecological conservation which demonstrate a balanced development mix. The ratios identified for Sha Tin and Kwu Tung North are about 2.2m²/person and 3.5m²/person respectively. To allow some flexibility and buffers, the ratio of 3.5m²/person is adopted, noting the Kwu Tung North is a recently planned sizable NDA and hence a better reflection of the latest standards and guidelines.

(2) Under HKPSG, the provision of open space is 1m²/person each for Local Open Space (LO) and District Open Space (DO), i.e. a total of 2 m²/person. In order to increase open space for better living space, a ratio of 2.5m²/person is proposed to be adopted. For further information on considerations for public open space, please refer to

Topical Paper "Planning and Urban Design for a Liveable High-Density City".

(3) The ratio for transport facilities is worked out by adopting the same approach as the GIC ratio explained in (1) above. The ratios identified for Sha Tin New Town and Kwu Tung North NDA are about 5.5m²/person and 4.5m²/person respectively. An average of 5.0m²/person is adopted.

Outstanding Shortfalls

3.4 Apart from the future requirements, B/Ds advised that there are some outstanding shortfalls of GIC and other facilities to meet the existing needs, amounting to **about 66 ha of land (plus about 4,321m² GFA and 26,060m² NOFA)**. Major ones include recreational and leisure, medical, sewerage and water-related facilities, as well as electricity substations.

Overview Supply and Demand Assessment on GIC, Open Space and Transport Facilities

3.5 Based on the long term land shortfalls of about 428 ha for the major special facilities, about 226 ha for the population-related facilities, and about 66 ha of outstanding shortfalls, it can be derived that the overall long term land shortfall for GIC, open space and transport facilities would be **around 720 ha**.

Key Issues on Assessment of Land Requirements for GIC, Open Space and Transport Facilities

3.6 ***Ballpark estimates instead of precise projections*** – noting that it is always difficult to provide precise forecasts in long-range projections, the projected figures should only be taken as ballpark estimates for the purpose of strategic planning rather than precise forecasts.   As such, the territorial development strategy to be formulated needs to be robust and flexible to allow for adjustments to respond to a high level of uncertainty.

3.7 ***Long term requirements not available for some facilities*** - land requirements for some facilities over such as long horizon (i.e. beyond 2030) such as universities are not available.   Besides, the long term land requirements for port-related facilities are subject to market change to be reviewed regularly by Port Cargo Forecast Study.

3.8 ***Long term land requirements for some facilities to be ascertained by studies*** - the land requirements for certain facilities could only be confirmed at a later stage pending studies. For instance, some waste treatment and

transfer facilities are being examined by the Environmental Protection Department, while multi-storey public car parks are subject to a parking policy review to be commenced by THB/Transport Department.

4 CONCLUSION

4.1 As a ballpark estimate, the total new land requirement from now to long term would be around 4,800 ha (**Table 4-1**). The estimated supply (i.e. committed and planned/under advance planning sites) could provide about 3,600 ha of land. In other words, about 1,200 ha of additional land are still required to meet the forecasted requirement.

4.2 Noting that the uses/facilities covered in the assessments are not exhaustive, the above estimate should only be considered as a minimum requirement with no contingency added. Apart from identifying new supply to meet the shortfalls, we should at individual project level strive to minimise the land take for GIC and transportation uses/facilities, particularly those land extensive environmental infrastructure and utility installations. Possible measures that could be proactively explored include:

(a) leveraging on technological advancement for smart use of land, such as –

(i) exploring more rock cavern and underground space developments to release surface areas; and

(ii) exploring innovative means to remove technical and infrastructural constraints (e.g. declassifying some Potentially Hazardous Installations with reduction in risk and overcoming geotechnical constraints); and

(b) optimisation of the use of our precious land resources, such as –

(i) upzoning/rezoning suitable sites or converting reserved sites with no development plan/the original plan no longer pursued to other uses;

(ii) increasing development intensity taking into account infrastructure capacity and urban design considerations;

(iii) adopting vertical city development by relocation land inefficient uses, such as brownfield operations to multi-storey buildings where practicable; and

(iv) taking forward NDAs and new town extension through comprehensive planning and infrastructure upgrading; and

(c) promotion of co-location of facilities to optimise synergy in land use and reduce footprint.

4.3 The above smart utilisation and optimisation of land resources however mainly concern increasing supply of individual sites. This could not substitute larger scale development to be planned in a comprehensive manner, not to mention the formation of a new CBD or development of new industrial estate/science park. Also, the large scale of redevelopment in the coming decades would become difficult to implement unless some sizable decanting sites are available to cater for the affected residents as well as their GIC needs.

4.4 In the light of the above, it would be necessary to identify new strategic growth areas of considerable scale to meet our outstanding land requirements in long term. From strategic planning perspective, a reasonable buffer should better be included in these new strategic growth areas so that the buffer could be translated into manoeuvring spaces, if necessary, for facilitating home space enhancement and/or coping with unforeseeable circumstances including changes in the projection assumptions.

Table 4-1 Summary of Land Supply and Demand Assessment

	Estimated Additional Land Requirement	Land Supply	Shortfall
Economic Uses	**458 ha**	**202 ha**	**256 ha (say 300 ha)**
Market-driven[a]:	**201 ha**	**121 ha**	**80 ha**
CBD Grade A Offices	27 ha	18 ha	9 ha
Industries	37 ha	-17 ha	54 ha
Special Industries	137 ha	120 ha	17 ha
Others:	**257ha**	**81 ha**	**176 ha**
Industrial	248ha	81ha	167ha
Commercial facilities	9 ha	-	9 ha
Housing	**1,670 ha**	**1,440 ha**	**230 ha (say 200 ha)**
GIC, Open Space and Transportation Facilities[b]	**2,592 ha**	**1,872 ha**	**720 ha (say 700 ha)**
Major special facilities	1,448 ha	1,020 ha	428 ha
Population-related facilities[c]	1,078 ha	852 ha	226 ha
Outstanding shortfalls	66 ha	-	66 ha
Total	**4,720 ha (say 4,800 ha)**	**3,514 ha (say 3,600 ha)**	**1,206 ha (say 1,200 ha)**

(a) Not including Non-CBD Grade A Offices and General Business which are estimated to have surplus land supply from short to long term.
(b) The figures have not included any allowance/buffer.
(c) Arising from projected projection increase of 0.98 million from 7.24 million in 2014 to the peak of 8.22 million by 2043.
(d) The total outstanding land requirement should be more than 1,200 ha, noting that the above calculation has not yet taken into account those requirements specified in floor area.

1,200+ ha[d]

Total outstanding land requirement